

# 2019 SUSTAINABILITY REPORT

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**KORDSA**





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*We are inspired to  
reinforce life*



# ABOUT THE REPORT

(GRI 102-49)

At this sixth of our sustainability reports, which reflects Kordsa's economic, environmental and social performance in 2019, we offer our stakeholders the opportunity to evaluate our impacts resulting from our activities and to examine how we manage those impacts through our monitoring, improvement and measurement methods.

## THE SCOPE

The data in this report covers Kordsa's activities from January 1, 2019 to December 31, 2019. This year the scope of our report has changed and the data of our four new US facilities acquired in 2018 and 2019 has been included. In 2019, we started structuring the data collection processes for these newly acquired companies and included all relevant 2019 data that we could collect in this report.

In addition to determining process of the report content, we explain the limits of the important topics and the constraints in reporting on the [Strategy and Governance](#) section of this report.

## THE PRINCIPLES

This report has been prepared in accordance with the GRI Standards: Core option. In the process of identifying our strategic sustainability topics, we took into consideration GRI's principles of materiality, stakeholder inclusiveness, sustainability context and completeness, as well as the principles of UN Global Compact that we signed in 2014, and the International Finance Corporation IFC's Performance Standards on Environmental and Social Sustainability that were established to pinpoint, assess and manage social and environmental risks in project finance.

## NEXT REPORT

We will publish the seventh of our sustainability reports, which we plan to prepare every two years, in the second half of 2021.

TEXT

Click on the highlighted texts to go to the relevant page in the report or on the web.



Click to access the contents page



Click headings on the table of contents to go to the pages.

Click to move forward and backward through the pages.





# MESSAGES TO OUR STAKEHOLDERS

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**We continue to work with the aim of creating a better future in line with our vision of "We are inspired to reinforce life".**



# MESSAGE FROM OUR CHAIRMAN



**IN LIGHT OF TECHNOLOGY AND DIGITALIZATION AND THROUGH INDUSTRY 4.0 PRACTICES, WE TRANSFORM OUR SUSTAINABILITY STUDIES CARRYING OUT WITH THE PRINCIPLE TO CREATE VALUE FOR ALL OUR STAKEHOLDERS.**

## *Distinguished Stakeholders,*

We are proud to present you our sixth sustainability report including our performance and the projects that we put into practice in our sustainability roadmap.

Following our signing of the UN Global Compact in 2014, we proceeded to manage our business in a more holistic and systematic manner and shared with you our first sustainability performance report regarding Kordsa's sustainability impacts in 2015. We have been accepted in the BIST Sustainability Index where high corporate sustainability performers since 2016. We are proud to be among the sustainability leaders of our country.

In 2019, while maintaining organic growth through achievements of R&D centers and our technology investments, we also evaluated the inorganic growth opportunities globally. With our vision 'We are inspired to reinforce life', we continued to make investments which positively contribute to welfare of countries we operate in, are decisive, bold and that enhance and reinforce our company's current competencies. By making 300 million dollars investment in two years, Kordsa has become a global producer of advanced material technologies.

Our decision to grow in composites field led us to set an example and pioneering model for Turkey by establishing Composite Technologies Center of Excellence in cooperation with industry and university. Since 2016, basic research, applied research, developing products and technologies, entrepreneurship and all manufacturing processes are conducted under one roof in CTCE. Today, our Center is not only a base for an industry-university partnership, but also a "Center of Excellence" where product development and pilot implementations are done. During its inorganic growth stage in 2018, Kordsa had already extended its field of activity and competencies in aerospace sector, by acquiring Fabric Development,

Textile Products and Advanced Honeycomb Technologies that provide advanced composite materials to aerospace industry.

In 2019, by acquiring Axiom Materials that supply advanced composite materials for both aircraft engines and new generation transportation vehicles, Kordsa completed intermediate product portfolio and became the market leader of the high refractory Oxide-Oxide ceramic composite that is used in aircraft engines.

To meet the changing market dynamics in tire reinforcement technologies, we had commenced our Indonesia yarn line in early 2018 which is one of the 30 million dollars polyester yarn lines investments. With 18 million dollars of this total investment, we started to operate an additional polyester yarn line at İzmit plant in April 2019. Thanks to these investments, Kordsa reinforced its position among the largest polyester yarn producers in the world.

In light of technology and digitalization and through industry 4.0 practices, we transform our sustainability studies carrying out with the principle to create value for all our stakeholders. As a leading global technology and innovation company, while working hard to materialize the plant of the future with the help of smart production systems, we also oversee our corporate responsibilities with care by using our resources efficiently.

Thanks to continuous works of our R&D centers that serve as an innovation hub, we produce eco-friendly and innovative technologies which focus on human and environment, across all our industries. For sustainable mobility, while lowering the rolling resistance in tire reinforcement technologies, we produce reinforcement materials that reduce fuel consumption by making the vehicles lighter in composite technologies. In construction reinforcement technologies we develop innovative

products to make concrete structures more durable and long-lasting.

