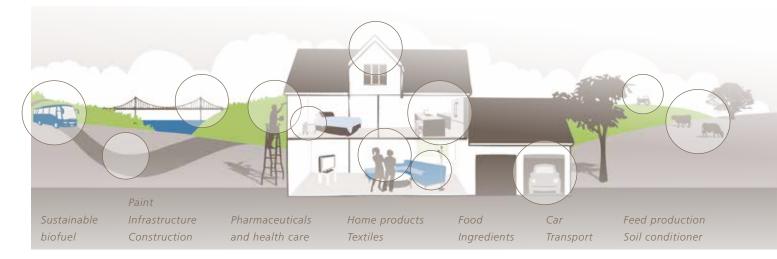






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BORREGAARD'S PRODUCTS MEET LONG-TERM GLOBAL CHALLENGES SUCH AS CLIMATE CHANGE AND POPULATION GROWTH (SEE PAGE 5)



RESPONSIBLE BUSINESS¹

Borregaard's main objective is to provide sustainable solutions based on renewable raw materials and unique competence. Sustainability is therefore a core element in our business model and overall goals. The Board of Directors emphasises that sustainability is an integral part of operating and developing the company.

The 2015 Paris Agreement and the UN 2030 Agenda for Sustainable Development have established an enhanced transparency framework for action and greenhouse gas (GHG) mitigation. This provides a fundamental platform to drive ambitious action forward in order to combat climate change. Borregaard's core business is well aligned with these initiatives. The demand for green alternatives to petrochemical products is expected to increase. This puts Borregaard in a favourable position. In this document, Borregaard has outlined the Group's contribution towards achieving the UN 2030 agenda.

GLOBAL CHALLENGES AND SUSTAINABLE SOLUTIONS

Borregaard's objective is to develop and deliver sustainable solutions based on using natural raw materials and unique competence. These innovative solutions can play an important role in addressing the world's biggest sustainable development challenges by driving transformative change. Borregaard will, as a company, take climate action and demonstrate how its business can help to advance sustainable development by minimising negative and maximising positive environmental impacts. The UNDP-UNRISD Report 2017 gives a clear illustration of the world's most urgent challenges, such as growing population and climate change², which are highly relevant for Borregaard's products.

The report predicts population growth by 2030³ of 12%, creating extraordinary demand for food and employment. To keep up with population growth, low carbon solutions for infrastructure, housing and food production need to increase. Borregaard's products can play an important role in meeting these challenges.

An important and urgent challenge facing the world today is climate change⁴. The Paris Agreement and the UN Climate Panel set specific measures and initiatives to guide sustaina-

The consolidated figures in this Corporate and Sustainability Report does not include figures from the joint venture in South Africa. The site in Sarpsborg represents approximately three-quarters of the Group's activities, (revenues and employees) and has the biggest challenges in terms of EHS, climate and community issues. See Note 6 to the Consolidated Financial Statements.

¹ Borregaard ASA is subject to the reporting requirements of the Norwegian Accounting Act, Section 3-3c with regard to Corporate Social Responsibility. This requires Borregaard to account for "what the company is doing to integrate consideration of human rights, labour rights and social issues, the environment and anti-corruption in their business strategies, in daily operations and relationships with its stakeholders."

² United Nations. Dugarova, Esuna & Gulasan, Nergis. (2017). Global Trends: Challenges and Opportunities in the Implementation of the Sustainable Development Goals.
³ United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, Key Findings and Advance Tables Working Paper No. ESA/P/WP/248, page 1.

^{*} IPCC, 2013: Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

bility in areas such as access to raw materials, energy, food and infrastructure. These initiatives give Borregaard a broader platform for the continuous development of innovative solutions and are expected to drive demand for more sustainable products.

Borregaard is working towards reducing the company's emissions, which are in line with the Norwegian Climate Act and the IPCC Representative Concentration Pathway (RCP) 2.6⁵. The Group's overall GHG emission target includes both direct emission, indirect emissions from energy consumption (Scope 2) and indirect emissions from the value chain (Scope 3).The target is to reduce GHG emissions by 43% within 2030 and 72% in 2050⁶, compared with the selected basis year 2009. The Climate Act promotes the implementation of Norway's climate targets as part of a transition to a low-emission society in Norway in 2050.

BORREGAARD'S CONTRIBUTION TO THE UN 2030 AGENDA

Based on the global challenges the world is facing and Borregaard's sustainable solutions, the Group has prioritised six of the seventeen Sustainable Development Goals (SDG) set by the UN 2030 Agenda for Sustainable Development. These six SDGs are zero hunger (#2), economic growth (#8), innovation (#9), responsible production (#12), climate change (#13) and life on land (#15). In these areas, Borregaard can have an impact through its unique biorefinery concept and its products.

These six SDGs are closely linked to Borregaard's core business and are aligned with the business strategy. They will be used as a framework to guide, communicate and report the company's vision, strategy, goals and activities in the future. Going forward, Borregaard will continue to identify future



business opportunities related to specific SDGs by looking at the world's most important challenges.

Specific targets and KPIs are presented throughout the report under each topic. The complete overview of how Borregaard is contributing to all the seventeen SDGs can be found from page 26.

ORGANISATION AND RESPONSIBILITIES

Borregaard has a number of guidelines and reporting procedures in order to execute its corporate responsibility. The main documents are approved by the Board of Directors, who also set the overall goals for the areas included in this report.

Guidelines7:

- General Guidelines for the Environment, Health, Safety and Climate
- Human Rights Policy
- Anti-Corruption Manual
- Corporate Responsibility
- Code of Conduct
- Corporate Governance Principles
- Responsible Sourcing Policy
- Competition Law Compliance Manual

The Group Executive Management has the overall responsibility to follow up the company's initiatives, measurements and results. The daily execution is a line management responsibility in Borregaard. This means that corporate responsibility forms an integral part of the activities of the subsidiaries, various management teams, units and departments.

SUSTAINABILITY BOARD

In 2017, a Sustainability Board was established in Borregaard. The Sustainability Board will address and follow up on important topics and initiate processes aimed at developing policies, actions and goals within the areas covered in this report. The Sustainability Board is chaired by the SVP Organisation and Public Affairs. The Sustainability Board reports to the President and CEO.

RISK MANAGEMENT

Identifying and managing risks and opportunities are an integral part of the Group's business processes. Borregaard has established a risk assessment and management system. Each member of the Group Executive Management is responsible for internal control and risk assessment within their respective areas. The risk assessment is presented to the Board for annual review.

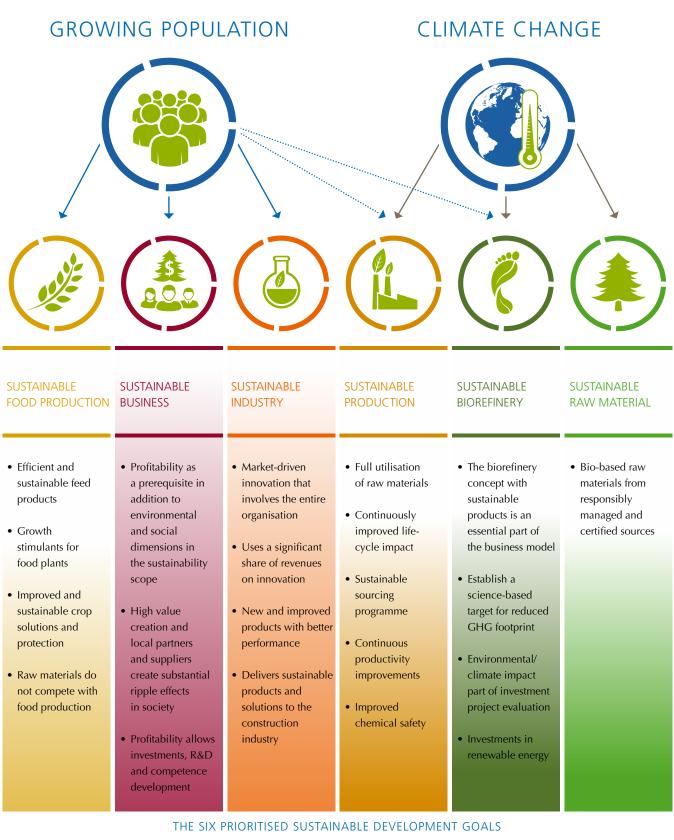
The stakeholders' perspective is taken into consideration when assessing and managing risks with potential environmental, social and economic impacts throughout the value chain.

7 To be found at https://www.borregaard.com/Sustainability/Corporate-responsibility/Policies

⁵ van Vuuren, D.P., Emodns, J., Kainuma, M. et al. Climatic Change (2011) 109:5. https://doi.org/10.1007/s10584-011-0148-z

⁶ The Norwegian Ministry of Climate and Environment (2016-2017). Prop. 77 L (Law on Climate targets).

BORREGAARD'S CONTRIBUTION TO THE SDGS



2 ZERO HUNGER **DECENT WORK AND** 8





RESPONSIBLE Consumption And Production





STAKEHOLDER AND MATERIALITY ANALYSIS

Borregaard executes its corporate responsibility by developing and running its operations profitably in a manner that conforms with fundamental ethical values and respect for individuals, the environment and society as a whole. This approach also involves maintaining a dialogue with the Group's key stakeholders and taking them into consideration when running the business and making decisions.