Encouraging from all these efforts, we will continue to create sustainable value for our customers, employees, investors and all businesses and societies in which we operate, and to spread our vision of "We are inspired to Reinforce Life" globally in the upcoming period.

I would like to express my gratitude to all our stakeholders, particularly our employees who accompany us in Kordsa's sustainable reinforcement journey for all the success we achieved.

Kind Regards,

**CEVDET ALEMDAR**  
*Chairman*



# MESSAGE FROM OUR CEO



**WITH OUR “WE ARE INSPIRED TO REINFORCE LIFE” VISION, WE LEAD IMPORTANT CHANGES IN THE AREA OF INFLUENCE WITH OUR TECHNOLOGIES THAT CREATE VALUE FOR OUR PLANET.**

## *Dear Stakeholders,*

With our game changing technology and our growth strategy in a fast-changing competitive market, we pay attention to fulfill our responsibilities towards environment while creating economic and social value for our stakeholders. Driven by our “We are inspired to reinforce life” vision, we aim to produce ‘sustainable technologies’ with each investment we make and continue to grow in all operation areas led by our sustainability perspective. Having accomplished most of our planned actions in the final year of our 2020 Sustainability Roadmap which we had developed to include our sustainability targets and actions during a five-years period since 2016, we are proud to present you our sustainability report revealing our performance in 2019.

We realize that the sustainability issues that spread over a wide spectrum including climate change in our world today are accelerating globally. Recent research clearly shows that the environmental risks such as the destruction of habitat and climate change are in direct relation with the rise of diseases and epidemics such as COVID-19. This year, most of the risks regarding global economy are defined as environmental risks associated with climate within the framework of possibilities.

All these developments continue to remind us the significance of sustainability management. During this period, our priority at Kordsa was to protect the health of our employees and maintain the continuity of our business. As a company with an established relevant management structure, our interventions in the case of necessities and adaptation to the process were quite fast.

In our 2019 report, we detailed the sustainability priorities of our key stakeholders along with our practices towards the sustainability targets and the annual performance in our sustainability focus areas. We formed the content of

the report by analyzing the expectations of our key clients in the three business lines we operate along with our employees, shareholders and investors holistically.

As a brand that aims a more sustainable living for the entire planet with its products and technologies, the research work we did in producing lighter and more durable tire reinforcements and creating composite technologies while consuming less energy and materials resulted in 28% increase in the R&D projects approved by Republic of Turkey Ministry of Industry and Technology as they totaled to 177 registered patents in 2019. The revenues we received from new products reached 60 million USD.

As a global reinforcement brand, we improve our operational performance gradually each year with the respect and responsibility we feel for the society and environment we are in, thanks to the momentum our R&D and TPM projects provide. Improving material and energy efficiency constantly in production is among our priorities. We saved 2.4 million USD by reusing one million pieces of material in 2019. We invested 840 thousand USD in the environmental impact management framework this year. Each year, we continue to present our investors and clients our CDP Climate Change report in which we raised our score by three levels and CDP Water Security report where we raised our score by one level in 2019.

With our “We are inspired to reinforce life” vision, we lead important changes in the area of influence with our technologies that create value for our planet. Together with our project partner Continental, we manage a major transformation in the global tire production industry with our new eco-friendly adhesive technology, CoKoon. In composite technologies market, we are in the process of commercializing our e-glass prepreg product which is designed to lighten the steel spring system used in heavy commercial vehicles by 80% . In the PolynSPIRE project

we conduct under Horizon 2020 program, we create sustainable solutions for efficient plastic recycling. You can find the details of these products and projects in our report.

While our planet is constantly changing, improving and renewing, at Kordsa, we will carry our work forward for a better future in 2020. With our vision of reinforcing life, we will continue to create innovative reinforcement solutions for all our key stakeholders, particularly our employees and clients and the communities we live in, through our products and technologies that reduce rolling resistance and thus fuel consumption in tire reinforcement industry; and reduce carbon emissions and fuel consumption by making the vehicles lighter in composite industry; and with our more durable and practical reinforcement products and technologies in construction industry. We will prioritize clean technology investments, preventing environmental pollution through waste management, reducing energy consumption and emissions and efficient water usage. We plan to reduce our waste and carbon emissions gradually by 50% and increase renewable energy consumption by 10% across all our premises worldwide until 2050.

I thank all our stakeholders for their contributions to our efforts to create a sustainable world.

Sincerely,

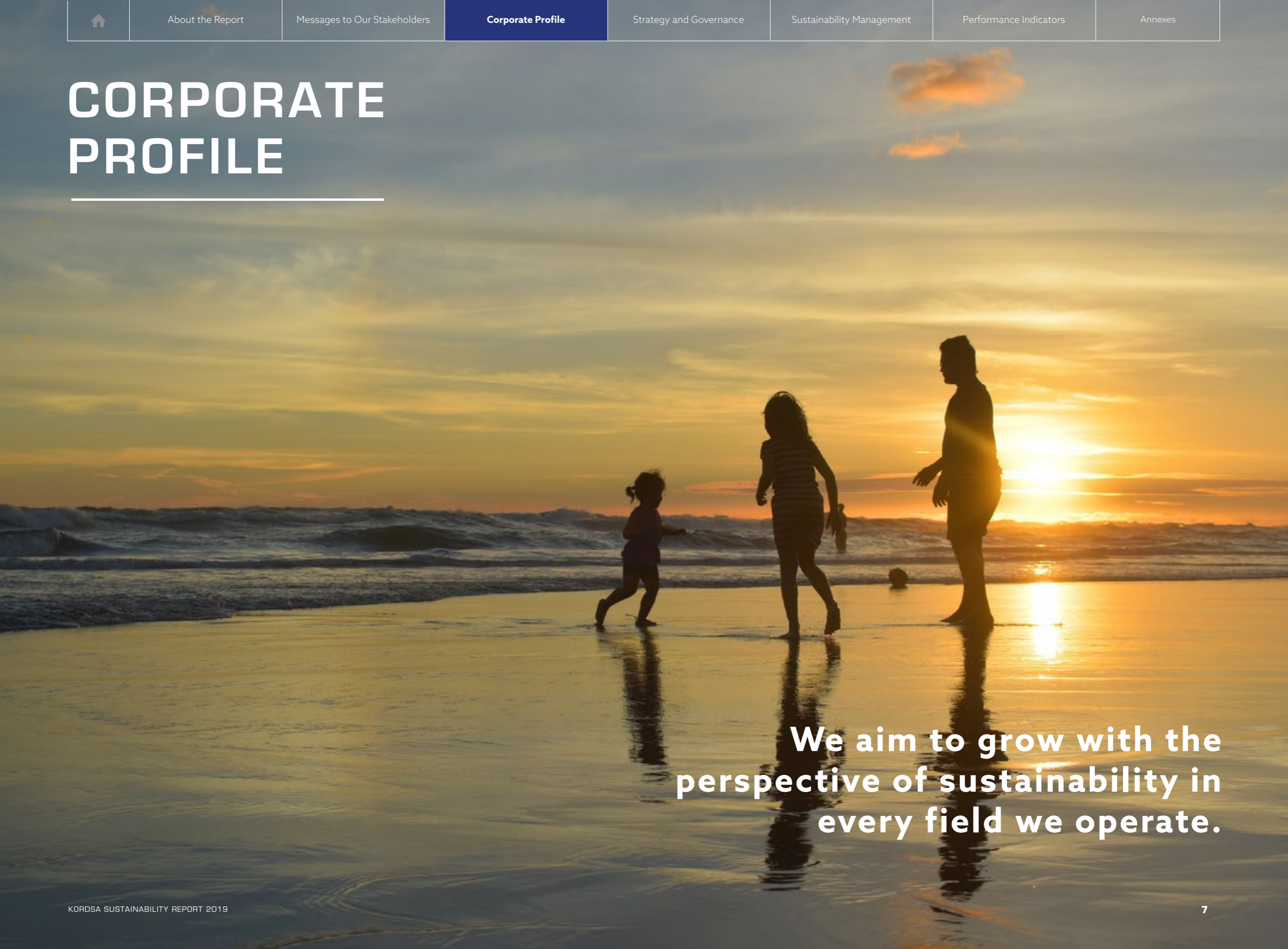
**ALİ ÇALIŞKAN**

CEO



# CORPORATE PROFILE

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**We aim to grow with the  
perspective of sustainability in  
every field we operate.**