Maintaining good contact with the Group's various stakeholders is vital for creating trust in Borregaard and an understanding of the role the company plays in local communities and society at large.

The Group has conducted a Stakeholder and Materiality Analysis based on Borregaard's sustainability strategy. This analysis focuses on the economic, social and environmental impacts of Borregaard's operations with the greatest effect on stakeholders assessments and decisions.

The stakeholder groups considered to be the most important for Borregaard are:

- Investors
- Employees
- The government
- Customers (including potential customers)
- Suppliers
- The local community
- Business partners

These have therefore been emphasised most strongly in our analysis of the interests and concerns of our stakeholders.

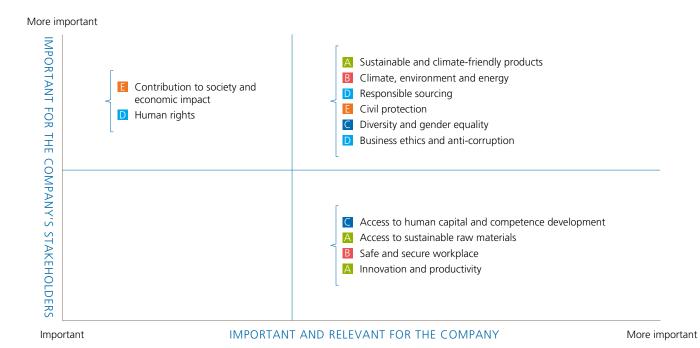
The focus areas identified as most important are described in the Borregaard Sustainability Report, Chapters A to E, and reflect the company's five main areas:

- A sustainable business model
- Climate, environment, health and safety
- Employee and competence development
- Suppliers and business partners
- Contribution to society

Every Borregaard unit has to consider issues relevant to the relationship between the company and the wider community, facilitate good dialogue and ensure that complaints and other enquiries from external stakeholders are handled efficiently. Borregaard units must also assess the need to implement improvement projects in areas where specific challenges exist.

By extracting information from the Stakeholder and Materiality Analysis, Borregaard has linked its strategy and the most important topics with the six SDGs, providing clear measurable targets aligned with the UN 2030 agenda, see illustration below.

The Stakeholder and Materiality Analysis illustration indicates the degree of importance for our stakeholders and what is important and relevant to Borregaard.



The coloured boxes above refer to the main areas described in the report.

MAIN AREAS

Corporate responsibility is a broad concept that covers many areas. Based on the Stakeholder and Materiality Analysis, Borregaard has defined five main areas:



SUSTAINABLE BUSINESS MODEL



According to Borregaard's fundamental understanding of sustainability and corporate responsibility, the business model itself and the company's products are sustainable and meet global needs. In the years ahead, the world will face numerous challenges associated with population growth and urbanisation. Borregaard's wood-based products are alternatives to petrochemical-based products. The wood is purchased from sustainable sources and the production processes are continuously improved to reduce carbon footprint and general environmental impact. Innovation is important for continuous improvement of the process emissions and product performance.

SUSTAINABLE RAW MATERIALS

Borregaard's biorefinery uses raw materials which meet environmental and sustainability criteria. The Group attaches great importance to purchasing wood from forests managed in a sustainable and eco-friendly manner. Borregaard's manufacturing units outside Norway receive mainly lignin raw material from adjacent pulp mills. All the lignin raw material suppliers purchase wood from Forest Stewardship Council (FSC) certified sources. This is explained

BORREGAARD'S BUSINESS MODEL

- Renewable raw materials
- High raw material utilisation
- Environmentally friendly substitutes for petrochemicals

in more detail in part D. Borregaard has also developed the patented BALI concept as a long-term option for additional lignin raw material supply, allowing the extraction of lignin-based products from various biomasses, including agricultural waste. This new technology has not yet been put into commercial operation, but represents an alternative for the future.

CLEANTECH

Cleantech is an industry term used to describe products or services that improve operational performance, productivity or efficiency while reducing costs, inputs, energy consumption, waste or environmental pollution. Borregaard is thus a good example of Cleantech. The Group's bio-based products perform well from a climate perspective when compared with petrochemical alternatives. Borregaard has made efforts to reduce GHG emissions in its own processes, including elimination of heavy oil as a source of energy and increasing the share of energy from more eco-friendly sources.

LIFE CYCLE ANALYSIS

Borregaard has engaged an independent third party, Østfold

Research, to conduct a life cycle analysis (LCA) in accordance with the ISO 14044/48 standard. This involves analysing all environmental and resource-related impacts of Borregaard's products from cradle to factory gate. The study was first carried out in 2008 and has since been updated several times, most recently in 2015. This analysis confirms that the environmental and climate footprint of Borregaard's products has decreased over time.

In 2016, the environmental performance of Borregaard's products relative to competing products was studied by Østfold Research. All comparisons encompass a number of environmental impact categories. Borregaard's products showed better environmental performance than the alternatives in almost all impact categories. The results should be seen as an indication of the potential environmental benefits that can be achieved by substituting the alternatives with Borregaard's products.

RESEARCH AND DEVELOPMENT (R&D)

Innovation, research and development acitivites are important for renewing and strengthening operations and are also necessary to maintain the company's financial and environmental sustainability.

Borregaard's research and innovation efforts in 2017 amounted to NOK 200 million (250 million)⁸, or 4.3% of the company's revenues. Depreciation and costs related to the operation of the Exilva production plant have been deducted from innovation costs in 2017, as the plant is now in regular operations.

Borregaard has an R&D team of 95 employees, including 34 PhDs. Research is primarily carried out at the Group's corporate research centre in Norway, which at year-end 2017 had 69 employees from eight countries. R&D activities are also conducted in Spain, South Africa, India and USA. Part of the research work is carried out in partnership with customers, universities and research institutions. In 2017, Borregaard recognised NOK 85 million (66 million) in the form of public funding for ongoing research projects, mainly from the EU Horizon 2020⁹ programme, the Research Council of Norway and Innovation Norway. In addition, Borregaard has received other grants from both the Norwegian Government and the European Union.

KEY INITIATIVES AND RESULTS IN 2017

Borregaard's sustainability profile has been strengthened during 2017 by reductions in most types of emissions and by further development of new biorefinery products. In 2016, Borregaard finalised an investment in a facility for the production of Exilva microfibrillar cellulose at the site in Sarpsborg. The facility produces sustainable biomaterials that can replace non-renewable alternatives for industrial applications. Borregaard has a large-scale pilot plant in Wisconsin, USA for the production of SenseFi, a cellulosebased advanced texture system for food products. This project is still in a demonstration phase and a decision on commercial operations is expected to be taken during 2018. These projects, using speciality cellulose as raw material, represent a further development of the biorefinery concept.

During 2017, Borregaard initiated an upgrade of the bioethanol plant and a facility to capture and store biogas. This was completed in early 2018. As a result, there will be sufficient capacity to deliver the whole bioethanol production as 100% water-free grade. This market is growing, mainly driven by increased demand for bioethanol in automotive fuel. The bioethanol plant upgrade will also lead to a significant reduction of the specific use of energy in the production process.

Innovation plays an important role in ensuring sustainability, and Borregaard measures its innovation effort as the percentage of sales coming from new products launched during the previous five years. In 2017, Borregaard's innovation rate was 13% (17%). The average innovation rate for the last five years was 15% (14%).

KEY TARGETS 2017	RESULT	COMMENT
Continued development of the biorefinery concept	Yes	Investments to increase specialisation in Specialty Cellulose and Bioethanol. Decisions to improve specialisation and productivity in the lignin operations in Sarpsborg
An innovation rate of 15%	13%	Average innovation rate the last 5 years is 15%
Further improvement of sustainability in an LCA perspective	In process	Decisions to invest in solutions with lower emissions for heat energy production in Sarpsborg

KEY TARGETS 2018

Continued development of new bio-based products Increased production capacity for bio-based products An innovation rate of 15% Further improvement of sustainability in an LCA perspective

DID YOU KNOW THAT...

adding BorreGRO products to fertilisers improves efficiency, increases plants' resistance to stress and enhances crop quality and yield?

⁸ Figures in parentheses are for the corresponding period in the previous year.

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<sup>9</sup> This project has received funding from the Bio-Based Industries Joint Undertaking (BBI) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 709746.
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B CLIMATE, ENVIRONMENT, HEALTH AND SAFETY

Climate, environment, health and safety (EHS issues) are integral parts of Borregaard's business model and sustainability strategy. The Group makes active efforts in this area by adopting measures that can contribute to sound environmental and resource management. Borregaard's aspirations and recommendations concerning climate and EHS are set out in a separate policy document (see list on page 4). The overall climate and EHS policy was updated in 2017, to emphasise Borregaard's ambitions in this area.

Borregaard has dedicated support functions for environment, health and safety and risk management. The stakeholder analysis is reviewed on a regular basis as an important input for the risk assessment process. Risk management covers every aspect of Borregaard's activities, including self-assessments on environment, health and safety. The Board of Directors conducts a review of the Group's risk picture at least once a year.

Borregaard monitors EHS parameters in a monthly KPI report and an extended quarterly report. EHS issues and parameters are reported to the Board monthly and in every Board meeting.