# CORPORATE PROFILE

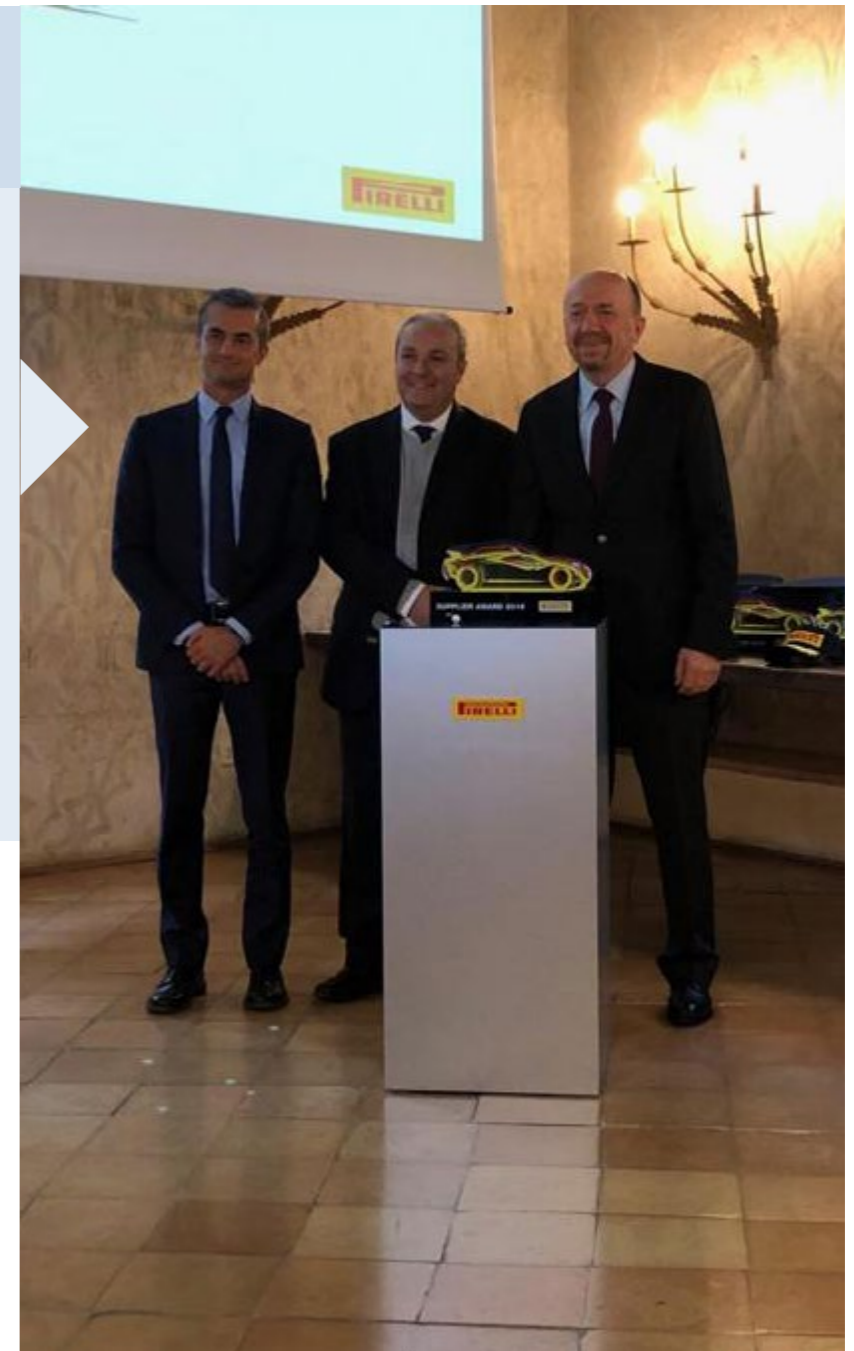
**As Kordsa, we produce reinforcement technologies for a safer, more efficient, and sustainable world. We reinforce one in every three car tires and two in every three aircraft tires manufactured in the world today.**

**We reduce fuel consumption by reducing rolling resistance of tires and helping to build lightweight vehicles thanks to our reinforcement technologies. We provide construction reinforcement technologies for sustainable building projects, which stand out with their low carbon emission and durability features.**

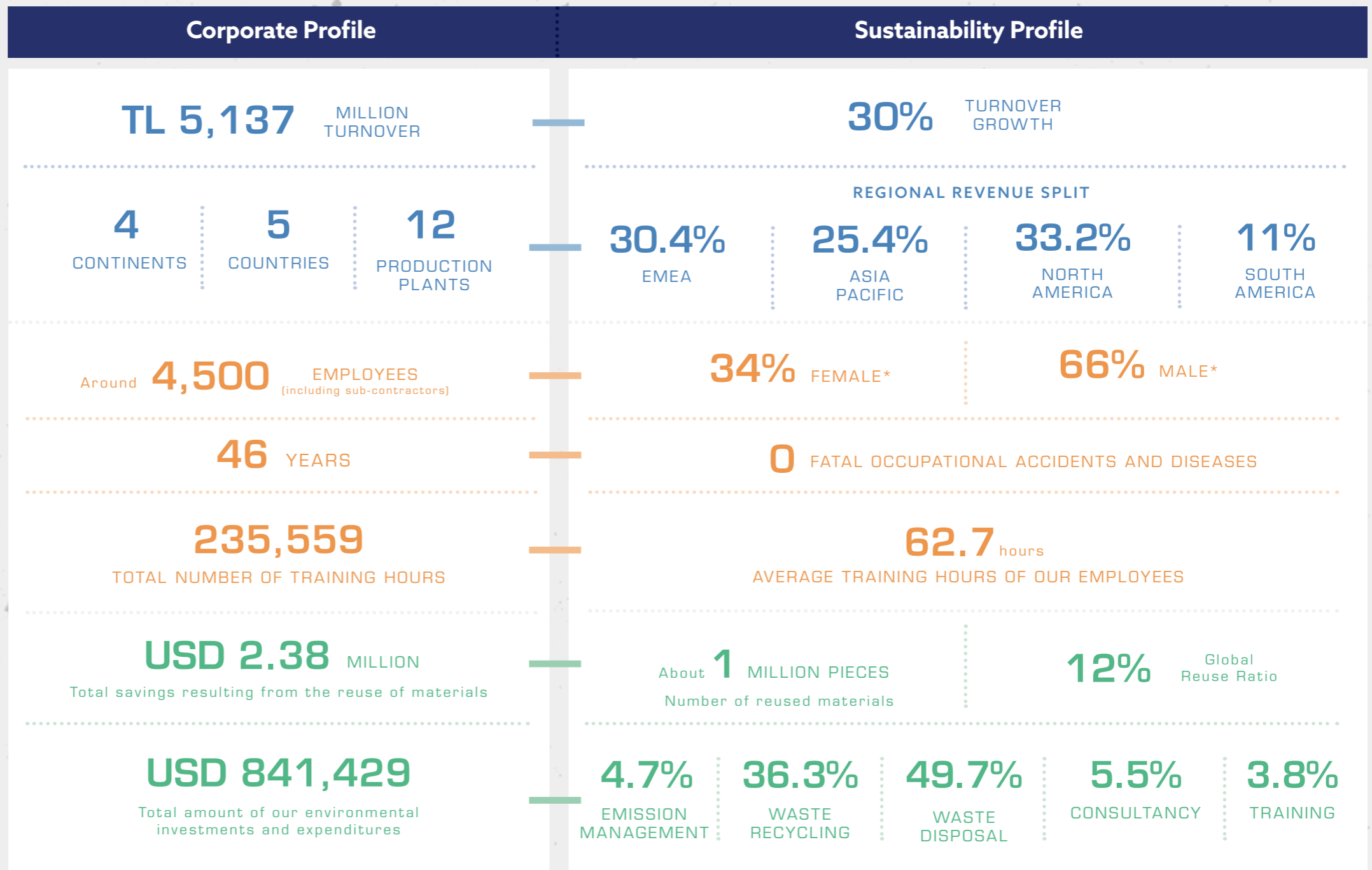
## AWARDS AND ACHIEVEMENTS

### BEST SUPPLIER AWARD

Kordsa is honored with the “Best Supplier” award in terms of global presence and service level criteria, as a result of a comprehensive sustainability assessment by Pirelli.



# KORDSA FACTS AND FIGURES



\* Data represents white-collar employees. Among all employees, the rate of female employees reached 13% with 2% increase.