In the Sustainability Board, ambitions and performance measures regarding climate and EHS are discussed and addressed to ensure a common practice for the Borregaard Group.

CLIMATE CHANGE – GREENHOUSE GAS EMISSIONS Climate risk and opportunities

A vital part of Borregaard's business is the use of renewable raw materials to produce climate-friendly products that can replace products from fossil raw materials. Wood based products from sustainably managed forests are regarded as a part of the climate solution¹⁰. With regard to Greenhouse Gas (GHG) emissions from a life cycle perspective, Borregaard's bio-based products are more climate-friendly than petrochemical alternatives. The major contribution is therefore to further develop the business model to produce new and advanced renewable and climate-friendly biochemicals and biomaterials to meet future demand for such products. In addition,

DID YOU KNOW THAT...

Borregaard's lignin products, when used in corn production, increase yield by 10% and improve CO₂ footprint by 260 kg CO₂ per hectare? Borregaard has goals and planned actions to improve its carbon footprint in production and throughout the whole value chain.

Borregaard considers potential effects of climate change, such as precipitation extremes and droughts, to represent a relatively low operational risk. Milder winters may increase the cost of harvesting and transportation of wood in the Nordic region. To mitigate the risk, Borregaard sources wood from various areas and the Group has well established solutions for transporting wood by road, rail and sea, in addition to having more flexible storage of wood.

CO₂ is the only GHG emitted from Borregaard's operations, and energy production is the main source. Risk exposure to changes in climate regulations like the EU Emission Trading System (EU-ETS) has been replaced by a climate and energy strategy where use of renewable energy sources have increased and energy consumption in production has been reduced. During the past decade, the Sarpsborg site has replaced the use of heavy fuel oil with more climate and eco-friendly energy sources. In this period, the Borregaard Group has reduced its direct CO₂ emissions by 50%. Due to this, Borregaard will have an excess of free allowances until 2020. The EU-ETS in the 2020-2030 period will give fewer free allowances and it is likely that the carbon cost will increase. Given Borregaard's favourable position in the use of renewable energy, as well as identified measures for long-term CO₂ reduction, the risk of a significant increase in CO₂ cost is considered to be low.

Energy consumption and GHG emissions

Borregaard's direct emissions of CO_2 primarily come from fossil fuel used for heat energy production. 92% of the direct CO_2 emissions come from Borregaard's site in Sarpsborg, 6% from the German facility and the remaining 2% from the production facilities in USA, Spain, Czech Republic and UK. Borregaard's sites in Sarpsborg and Germany hold the ISO 50001 certificate for energy management system. 98% of the Borregaard Group's total energy consumption is covered by a certified management system.

The Sarpsborg site meets its base-load needs for heat energy through incineration of waste, bio-based energy sources and recovery of heat from production. In 2013, use of heavy fuel oil in peak load steam production stopped, as Borregaard commissioned a new multi-fuel boiler which primarily uses liquefied natural gas (LNG). LNG has 25% less CO₂ emissions than heavy fuel oil. The peak load steam production is now based on a combination of LNG, light fuel oil and electricity. The CO₂ emissions from energy production will therefore

vary from year to year depending on the energy sources used, production volumes and energy conservation measures. Borregaard in Germany uses LNG for heating, and emphasises optimisation of energy used.

In 2017, Borregaard finalised a three-year energy efficiency programme that resulted in reduced energy consumption at the site in Sarpsborg. This programme reduced the annual energy consumption by more than 60 GWh by better utilisation of the surplus energy from heating and energy recovery from waste. The programme received financial support from Enova¹¹, representing 42% (NOK 46 million) of the total investment of NOK 107 million. The most important projects in 2017 were installation of a high temperature heat pump and new heat exchangers in the pulp digester facility.

The graph below shows the reduction in specific heat energy due to the energy efficiency programmes at the site in Sarpsborg, measured as energy consumption per tonne¹² of cellulose produced.

At Borregaard's Fine Chemicals facilities, an energy efficiency programme is being conducted during the period 2016-2018, in which three out of four projects are supported by Enova. The main objectives are to increase heat recovery by using better heat exchanger configuration and to utilise heat pumps. The savings in 2017 constitute 18 GWh/year compared to 2015 and further savings are expected in 2018.

Borregaard has invested NOK 63 million in a project which includes an upgrade of the bioethanol plant and a facility to capture and store biogas, and thus increase the internal use of renewable energy. This upgrade includes installing modern production technology which will reduce the specific use of energy in this plant by 67%. The biogas project shows promising results from increased use of biogas that replaces propane, equivalent to 45 GWh/year. The project, finalised in Q1 2018, has been awarded a grant of NOK 18.9 million from Enova.

Borregaard delivers surplus heat from low temperature water to the district heating system in Sarpsborg municipality. In 2017, 9.7 GWh was delivered and the ambition is to increase the supply of heat in 2018.

Results 2017

The table below shows the energy consumption and direct CO, emissions from Borregaard.

ENERGY CONSUMPTION BORREGAARD GROUP

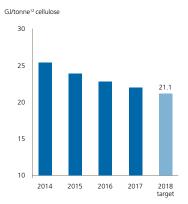
	2017	2016
Total energy consumption	1,612 GWh	1,618 GWh
Energy for heating	1,093 GWh	1,093 GWh
Specific electricity	519 GWh	525 GWh

Despite a 3.4% higher production volume of cellulose at the production site in Sarpsborg, the energy for heating did not increase due to the energy efficiency programmes. The carbon intensity in the energy decreased by 5% to 106 kg CO_2 /MWh (112 CO_2 /MWh) in 2017. Carbon intensity has been reduced over the last 15 years, due to the shift to renewable energy sources.

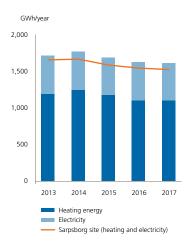
Initiatives in 2018

Borregaard's bio-boiler converts residuals from production to steam. Waste oil is used as supplementary fuel, which leads to NOx and CO_2 emissions. During 2018, the bio-boiler will be rebuilt and waste oil will be replaced with LNG, which is

SPECIFIC HEAT ENERGY CONSUMPTION SARPSBORG SITE



ENERGY CONSUMPTION BORREGAARD GROUP



¹¹ A Norwegian government agency which promotes environmentally friendly restructuring of energy end-use, renewable energy production and new energy and climate technology. ¹² Metric tonne air dry. **DID YOU KNOW THAT...** by replacing phenol with lignin products in phenolic resins, the CO_2 emissions can be reduced by over 50%?

considerably more eco-friendly. In addition, Borregaard has two spray dryers using propane as energy source. In 2019, the propane will be replaced by a combination of LNG and biogas from Borregaard's waste water treatment plant.

These measures are estimated to reduce annual CO_2 emissions by 14,500 mt and carbon intensity to 100 kg CO_2 /MWh. The project is estimated to cost NOK 78 million and will be supported by the Norwegian Business Sector's NOx Fund with up to NOK 25.9 million. Completion is scheduled for the second half of 2018.

Transportation and GHG emissions

Borregaard strives for effective and zero emission logistics solutions for raw materials to the plants and outbound transportation of products to customers. This involves a continuous drive for challenging traditional setups, where overcoming infrastructure and capacity constraints are key. Having production units for lignin on three continents reduces the overall need of transportations of raw materials and finished products over large distances.

In 2017, Borregaard has initiated a study of possibilities and options for future zero emission transport solutions between Borregaard and the Port of Borg.

In 2015, Borregaard committed itself to a green shift in goods transportation by signing the Zero Emission Resource Organisation (ZERO) declaration of a green shift in heavy-duty vehicle traffic. In contracts with suppliers of transport services, environmentally friendly transportation with minimum Euro 5 emission standard is required. For 2017, 98% of Borregaard's inbound transports were carried out with vehicles of Euro 5 or higher. For 2018, this will be monitored for both inbound and outbound road transport for Borregaard in Sarpsborg, with an overall target of 100% compliance.

Sea transport and combined solutions will increasingly be an integral part of Borregaard's environmentally friendly logistics solutions. In 2017, Borregaard continued its efforts towards reducing road transportation by increasing sea transportation as a further initiative from the EU funding programme Marco Polo in 2012-2016. Borregaard expects to surpass 50,000 mt within Europe in 2018.

In recent decades, rail transport in general has had a declining impact on shaping European transport networks. For Borregaard's inbound flow of logs, rail is vital with 152,000 mt (18.5%) transported in 2017. In 2018, the target is to transport 23.5% by rail, which will lead to a reduction in GHG emissions of 5,700 mt.

In 2017, Borregaard's operations in Sarpsborg transported around 50% of its goods by sea, 35% by road and 15% by rail.

Borregaard has increased its fleet of electric vehicles for internal/local transportation and installed 17 charging stations at the Sarpsborg site. Additional charging stations to further reduce CO_2 emissions from commuting employees' cars will be installed.

Reporting of GHG emissions and targets

Borregaard reports CO_2 emissions to the CDP (formerly Carbon Disclosure Project). The CDP is an international, not-for-profit organisation providing a global system to measure, disclose, manage and share vital environmental information. The CDP climate change programme aims to reduce companies' GHG emissions and mitigate climate change risk.

Emissions are calculated according to the Greenhouse Gas Protocol¹³ and EU-ETS, and are shown in the table below.

CO₂ EMISSIONS BORREGAARD GROUP

	201714	2016
Scope 1 (GHG Protocol)	128,414 CO ₂ e*, mt/year	134,176 CO ₂ e, mt/year
Scope 2 location based (GHG Protocol)	58,213 CO2e*, mt/year	60,785 CO ₂ e, mt/year
Scope 3 (GHG Protocol)**	191,560 CO ₂ e*, mt/year	191,560 CO ₂ e, mt/year
Total Direct CO ₂ emission EU-ETS	114,262 CO ₂ e*, mt/year	121,639 CO ₂ e, mt/year

* Equivalent.

** Estimated in 2016.

The reported Scope 1 emissions are the total direct emissions from energy heating purposes, process emissions and internal transportation.

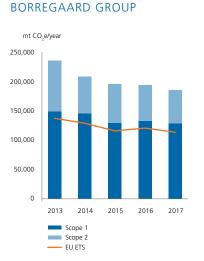
Scope 2 emissions are CO_2 from the production of electricity and the steam sourced from a third party. Due to the large proportion of hydropower in Norway, the origin of electric energy is 98% renewable.

Scope 3 emissions are estimated emissions from upstream and downstream activities. Østfold Research has estimated

¹⁴ Will be verified by Cemasys in July 2018.

Borregaard's Scope 3 data, based on the data obtained in the LCA analysis conducted in 2015. The biorefinery products have no CO_2 emissions in their use and end-life since they are made from wood. Emissions from purchased goods and services account for more than 50% of the Scope 3 emissions. The joint venture in South Africa is reported in the investment category in Scope 3.

GHG EMISSIONS



Borregaard joined the Science Based Targets Initiative¹⁵ in 2017 and signed a pledge to combat global warming by committing to a science-based reduction target. The initiative is a collaboration between CDP, the World Resources Institute, the World Wildlife Fund, the United Nations Global Compact and the We Mean Business Coalition commitments. The CDP assesses and approves companies' GHG targets considered as "science-based", meaning in line with the level required to keep the global temperature increase below two degrees Celsius compared with pre-industrial temperatures¹⁶.

The scenario linked to Borregaard's target¹⁷ needs a reduction in CO_2 emissions in the range of 49-72% from 2010 to 2050. However, this applies to global reductions, and the concept of fair distribution of reduced emissions is not included. Therefore, as part of the developed world, Borregaard has chosen the most ambitious target of at least 72%.

DID YOU KNOW THAT...

by replacing oil-based products with lignin based products as an additive in construction, the carbon in the lignin products is stored and taken out of the carbon cycle? Borregaard has evaluated its future emission forecast, which shows that it is possible to achieve a science-based target by further reduction of energy consumption and increased use of renewable energy. The plan was presented at Borregaard's Capital Markets Day in 2016. In 2018, Borregaard will apply for approval of the Group's target to the Science Based Targets Initiative including direct emissions (Scope 1), indirect emissions from energy use (Scope 2) and indirect emissions from the corporate value chain (Scope 3).

THE ENVIRONMENT

Environmental risks and opportunities

Borregaard's bio-based products have documented a favourable environmental footprint compared with petrochemicals or non-renewable alternatives. This position creates an opportunity in markets that value this feature. Innovations and activities that can improve the environmental footprint of products are being prioritised, including water and waste management and energy efficiency. These processes are supported by third-party certified environmental management systems. The production units with most impact and highest risk are certified by ISO 14001 Environment (see overview of certifications on page 24). The emissions generated at the different production units are also regulated by the relevant authorities.

The most significant environmental risks identified are associated with the main production site in Sarpsborg. These are the chemical oxygen demand (COD) resulting from emissions to water and local air quality with respect to sulphur dioxide (SO₂). Activities to reduce emissions are ongoing.

Water management and emissions to water

Borregaard has a sustainable water management system. The majority of water consumption and emissions are linked to Borregaard's Sarpsborg site. This facility is self-sufficient with water, due to access to the river Glomma and its own water purification facility. Water is important in the production processes for cooling, steam generation and hot water production, as well as for the washing and transportation of biomass through the production process. However, almost all water used is returned back to the river. Possible reduction of water usage is considered in investment projects, also motivated by potential gains in energy savings and increased water treatment efficiency. A high portion of the process water is treated to keep chlor organic compounds (AOX) and COD within the emission permit. The reduction rate for biological oxygen demand (BOD) in the anaerobic treatment plant is 98%.

The EU's Best Available Techniques (BAT) Reference Documents (BREF), which include BAT Conclusions with associated limits for effluents and emissions to air, apply to the production facility in Sarpsborg.

¹⁵ Partnership between CDP, UN Global Compact, WRI and WWF.

¹⁶ The Intergovernmental Panel on Climate Change (IPCC AR5), the Fifth Assessment Report.

¹⁷ IPCC Representative Concentration Pathway 2.6.

In 2016, Borregaard submitted an assessment of the environmental technology in use at the site in Sarpsborg, according to the recently updated BREF standards for the industry, to the Norwegian Environment Agency. This assessment served as input to the process of revising the emission permit, effective from 1 January 2019.

The present permit level for emissions of COD is 69 mt per day and is expected to be reduced to 59 mt per day from 2019 to be compliant with BAT levels for emissions to water for Borregaard.

Borregaard and the Norwegian Institute for Water Research (NIVA) monitor the river Glomma according to requirements and standards in the EU Water Framework Directive. The monitoring programme shows that the emissions of easily degradable organic (COD) matter from Borregaard have caused a proliferation of bacteria covering river bed sediments close to the plant. As a result, the ecological status varies between bad and poor, which has consequences for the wild salmon stock in the river. NIVA concludes that the chemical status, according to the Water Framework Directive, is good and that emissions from Borregaard overall have a minor influence on the chemical status.

In partnership with two other companies, Borregaard has built and financed a salmon cultivation facility on its premises. From 2017, Borregaard covered the majority of the operational costs for the facility. Investigations conducted by NIVA in 2015 and 2016 showed that there was a substantial rise in the number of salmon fry in the river compared with 2014 and 2013. 24% of the salmon fry came from the cultivation facility at Borregaard, which shows that the natural cultivation of salmon in the river is increasing. In 2016, NIVA recommended prolonging the salmon cultivation as the natural cultivation still needs some assistance from the salmon cultivation facility.

The long-term target of the water framework directive is to reach good ecological status in the river Glomma by 2027. Borregaard has identified both short-term and long-term targets to reduce COD emissions. The first step is to comply with the new permit from 2019. The second part involves R&D activities to find new sustainable water purification solutions and technological improvements that will have a positive impact on the emissions of organic material to water.

The quantity of water used at Borregaard's facilities for lignin production outside Norway is relatively modest, and the water is sourced from public waterworks or adjoining industrial areas.

Results 2017

In 2017, there were no exceedances of emissions permits to water in the Borregaard Group. The figures in the table below only reflect emissions in Sarpsborg, since the Group's other operations do not have any significant emissions to water.

WATER USAGES AND EMISSIONS BORREGAARD SARPSBORG

	2017	2016
Water usage	23.9 mill m ³	23.2 mill m ³
COD	66 mt/day	63 mt/day
AOX pr mt cellulose	0.70 kg/mt	0.68 kg/mt
Copper	9.4 kg/day	11.5 kg/day
Fibre	3.3 mt/day	4.0 mt/day

Emissions of COD increased from 2016 to 2017 due to operations without wood seasoning silos after a fire in 2015. To rectify this, compensatory measures were put in place. The decrease in emissions of copper is due to improved operation, and a reduction in fibre is a result of a new fibre filter in the bleaching plant.

Initiatives in 2018

A COD plan to comply with an expected new permit for COD, 59 mt/day from 2019.

Emissions to air

Borregaard's emissions to air, SO₂, nitrogen oxides (NOx) and dust particles, influence local air conditions and derive from the combustion of fuel, drying processes and from the use of SO₂ in the production processes (Sarpsborg).

The authorities have strict limits for SO_2 concentration in the air. Sarpsborg municipality measures local air quality in terms of SO_2 content. These generally show a reduction in concentration of SO_2 measured in the local environment, compared with previous years, although isolated incidents at Borregaard can lead to short-term elevation of values. In 2017, six hourly exceedances (eight) but zero daily exceedances (two) of the SO_2 level in the air around Borregaard's plant were registered. Borregaard has a programme for reduction of SO_2 emissions which has reduced the emissions by more than 80% during the last ten years. Borregaard and Sarpsborg municipality have an on-going dialogue about the progress in the programme and how the corrective and preventative activities regarding exceedances are implemented. The goal is zero exceedances.

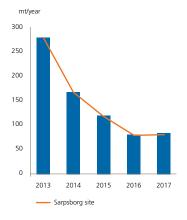
Combustion of fuel for heat energy gives NOx emissions. These emissions have been reduced by about 50% in the last 10 years due to substitution of heavy oil with more eco-friendly alternatives.

Spray drying of lignin products gives some emissions of NOx (from fuel) and dust particles (lignin). Borregaard in Germany has a renewed operating permit for the spray-drying process with stricter limits for dust particles. To meet the new requirements, Borregaard has implemented several actions including a rebuild of the spray driers.