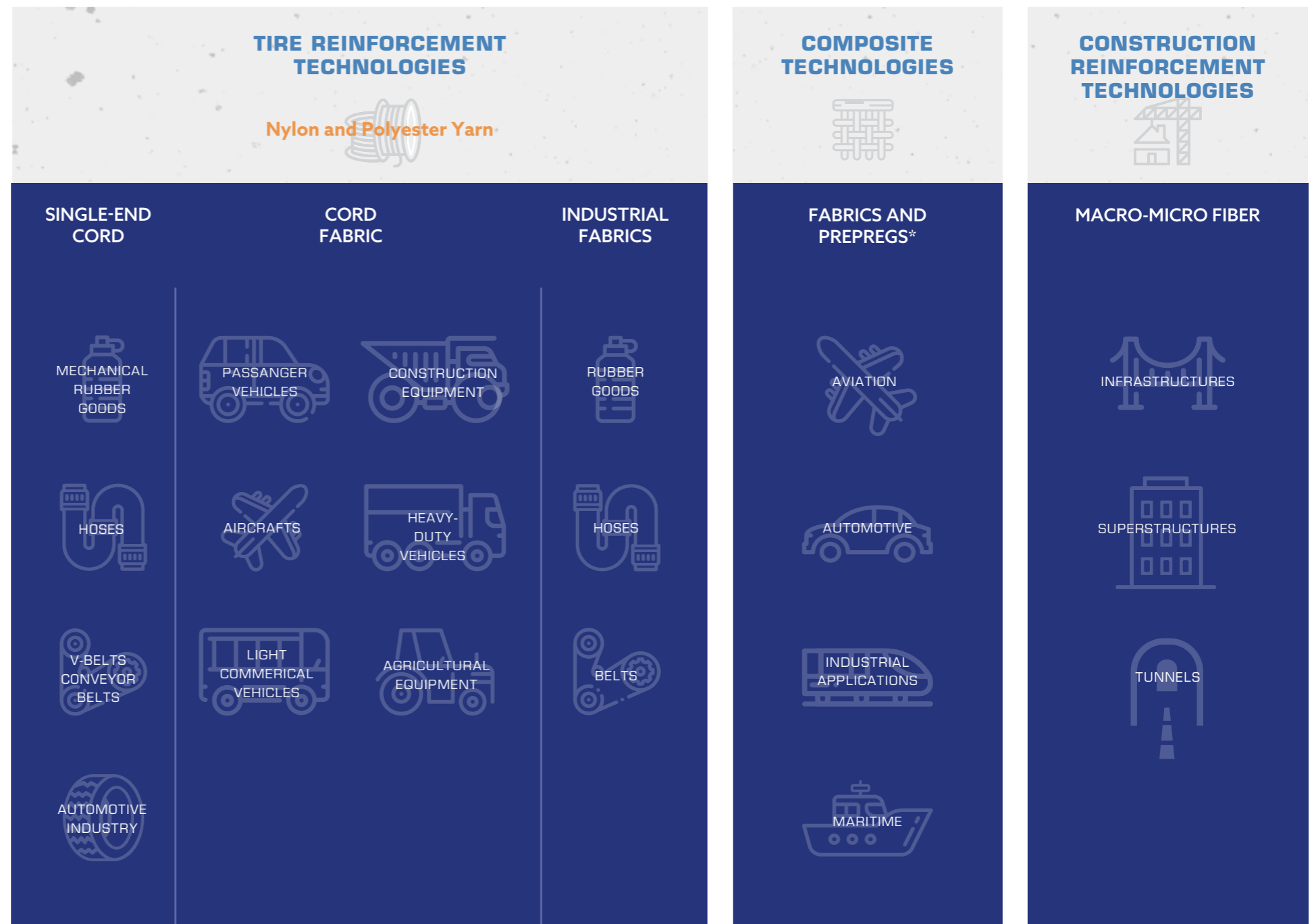


# PRODUCTS, INDUSTRIES, MARKETS

In our high-tech plants we manufacture cord fabric and single-end cord products that provide flexibility and durability to vehicle tires in the tire reinforcement industry. We reinforce one in every three car tires and two in every three aircraft tires in the world. Our technology leadership, experience in reinforcement technologies and R&D works along with "The Reinforcer" title position us as the strategic partner of leading tire manufacturers.

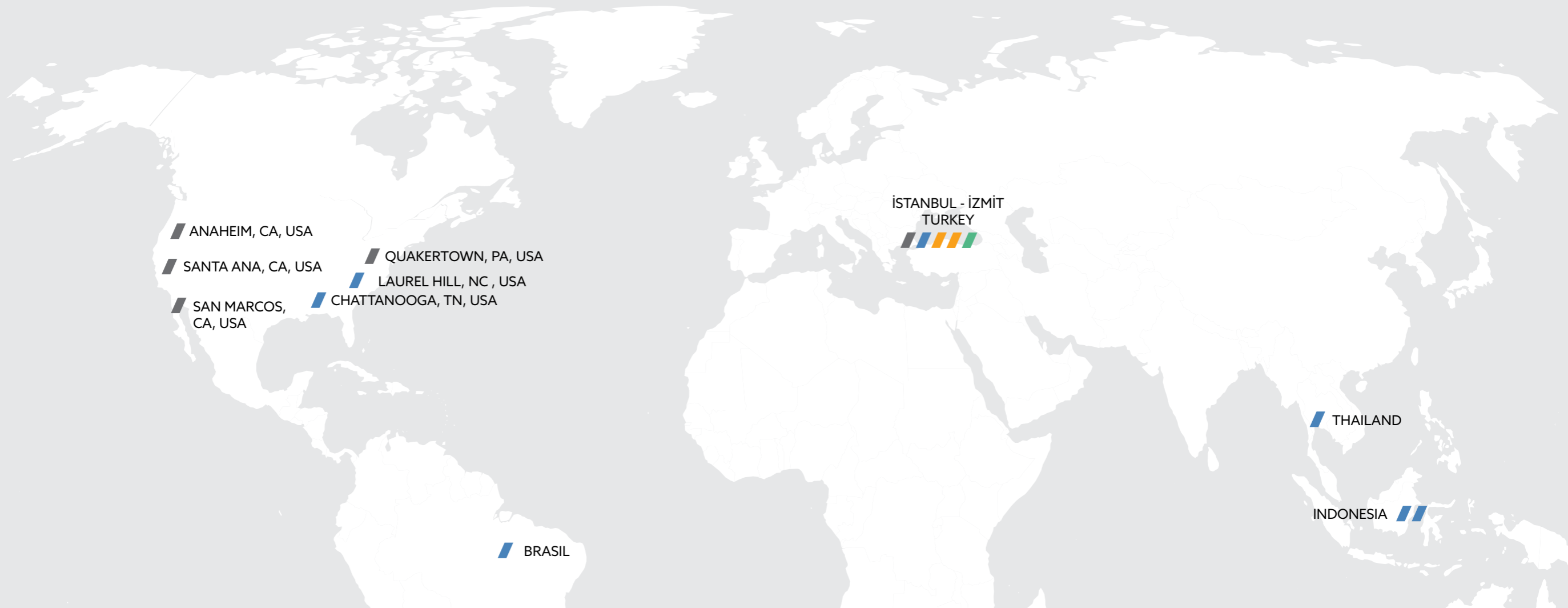
In composite technologies, we produce innovative by-products and practices for aviation and automotive industries. In our plants in Turkey and the US we provide design, analysis, material library, prototype production services and develop fabric, resin and prepreg in line with our customers' needs.

In construction industry, we stand out with our innovative macro and micro synthetic fiber reinforcements that provide ease of use, fast applicability, less labor work, energy efficiency, high concrete density, long-lasting durability, and low carbon emission in concrete reinforcement applications for both infrastructure and superstructure projects.



\* Fibrous material pre-impregnated with a particular synthetic resin

# GLOBAL FOOTPRINT







# STRATEGY AND GOVERNANCE

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**We run our operations in conformity with the Corporate Governance Principles; transparency, fairness, responsibility and accountability.**

# STRATEGY AND GOVERNANCE

**As Kordsa in every geography we operate, we execute all our activities by complying with regulations and corporate ethical values as well as the awareness of our social and environmental responsibilities that we disseminate to all our employees.**

**The basis of our sustainability approach is to grow with technology investments in our three main business lines and to create economic value for our shareholders and investors, as well as to ensure the continuous development of our talented human resources and to create sustainable value by using natural resources responsibly.**

## AWARDS AND ACHIEVEMENTS

### BIST SUSTAINABILITY INDEX

Kordsa, among the 62 companies with the highest corporate sustainability performance, entered Istanbul Stock Exchange Sustainability Index for the 4<sup>th</sup> time.





# KORDSA STRATEGY HOUSE

## Our Vision

Inspired to Reinforce Life

## Pillar Initiatives

### BUSINESS EXCELLENCE

- Operational Excellence
- Digital Transformation
- Effective Finance & Risk Management
- Commercial Excellence
- Sustainability Excellence

### GROWTH

- Tire Industry
- Composite Industry
- New Industries

### INNOVATION

- Material Science
- Tire Technology
- Composite Technology
- Effective Innovation Management

### PEOPLE

- Talent Management
- Motivation
- Empowerment

**SHE****Ethics****Customer Focused****Courage****Passion****Collaboration****Continuous Improvement**

## MISSION

Deliver high value-added reinforcement solutions globally.

## SHE

We work carefully, disciplined and programmed. Following ISIG rules, we create safe working areas.

## ETHICS

We work with an honest and transparent approach and comply with Ethical Rules and Policies.

## CUSTOMER FOCUSED

We know the demands and expectations of our customers, we create value for both our customers and our company by working in line with these demands and expectations, we provide competitive advantage.

## COURAGE

We express our ideas freely, take calculated risks and are not afraid to make mistakes. We take responsibility and take action by taking initiative.

## PASSION

We approach every work we do with enthusiasm, excitement and determination by believing wholeheartedly; we prompt our whole environment with our energy.

## COLLABORATION

We create the environments to ensure the participation of all relevant stakeholders, encourage them, value different ideas and provide the highest benefit through multiple collaborations.

## CONTINUOUS IMPROVEMENT

We question ourselves and our work with a positive curiosity excited from innovation. In order to be always better, we learn from our past experiences, develop with our vision of the future, and become the pioneer of change.

# ALIGNMENT OF STRATEGIES

Our vision, strategic initiatives and values that we updated in 2019, match with our material topics that shape our sustainability strategy.

	PILLAR INITIATIVES	MATERIAL SUSTAINABILITY TOPICS	VALUES
PILLAR INITIATIVES	Business Excellence	Supply Chain Management All Environmental Topics	Customer-Focused
	Growth	Sustainable Growth	
	Innovation	Raw and Other Materials Management All Environmental Topics	Continuous Improvement
	People	Employment Equal Opportunities and Diversity Training and Development Human Rights Community Development	Courage
VALUES	Safety, Health and Environment	Occupational Health and Safety  Energy Management* Emissions Management* Waste Management* Water Management*	Passion
	Ethics	Compliance Anti-Corruption	Collaboration
			VALUES

\* Environmental Topics



# CORPORATE GOVERNANCE

Our Board of Directors consists of six members, and we have two independent members, one of whom is a woman (17%). One of the independent members is the chair of Early Risk Identification Committee and member of Corporate Governance and Audit Committees. The second independent member is the chair of both Corporate Governance and Audit Committees and member of Early Risk Identification Committee. All members except independent members hold executive functions.

## INTERNAL STAKEHOLDER VIEW

*87% of our employees who responded to the sustainability assessment survey think that...*

**KORDSA MANAGES ALL ITS BUSINESS PROCESSES IN LINE WITH CORPORATE GOVERNANCE PRINCIPLES WHICH ARE TRANSPARENCY, FAIRNESS, ACCOUNTABILITY AND RESPONSIBILITY.**

### COMMITTEES REPORTING TO THE BOARD

### RESPONSIBILITY ON SUSTAINABILITY TOPICS

#### AUDIT COMMITTEE

- Sustainable Growth
- Supply Chain Management
- Compliance and Anti-Corruption

#### CORPORATE GOVERNANCE COMMITTEE

- Sustainable Growth
- Supply Chain Management
- Compliance and Anti-Corruption
- Employment
- Human Rights
- Equal Opportunities and Diversity
- Community Development

#### EARLY RISK IDENTIFICATION COMMITTEE

- Sustainable Growth
- Supply Chain Management
- Compliance and Anti-Corruption
- Occupational Health and Safety
- All Environmental Topics \*

\* Energy Management, Emissions Management, Waste Management, Water Management

# BUSINESS ETHICS

## INTERNAL STAKEHOLDER VIEW

*84% of our employees who responded to the sustainability assessment survey think that...*

**KORDSA'S POLICIES, TRAININGS AND AUDITS ON COMPLIANCE INCLUDING ANTI-BRIBERY AND ANTI-CORRUPTION ARE ADEQUATE.**

The Code of Business Ethics that regulates Kordsa's relationships with its customers, employees, shareholders, suppliers, business partners, competitors, the environment and society covers four main topics; legal obligations, integrity, confidentiality and conflict of interest. Kordsa Code of Business Ethics is available in the native languages of the countries we operate in (Turkish, English, Bahasa, Thai, and Portuguese) and published on [our website](#).