Results 2017

The table below shows the results of emissions to air.

SO₂ EMISSIONS BORREGAARD GROUP



NOX EMISSIONS BORREGAARD GROUP



EMISSIONS TO AIR BORREGAARD GROUP

	2017	2016
SO ₂	84 mt	79 mt
NOx	167 mt	189 mt
Dust particles	67 mt	50 mt

In 2017, the emissions of SO_2 increased slightly due to unfavourable operations in the bleaching plant at Borregaard in Sarpsborg and resumed production at LignoTech Ibérica. The increase in dust emissions is driven by increased production of lignin in powder form at LignoTech USA.

Initiatives in 2018

An on-going programme to map different sources of SO_2 in the bleaching plant will lead to further emission reductions. The introduction of LNG instead of waste oil as supplementary fuel in the bio-boiler and the installation of NOx purification technology will reduce NOx emissions by up to 100 mt (60%) annually at the Sarpsborg site by the end of 2018.

Waste management and recovery

Borregaard practices waste sorting as part of the waste management system covered by the ISO14001 certificate.

At the site in Sarpsborg, 98% of waste was sorted and processed by certified waste operators in 2017. The Sarpsborg plant has waste plans for both the industrial plant and the company's port. Total waste was 18,360 mt in 2017 (19,861 mt), while the quantity of hazardous waste was 3,316 mt (3,105 mt). The energy and material recovery rate of the waste is high, 71% in 2017.

Soil pollution

The Opsund landfill, a waste disposal site on the premises in Sarpsborg, was discontinued in 2009. In 2014, a plan for permanent closure of the landfill by the end of 2019 was submitted to the Norwegian Environment Agency. The plan was approved in March 2015, and the closure project is progressing and will finish by the planned end date.

From 1949 to 1997, Borregaard used mercury-based technology for chlor-alkali production at the site in Sarpsborg. This process led to pollution of the soil in the area surrounding the plant. In 1994, a ground water barrier was built and a water monitoring programme was established. In 2015, an increased level of mercury was detected. Borregaard has undertaken measures to improve the ground water barriers in order to prevent mercury leakage from discontinued operations. During 2016, the Norwegian Environment Agency agreed to planned actions and Borregaard made a provision in the financial statements according to estimated costs. The concentration of mercury in ground water wells and in the sewerage systems has decreased due to these actions. A plan for cleaning and deposition of polluted soil areas downstream of the ground water barrier will be submitted for approval in 2018. Borregaard reports progress to the Norwegian Environment Agency quarterly.

Due to the Industry Emission Directive (IED), Borregaard Sarpsborg is obliged to submit a baseline report on the state of soil and ground water. Borregaard has conducted several investigations over the last 30 years and has a good overview of the historical activities at the site. In addition, some polluted areas are monitored. Borregaard has divided the industry site into five areas, and will finish the mapping of the first area in 2018. The report will be sent for approval to the Norwegian Environment Agency.

SAFETY

Safety at Borregaard covers both personal safety and process safety. Borregaard's ambition is to promote a safety culture

DID YOU KNOW THAT

by replacing diesel or gasolin with bioethanol from Borregaard, the CO₂ emissions linked to the transport are reduced by over 85%? involving actions and systems that will lead to zero harmful incidents and zero injuries to employees or third parties as a result of our activities. Safety is integrated into every aspect of Borregaard's operations, with the safety first principle as a general rule.

In the risk assessment process, the risk of incidents such as fires, explosions and unwanted releases of hazardous materials are identified and actions are implemented to mitigate the risks.

The root cause of all safety incidents is investigated and corrective and preventative actions are identified and implemented. This also provides valuable input for the risk assessment process and documents lessons learned.

Personal safety

The overall goal is to have zero injuries. Some of Borregaard's production units have maintained a level of zero lost time injuries for several years.

Management commitment and engagement with employees to eliminate unsafe conditions and acts have been a priority for several years. Borregaard has a worldwide safety programme called Zero Harm. Important measures aimed at achieving fewer injuries include: basic EHS training to strengthen the safety culture, focusing on personal responsibility for one's own safety, clearly defining safety management, reviewing rules for and the practical use of protective equipment, and observing rules on order and tidiness in the workplace.

In 2017, the Zero Harm programme continued with Safety Leadership Team guidance and third party auditing to ensure compliance. In recent years, Borregaard has worked hard to reduce the number of injuries and the seriousness of these incidents. The main cause of injuries has historically been exposure to chemicals, but years of systematic work on reducing chemical exposure through training and safety management are starting to show results.

Process and public safety

High levels of safety that minimise risk and communication that creates confidence among people living and working near the production facilities are important results of the risk assessment work in Borregaard.

In 2017, one of the spray driers at Borregaard in Germany was upgraded by the installation of explosion panels and a decoupling system. The dryer was also mechanically strengthened and reinsulated.

Borregaard continuously assesses safety conditions in relation to the local community outside the company. This applies in particular to Borregaard's Sarpsborg facility, which is regulated by an EU directive¹⁸ to prevent major accidents. In collaboration with independent expertise, Borregaard has conducted extensive risk assessments in accordance with guidelines from the Norwegian Directorate for Civil Protection (DSB). Based on this, DSB has proposed a zone requiring special consideration around Borregaard's site in Sarpsborg. Borregaard expects that the municipal land-use plan and the long-term development of the surrounding area will be harmonised with the recommendations in the EU Directive. Sometimes risk can be removed by technical, organisational or business measures. Borregaard's elimination of chlorine gas risk through a technology change in the chlor-alkali plant in 2012 is an example of this.

Borregaard handles SO_2 at its plant in Sarpsborg. Risk analysis shows that a major SO_2 incident could have fatal consequences for a third party. SO_2 is an important and irreplaceable raw material in Borregaard's production processes, which means that there will be an inherent risk associated with SO_2 also in the future. In 2015, Borregaard invested in emergency tanks in the digester plant to reduce the potential impact of an SO_2 incident. A major risk is the storage and use of liquid SO_2 . During 2017, Borregaard has investigated solutions to reduce risk related to the storage of liquid SO_2 which will be evaluated in 2018.

Chemical safety

Borregaard has procedures to ensure that all new chemicals subject to labelling due to potential risk are assessed for possible substitution before they are introduced in the production processes. The existing portfolio of chemicals is subject to periodical assessment for possible substitution. The risk for hazardous conditions and unexpected exposure due to use of chemicals is considered as low.

Results 2017

The key safety results in 2017 compared with 2016 are shown in the table below.

KEY SAFETY RESULTS BORREGAARD GROUP

	2017	2016
Number of fatal accidents	0	0
LTI (number of lost time injuries per million hours worked)	1.1	1.6
TRI (number of total recordable injuries per million hours worked)	8.8	7.7
Number of fires	3	2
Number of potential fires	14	23

There were no fatal injuries in the Group in 2017 (zero). There were two lost-time injuries in Borregaard (three). In the most serious injury, an operator at the site in Sarpsborg was exposed to sodium hydroxide during unloading from a ship to a storage tank, resulting in 45 days of absence. At the sales office in

Shanghai, an employee suffered a fracture on her right arm while slipping.

Leading safety performance indicators for monitoring progress in safety culture show positive trends.

There were three (two) fires in 2017. The fires resulted in minimal damage and the potential for a severe fire was low. The number of potential fires decreased substantially from 2016 to 2017. Implementation of a three-year plan (2017-2019) in Sarpsborg for improving and renewing the fire detection systems and improving the standard according to the fire regulations will reduce the risk.

An updated safety report based on the revision of the EU Directive 96/82/EC was completed in 2017. The report gave an update of the overall risk for major accidents at the production site in Sarpsborg, and is the basis for prioritisation of riskreducing activities.

Initiatives in 2018

To reach the goal of zero injuries, Borregaard will continue to have a motivated and proactive safety organisation with high awareness of the responsibility to reduce risk. In 2018, work will continue on reporting, analysing root causes and implementing measures in connection with near accidents and hazardous conditions as well as frequent inspections and job observations at the plants.

Borregaard will actively continue the implementation of a modernised process safety management system. Areas with the potentially highest inherent risk in terms of EHS and profitability will be prioritised.

OCCUPATIONAL HEALTH

INJURY RATE

BORREGAARD GROUP

Borregaard aims to provide a work environment for its employees that will have a generally positive impact on their health and to provide a sound, inclusive work environment with meaningful tasks, support and feedback from colleagues and leaders.

Employee health is regularly monitored through health and working environment surveys. The working environment is generally considered to be good, and improvement efforts are continually being implemented.

Borregaard has a special focus on sick leave and has an ambitious target to further decrease sick leave. To meet this objective, preventative activities and initiatives have been introduced to reduce stressful aspects of working conditions. Employees on sick leave are closely followed up and providing appropriate work tasks or shorter working hours for a period of time are examples of temporary measures made to accommodate employees with different needs. Physical exercise, health and lifestyle counselling, vaccinations and stress awareness are other measures.

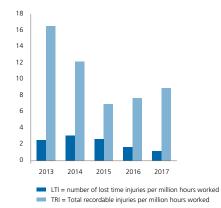
Identifying the potential for exposure to substances with negative health effects is part of the risk assessment process. Measures are taken to decrease or eliminate substances that could have negative health effects. The precautionary principle is applied as a guideline, and personal protective equipment is mandatory when there is risk of exposure.

Results 2017

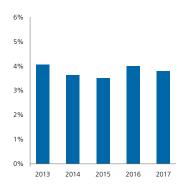
The sick leave rate¹⁹ at Borregaard decreased to 3.8% (4.0%) in 2017.

Initiatives 2018

Borregaard will continue its focus on and use of appropriate health promoting measures in close collaboration with employee representatives in 2018. The long-term target for sick leave is 3.0%.



SICK LEAVE BORREGAARD GROUP



KEY TARGETS 2017	RESULT	COMMENT
Establish a science based target for long term CO ₂ emissions (Group)	In process	Applied for approval of the target from Science Based Target Initiative
Reduce specific energy consumption by 4% (Sarpsborg)	3.5%	Some energy reduction actions postponed to 2018
COD emissions below 64 mt/day (Sarpsborg)	66 mt	Operational challenges in the wood seasoning silos delayed COD reduction
Reduce emissions and risks related to SO ₂ (Sarpsborg)	Yes	Number of SO $_2$ incidents affecting Sarpsborg municipality have decreased
TRI rate of 0 (Group)	8.8	The TRI rate increased from 7.7
Sick leave rate below 2016 level; 4.0% (Group)	3.8%	

KEY TARGETS 2018	COMMENT
CLIMATE	
Establish a science based target for long term CO ₂ emissions	Group
Reduce CO ₂ emissions to 100 kg CO ₂ /MWh of energy consumed	Sarpsborg
ENVIRONMENT	
NOx reduction Sarpsborg 40%	Run rate end 2018
COD emissions below 64 mt/day	Sarpsborg
Zero exceedances of local air quality SO ₂	Sarpsborg, average emissions pr hour
Reduce specific energy consumption by 2%	Sarpsborg
HEALTH AND SAFETY	
Sick leave below 3.8%	Group
TRI rate of 0	Group
TRANSPORT	
Increase rail transportation of logs to 23.5%	Sarpsborg
Surpass 50,000 mt by sea to Europe in 2018	Sarpsborg
All road transport by minimum Euro 5 engines	Sarpsborg

C EMPLOYEE AND COMPETENCE DEVELOPMENT

The number of man-years in the Borregaard Group was 1,065 (1,008) at the end of 2017. The turnover rate²⁰ is generally low in all units in the Group. In Sarpsborg, the turnover rate was 1.3% in 2017.

CORPORATE CULTURE

Borregaard has, over many years and through changing times, developed a strong corporate culture which helps create a common mind-set based on core values and an understanding of the business across functions, business areas and geographical boundaries. A sound corporate culture that supports Borregaard's objectives and strategies provides a vital basis for the development of the company and the employees. Borregaard's corporate culture and core values "The Borregaard Way" have been incorporated in various introductory and development programmes. In 2017, more than 500 Borregaard employees participated in workshops and training in The Borregaard Way, Code of Conduct and Whistleblowing procedures.

The corporate culture and core values include standards and objectives for sound business ethics. Borregaard has a set of guiding documents for corporate responsibility and ethical guidelines, as well as manuals and more specific guidelines for different areas, such as anti-corruption, competition legislation, responsible procurement, environment, health and safety and human rights. Borregaard's ambitions and guidelines covering corporate responsibility are integrated in the Group's introduction programmes and management training. In 2017, 143 employees participated in competition law training, including management and all sales and technical personnel.

DEVELOPING CORE COMPETENCE

Borregaard's core competence lies in the areas of sales and marketing, research and development, and production. The company's competence in these areas, and the interaction between them, is Borregaard's most important competitive advantage. Therefore, it is crucial that the company successfully maintains and further develops this unique competence base, both through recruitment and employee development. In 2017, Borregaard further developed the corporate introduction programme. The programme is a three-day event where all new employees across the Group are introduced to Borregaard's strategy, corporate governance, culture and values. Additionally, they attend courses in continuous improvement and innovation. 45 new employees from different parts of the Group attended the introduction programme in 2017.

Borregaard has set up internal training programmes in its areas of core expertise. 15% of the employees work in sales, marketing and customer service. It is important to know the various customers' needs and the value of Borregaard's products and solutions. With a view to maintaining this knowledge, Borregaard runs a product application school and an international Sales Academy for employees engaged in sales and technical service. In 2017, 109 sales and technical personnel from all over the world attended the Sales Academy.

Since Borregaard's production processes are complex and involve a high degree of integration, great importance is attached to knowledge and expertise in the areas of production and the biorefinery concept. Borregaard conducts extensive training programmes for its operators and apprentices (Norway and Germany). The Group has its own "Knowledge Plant" for training its employees. In 2017, Borregaard established its own Production Academy which is based on lean methodology with a focus on continuous improvement in all parts of the company. The target is to roll out this training to all Borregaard employees to enhance corporate culture with a view to continuous improvement.

The Borregaard Innovation Conference will take place during spring 2018. This is a forum to gain external inspiration and exchange ideas across internal research teams, facilities and business areas. Borregaard arranges this two-day research and development conference every second year.

The Group invests significant resources in management training. The objective is to recruit most managers internally by devising career development plans and having replacement candidates and management programmes that combine management training and corporate culture development. In order to help increase the number of female managers and strengthen the company's international competence, women and managers from operations outside Norway are prioritised in these programmes. Borregaard has an ambition to create an internal job market and therefore favours a high degree of job rotation and internal recruitment to fill vacancies. During 2017, there were several internal movements of employees between departments and business areas. This is an important part of strengthening cross-company knowledge, innovation and continuous improvement and also creates career opportunities. Four trainees were recruited into the trainee programme in 2017. The trainees will work in business development, continuous improvement, sustainability and finance.

RESTRUCTURING AND ORGANISATIONAL DEVELOPMENT

Borregaard strives to maintain its global competitiveness through world class innovation and productivity. Extensive training programmes, the introduction of new technology and organisational development are important elements in improvement programmes. Borregaard aims for continuous improvement programmes as proactive measures to improve its competitive position.

The plant in Sarpsborg is assuming greater responsibility for training skilled workers through targeted contact with schools, providing lessons in schools, and increasing the number of apprentices. The company has its own training centre and showroom, the "Knowledge Plant", available for this purpose.

Based on the current age composition of the workforce as well as planned commercialisation of strategic projects, Borregaard Sarpsborg will have a need for qualified employees in the years to come. To meet these challenges, Borregaard has recruitment activities and school programmes to encourage interest in an industrial career and relevant qualifications. In 2017, Borregaard enrolled 23 new apprentices in Sarpsborg, giving a total number of 45. In addition, Borregaard in Germany has five apprentices.

DIVERSITY

Borregaard wishes to enhance diversity among its employees and is committed to avoiding discrimination based on gender, ethnicity, religion or age. The Group has its own guidelines for this area. Borregaard has initiatives aimed at promoting the recruitment of female managers and employees. The company purposely has a high proportion of women in management and technical training programmes and in its recruitment base. In 2017, 25% (24%) of Borregaard's employees were women. Of the new hires in 2017, 29% were women. The lowest proportion of female employees is in production, while the proportion is high in R&D, customer service, HR and finance. Three of the company's seven board members are women (43%). A total of 29% (30%) of the managers at Borregaard are women, while the Executive Management Group includes one woman (11%). Borregaard has wage systems and guidelines that are gender neutral and contribute to equal pay for equal work.

Borregaard is a global organisation with 25 nationalities. The Group sees the variety of ethnical and cultural backgrounds as a strength and uses diversity as a resource for the organisation. The variety of nationalities also influences how training programmes are composed and manned.

WHISTLEBLOWING PROCEDURES

Borregaard wants transparency and a strong corporate culture to help ensure that difficult or undesirable situations are discussed and resolved. There may be situations where employees see or experience something that goes against the company's guidelines or expectations. Ideally, we would like such issues to be addressed in the unit or department where they take place. However, situations may arise where reports from employees about adverse situations do not reach the right person or where they feel unfairly treated and cannot find a solution to their problems. In order to handle such cases, there are established procedures and guidelines for whistleblowing, in terms of contacting various specific functions in the organisation or by using a special telephone number and email address, see #10 in Corporate Governance. In 2017, the guidelines were reintroduced in several languages and distributed world wide.

KEY TARGETS 2017	RESULT	COMMENT
Establish an internal production academy	Yes	First academy class (pilot) arranged
Increase the proportion of female employees and managers	Yes/No	Proportion of female workers increased from 24% to 25%. Proportion of female managers was reduced from 30% to 29% (number of female managers has increased by 2)
Establish internal senior leadership programme	In process	Programme developed, first class postponed to Q1-18.

KEY TARGETS 2018

Conduct senior leadership programme Conduct Production Academy at minimum two production sites Increase the proportion of female employees to 30% and female managers to 35% by 2022

D SUPPLIERS AND BUSINESS PARTNERS

BORREGAARD'S APPROACH

Borregaard works with suppliers and business partners all over the world. Some relationships are long-term and well established. The Group aims for contact and cooperation with all its suppliers and business partners to be characterised by trust, integrity and mutual respect, and for transactions and business practices to comply with laws, regulations and internationally recognised ethical standards.

Borregaard aims to identify the risk of violations of labour standards, health and safety, environmental legislation or business ethics. When such violations are discovered the Group will initiate actions to end the non-compliance. In this way, Borregaard contributes to sustainable business, reduces commercial risk and strenghtens its long-term competitiveness.

Policies and guidelines are made available throughout the Group to regulate activities and help employees cultivate good relationships and responsible business. The policies and guidelines include corporate governance, anti-corruption, trade regulations and responsible sourcing. In 2016, Borregaard carried out a corruption risk assessment to ensure that relevant measures against corruption were implemented. No high-risk corruption factors were identified.

Training

In 2017, Borregaard conducted training in anti-corruption and competition law for selected employee groups. In addition, on-the-job training has been conducted on responsible sourcing.

SUPPLIERS

The UN Global Compact principles serve as the basis for the Supplier Code of Conduct (SCoC). Irrespective of country, Borregaard's suppliers are required to comply with the SCoC or equivalent.

New suppliers

New suppliers are subject to approval in accordance with written procedures and risk assessment. The suppliers answer a questionnaire concerning quality assurance, environment, corporate social responsibility and responsible sourcing. Dependent on their answers and the risk assessment, the supplier is either qualified, not qualified or the supplier will be subject to a more detailed analysis. In addition, Borregaard also evaluate and approve the actual product or service, using a change management system to plan and document the approval process.

Supplier evaluation

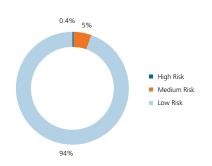
An evaluation of supplier performance is conducted annually. Recorded supplier deviations and observations, new legislation and specific areas of improvement are addressed. The evaluation is summed up in a report with an action plan and an audit plan.

In 2017, the specific focus area addressed was security of supply. 19 audits were planned and 15 were conducted. In 2018, the focus area will be EHS for suppliers conducting work at the Sarpsborg site. 14 audits are planned in 2018.

Existing suppliers

In 2016, Sedex²¹ was engaged to conduct a pre-screening of Borregaard's existing suppliers. As a result of the pre-screening, less than 0.5% of the suppliers were classified as high risk and 94% were found to be low risk.

PRELIMINARY RISK ASSESSMENT



In 2017, the high and medium risk suppliers were encouraged to register with Sedex, complete Sedex' self-assessment questionnaire and share the information with Borregaard. Based on this process, relations with three suppliers were terminated, nine suppliers were approved and, at the end of 2017, eight were still under evaluation.

In 2018, Borregaard will implement a tool for reviewing and addressing financial and compliance risk amongst its suppliers and business partners.

SUSTAINABLE RAW MATERIALS Wood

Borregaard purchases wood from forests that are managed in a sustainable and eco-friendly manner. Applicable policies, laws and regulations in countries where wood is purchased are complied with.

Borregaard purchases 1 million solid cubic metres of wood annually for the Sarpsborg site. In 2017, 76% of the wood came from Norway, 22% came from Sweden and the remaining 2% came from Germany. All wood is cut according to the country of origin's laws on felling. 92% of the purchased wood was PEFC/FSC²² certified in 2017.

Borregaard does not purchase wood which has been:

- illegally harvested
- logged in protected areas or areas currently undergoing official processes of designation for protection, unless the logging is clearly in line with national conservation regulations
- harvested in forests with High Conservation Value as defined by the Living Forest standard in Norway or by the High Conservation Value Resource Network (HCVRN)
- genetically modified (GMT/GMO)

In the transportation of wood, Borregaard aims to reduce GHG emissions by increasing payload and efficiently utilising transport capacity.

Lignin

In general, Borregaard's manufacturing units outside Norway receive lignin raw material from adjacent pulp mills. The actual supply of lignin to Borregaard may depend upon or be affected by a range of factors such as the pulp mill's profitability and general market conditions, regulatory considerations, loss or closure of pulp production, as well as a range of industry-specific factors, including the supply and cost of raw materials. All the suppliers purchase wood from FSC certified sources.

There is only a limited number of pulp producers using the sulphite pulping process necessary to produce the raw material required by Borregaard for its lignin-based products. In the past, some of Borregaard's lignin raw material sources have been closed down. In 2017, the lignin capacity in South Africa was expanded to utilise additional supply from the existing source (Sappi Saiccor). In addition, Borregaard and Rayonier Advanced Materials (RYAM) are building a new lignin plant adjacent to RYAM's pulp mill in Florida, USA.

²¹ Sedex, a collaborative platform for sharing responsible sourcing data on supply chains, used by more than 43,000 members in over 150 countries. Tens of thousands of companies use Sedex to manage their performance around labour rights, health & safety, the environment and business ethics.

²² PEFC is an international non-profit, non-governmental organisation dedicated to promote sustainable forest management. FSC is a global non-profit organisation that sets the standards for responsible management of forests, both environmentally and socially.

OTHER BUSINESS PARTNERS LIGNOTECH SOUTH AFRICA

LignoTech South Africa (LTSA) is a 50:50 joint venture between Borregaard and Sappi (for more information, see Note 6 to the Consolidated Financial Statements). The company employed 101 man-years as of 31 December 2017, including trainees. Borregaard is represented on the board of the company. LTSA produces lignin products based on raw material from Sappi Saiccor's pulp mill.

The company has its own Social and Ethics Committee tasked with monitoring social and economic development, corporate citizenship, environment, health and public safety, customer relations and labour and employment issues. The Committee is composed of members of the company's management team and chaired by an LTSA director. LTSA subscribes to the OECD guidelines with respect to anti-corruption measures. During 2017, internal and external audits of LTSA and its suppliers did not reveal any violations of the United Nations Global Compact Principles. The company has developed a comprehensive governance compliance programme to monitor legal and other compliance activities.

The company organised its annual "Safety Day", raising awareness about first response treatment in the event of injuries. In LignoTech South Africa, all new employees undergo hazard awareness training and testing, and sign a safety pledge when joining the company as preparation for being absorbed into the Zero Harm systems. The company is involved in reducing the effects of the social and financial consequences of HIV/AIDS. One important area has been to prevent discrimination based on the disease, to disseminate information about the disease and its treatment, and to carry out voluntary counselling and testing for employees. In addition, the company supports education as a priority and has supported a local school for disadvantaged children and provided donor funding to the two largest universities in Durban for disadvantaged students.

LignoTech South Africa is consciously striving to ensure that the profile of its labour force reflects the country's demographics, with a particular focus on representation in management. The company is B-BBEE (Broad-Based Black Economic Empowerment) certified, with the common goal to distribute wealth across as broad a spectrum of previously disadvantaged South African society as possible. As part of the B-BBEE engagement, LignoTech South Africa has partnered with the Hope Factory initiative to support small and medium-sized enterprises and informal businesses to grow and develop. The company continued its financial support of the Hope Factory in 2017.

LignoTech South Africa paid income taxes totalling NOK 25 million (NOK 58 million) in 2017.

Certifications in LignoTech South Africa:

- ISO 9001 (Quality Management)
- ISO 14001 (Environmental Management)
- GMP Production of Feed Additives and Premixes
- OHSAS 18001:2007 Health and Safety Management
- B-BBEE Broad-Based Black Economic Empowerment

KEY TARGETS 2017	RESULT	COMMENT
Implement additional measures based on risk assessment of suppliers	Yes	Actions taken towards high risk suppliers. Routines for monthly follow-up on KPIs implemented. Routines for maintaining the supplier base established. Requirements included in Internal Control.
Implement new anti-corruption measures based on risk assessment	Yes	Risk assessment completed, training program implemented, internal audits conducted and require- ments included in Internal Control

KEY TARGETS 2018

All new suppliers subject to approval in accordance with established policies and procedures
14 supplier audits
Implement a tool for reviewing and addressing financial and compliance risk amongst suppliers/business partners

DID YOU KNOW THAT...

when something tastes like vanilla, there is more than a 90% chance that it contains vanillin from petrochemicals (oil)?

DID YOU KNOW THAT...

by replacing a typical oil-based adjuvant with Exilva within the field of agricultural chemicals, you can obtain an over 80% improved GHG emission result?



E CONTRIBUTION TO SOCIETY

Profitable companies and sustainable jobs are a prerequisite for welfare and social security. This manifests itself through income and meaningful activity for individuals, as well as through financial contributions such as taxes and duties, which companies and their employees provide to the countries and local communities in which they operate. Those countries where Borregaard has manufacturing operations see significant ripple effects from suppliers and other activities around the plants.

As of 31 December 2017, Borregaard employed 1,065 man-years in 16 countries. The Group has production plants in Norway, UK, Germany, Spain, Czech Republic, USA and a 50/50 joint venture in South Africa.

NOK 170 MILLION IN INCOME TAX PAYMENTS

Borregaard paid income taxes totalling NOK 170 million in 2017 (NOK 90 million). The income taxes paid in Norway amounted to NOK 129 million, while income taxes paid in the rest of Europe was NOK 12 million, NOK 22 million in the Americas, NOK 4 million in Asia and NOK 3 million in Africa. Borregaard seeks to comply with the spirit as well as the letter of the tax law in countries where Borregaard has commercial activity. The company will not enter into arrangements which could be considered artificial or which have tax avoidance as their sole or main objective. Borregaard uses the OECD guidelines for internal pricing, which is an important factor in ensuring that profits and taxes are distributed fairly among different countries.

SHARED INTERESTS WITH THE LOCAL COMMUNITY

Borregaard's companies impact and interact with the communities where they are located. The Group's plants outside Norway are relatively small, while Borregaard has been a cornerstone company in Sarpsborg for generations. Borregaard plays an important role in the town and region as an employer, an important customer of many suppliers, and a socio-economic contributor through taxes and duties from its operations.

SUPPORT FOR SOCIAL DEVELOPMENT

Borregaard has many stakeholders in Sarpsborg municipality and Østfold County. The company participates in various

DID YOU KNOW THAT ...

by replacing oil-based vanillin with vanillin from wood in a chocolate, the CO_2 emissions linked to the vanillin are reduced by over 90%?

forums and organisations involved in urban and regional development, and has also provided venues for socially beneficial activities.

In 2017, the company also contributed around NOK 4 million to support measures that benefit both the company and the region, with an overall aim to strengthen the company's employer branding. Borregaard's sponsorship strategy has two main pillars. One covers cultural and sports activities that help make the town and region a more attractive place to live and work. This is important to Borregaard in terms of creating a long-term recruitment base. The other area involves measures that stimulate young people's interest in and understanding of disciplines that are important to Borregaard and society as a whole. This is illustrated by Borregaard's support for and cooperation with the Inspiria Science Centre, the Young Entrepreneurship scheme and Borregaard's Knowledge Plant.

COLLABORATION WITH EDUCATIONAL INSTITUTIONS

Borregaard works closely with schools and educational institutions in Sarpsborg. The Group has created its own academy, the Knowledge Plant, which functions as both an in-house training centre and as a showroom and venue for school visits. It offers educational programmes that tie in with schools' curricula, using examples taken from the company. In 2017, 2,134 pupils visited the centre, coming from schools that took part in educational programmes that combined technical training, career advice and a company presentation. Borregaard employees also contribute to a scheme for the teaching of chemistry in upper secondary schools in Østfold County, where researchers from Borregaard have created a companyrelated teaching plan for chemistry. Every year, students from a number of colleges and universities perform practical tasks and conduct projects or get internships at the company.

Borregaard has programmes and instructors for apprenticeship schemes involving cooperation with vocational schools in the region. These schemes provide apprentices with relevant experience to supplement their theoretical training. In 2017, Borregaard had a total of 45 apprentices at the biorefinery in Sarpsborg.

AWARDS AND RECOGNITIONS

Over the years, Borregaard has received several awards and recognitions. In 2017, the Group received HR Norway's Competence Award for strategic and focused work with competence development. The Norwegian Society of Financial Analysts also awarded Borregaard the Stockman Award for the best strategic investor communication among companies listed in Oslo.

DID YOU KNOW THAT ...

Borregaard supplies products that play a key role in developing and maintaining healthy and sustainable agricultural soils?

Borregaard conducts an annual reputation survey among the people of Østfold County to map their views on various topics, such as Borregaard as a workplace, environmental issues, contribution to the local community and people's general impression of the company. In 2017, the survey showed all-time high results on topics such as taking care of the environment as well as positive contribution to local society and development in the region. This survey confirmed yet again the company's strong position in the local communities near Borregaard's largest plant.

CERTIFICATION AND AFFILIATION

Borregaard cooperates with various external schemes that lead to tighter control and improvements, and provide inspiration for a more systematic way of working. This also applies to issues and topics relating to corporate responsibility and sustainable development and operation. The company has committed itself to the Responsible Care guidelines and objectives, which are the European chemical industry's environmental responsibility initiative.

Borregaard is certified in accordance with several standards:

- ISO 9001 (Quality Management) (Norway, USA, Germany, Spain, UK and Austria)
- ISO 14001 (Environmental Management) (Norway, Germany, Spain and Austria)
- ISO 50001 (Energy Management) (Norway and Germany)
- FSSC 22000 Management Systems for Food Safety
- GMP+ Production of Feed Additives and Premixes (Norway, Germany and Spain)
- SMETA Ethical Trading Initiative Base Code
- OHSAS 18001:2007 Health and Safety Management (Austria)
- Kosher certified (vanillin products, Norway)
- Halal certified (vanillin products, Norway)

Borregaard is a participant in the UN Global Compact initiative, thus lending support to universal principles on human rights, labour relations, the environment and anticorruption. Borregaard also reports on progress under the Global Compact scheme.





THE TEN PRINCIPLES OF THE UN GLOBAL COMPACT

Borregaard complies with the UN Global Compact's ten principles of doing business in the areas of human rights, labour, environment and anti-corruption. The ten principles are derived from the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and Principle 2: make sure that they are not complicit in human rights abuses.

Laboui

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labour;

Principle 5: the effective abolition of child labour; and Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges; Principle 8: undertake initiatives to promote greater environmental responsibility; and Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

Per A. Sørlie, President and CEO, Borregaard

END POVERTY IN ALL ITS FORMS EVERYWHERE

- Borregaard and the industry in general deliver high added value. Through the purchase of goods and services as well as tax contributions, the industry creates positive social effects in the form of direct and indirect jobs.
- Significant tax payments. In 2017, the Borregaard Group's ٠ tax payments totalled NOK 170 million.
- Jobs are the way out of poverty. Borregaard employs ٠ 1,065 man-years in 16 countries.

2 ZERO HUNGER

END HUNGER. ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

- Efficient and sustainable feed products
- Growth stimulants for food plants
- Improved and sustainable crop solutions and protection
- Raw materials do not compete with food production

GOOD HEALTH 3 AND WELL-BEING



ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

- Several Borregaard products replace more hazardous chemicals, such as solvents
- Products that contribute to fat reduction
- **Diagnostics** (fine chemicals)
- Health focus for employees

QUALITY Δ



ENSURE INCLUSIVE AND QUALITY EDUCATION FOR ALL AND PROMOTE LIFELONG LEARNING

- Prioritise training of employees many training programmes within the Group
- Collaboration with schools (education, visitor programmes, equipment)
- Supports science centre

GENDER 5



ACHIEVE GENDER EQUALITY AND **EMPOWER ALL WOMEN AND GIRLS**

- Policy on equal treatment. Active recruitment of women for all levels and positions.
- Over-representation of women in management development programmes
- In 2017, 25% of Borregaard employees were women





ENSURE ACCESS TO WATER AND SANITATION FOR ALL

- Focus on reducing water consumption
- Work on and invest in emission reductions ٠
- Products used for water purification
- Own water purification facility





ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

- Increased energy recovery from renewable sources
- Borregaard produces bioethanol for fuel and invests to further increase the proportion of fuel grade bioethanol
- Provides process heat for local district's heating system

DECENT WORK AND ECONOMIC GROWTH



PROMOTE INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, EMPLOYMENT AND **DECENT WORK FOR ALL**

- Borregaard and its suppliers deliver high added value and create ripple effects for society. Borregaard has 1,065 man-years in 16 countries.
- Significant tax payments
- Good conditions of employment and training programmes
- Over-recruitment of apprentices (more than internal needs)
- Financial sustainability secures investments, R&D and competence development

INDUSTRY, INNOVATION AND INFRASTRUCTURE



BUILD RESILIENT INFRASTRUCTURE, PROMOTE SUSTAINABLE INDUSTRIALISATION AND FOSTER INNOVATION

- Significant innovation initiatives with internal resources and projects for institutes and universities
- Sustainability is key to innovation
- Develops new sustainable bio-based industry through the innovation projects Exilva and BALI
- Produces green chemicals used in construction
- Uses a significant share of revenues on innovation



- A high degree of collective welfare benefits in the company
- High degree of mobility across the organisation opportunities for all

11 SUSTAINABLE CITIES AND COMMUNITIES



MAKE CITIES INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

- Social commitment in local areas
- Support to schools, leisure activities, social measures and urban development

CONSUMPTION



ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

- Sustainable business model with bio-based products
- Investment in renewable energy (sustainability)
- Energy strategy for increased use of green and renewable energy and energy efficiency
- Environmental investments to reduce emissions and waste
- Improved chemical safety

13 CLIMATE ACTION



TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

- The biorefinery concept is an integral part of the business model an important climate measure
- EHS/climate and energy strategy established
- GHG emissions are considered when choosing transportation
- Establish a science-based target for reduced GHG footprint
- Investments in renewable energy

CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES

- Reduced emissions to water
- Utilisation of lignin from pulp mills has led to lower emissions to sea/water
- Built and financed a salmon cultivation facility on own premises

15 UFE ON LAND



SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, HALT AND REVERSE LAND DEGRADATION, HALT BIODIVERSITY LOSS

- Sustainability criteria when purchasing wood
- Active cooperation with stakeholders in the supply chain for forests



PROMOTE JUST, PEACEFUL AND INCLUSIVE SOCIETIES

- Guidelines for ethics and corporate responsibility
- Respect for the law and active contribution to good dialogue processes with authorities

17 PARTNERSHIPS FOR THE GOALS



REVITALISE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

- Member of Global Compact and Responsible Care
- Environmental reporting: CDP, Global Compact and the company's annual report
- Represented in various environmental forums, nationally and internationally



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