The processes of ethics management are explained on [our website](#).

### ANTI-CORRUPTION AND ANTI-BRIBERY

[Kordsa Anti-Corruption and Anti-Bribery Policy](#)

### COMPLIANCE MANAGEMENT

The processes of compliance management are explained on [our website](#).





# EXTERNAL FACTORS AND RISK MANAGEMENT

## OUR RESPONSE TO COVID-19 OUTBREAK

Due to recent COVID-19 (coronavirus) pandemic, keeping our employees, customers, all stakeholders and their families safe and healthy is paramount for Kordsa in these unprecedented times. Since the first day of COVID-19 seen in Turkey, various administrative and operational measures have been taken in all our facilities acutely in line with the measures on public and occupational health announced by the Ministry of Health and the Coronavirus Scientific Committee.

The statement regarding the measures taken is available [on the PDP website](#).

## TOP 5 GLOBAL RISKS

	IN TERMS OF LIKELIHOOD	IN TERMS OF IMPACT
1.	Extreme Weather Events (1 <sup>st</sup> in the last 3 years)	Weapons of Mass Destruction (1 <sup>st</sup> in the last 3 years)
2.	Failure of Climate Change Mitigation and Adaptation	Failure of Climate Change Mitigation and Adaptation
3.	Natural Disasters	Extreme Weather Events
4.	Data Fraud or Theft	Water Crises
5.	Cyber Attacks	Natural Disasters

Source: World Economic Forum, Global Risks Report 2019  
 Environmental Societal Technological Geopolitical

## GLOBAL RISKS 2019

In the World Economic Forum 2019 Risk Report, three of the five risks most likely to emerge appear to be from the fight against climate change and risks associated with climate change. You can find our disclosures regarding risk management under **Risk Management**, and our performance to reduce carbon emissions under **Energy Management** ve **Emissions Management** topics.

Our preventive practices and investments regarding technological risks including data theft and cyber-attacks can be found under **Digitalization Journey** topic. Also, you can find our preventive actions to mitigate water crisis and relative risks under **Water Management** topic.

## RISK MANAGEMENT

At Kordsa, all factors that may create risks and actions to mitigate them are managed in accordance with our strategies. In 2019, all of Kordsa's subsidiaries worldwide were investigated in detail on country and factory basis, and their risks were listed

and prioritized. Action plans and a Crisis Emergency Management standard covering all facilities were created to manage risks with high risk scores. Kordsa Executive Management prioritized the risks and completed the work necessary to monitor crucial risks with critical risk indicators.

Additionally, we redefined our technology-related risks, one of the top five risks in the World Economic Forum's risk map, under three headings in 2019 and prepared our action plan.

Although climate related risks are not included in scenario-analysis risks of 2019, Kordsa has all loss of business and third party indemnity insurances which cover claims for damages of the investment amounts, 12-month revenue loss and potential deficits due to extreme weather conditions which also covers high-risk natural disasters.

Climate change, water safety and corruption risks are considered in high-risk category for 2020 by the Risk Committee. You can find our works regarding these risks in the **Responsible Consumption and Production** part of this report.





# SUSTAINABILITY MANAGEMENT

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**As a global reinforcement brand, we improve our operational performance gradually each year with the respect and responsibility we feel for the society and environment we live in.**



# SUSTAINABILITY MANAGEMENT

**Within the framework of our sustainability roadmap and with the efforts of our employees, we continue to grow by improving our operational processes, using global resources efficiently, and creating sustainable value for all our stakeholders at Kordsa.**

## AWARDS AND ACHIEVEMENTS

### SUSTAINABILITY REPORT AWARD



Kordsa was awarded the silver medal in ARC 2019 Awards of Mercomm, the most prestigious global communication awards organization, as the second report in Asia-Middle East and Pacific Region for its 2017 Sustainability Report.

## SUSTAINABILITY REPORT 2017



# SUSTAINABILITY MILESTONES

## 2010

- Joined TBCSD Turkish Business Council of Sustainable Development.

## 2014

- Signed UN Global Compact.
- Prepared CDP Supply Chain Report.

## 2015

- Published Kordsa's first sustainability report.
- Entered Istanbul Stock Exchange 100 Index.
- Won 2 gold awards from LACP with our sustainability report.

## 2016

- Started Preparing CDP Climate Change, Water Security and Supply Chain Reports.
- Entered Istanbul Stock Exchange Sustainability Index.
- Entered Istanbul Stock Exchange 50 Index.
- Prepared Kordsa 2020 Sustainability Road Map.
- Received LEED Gold Certificate with Composite Technologies Center of Excellence.

## 2017

- Continued preparing CDP Climate Change and Water Security reports. CDP Climate Change score was D and Water Security score was C.

## 2018

- Sustainable Business Awards 2018 Turkey Won Sustainability Report Category 1<sup>st</sup> Place Award
- Asia-Pacific Excellence Awards 2018 Won Integrated Annual and CR Report Category 1<sup>st</sup> Place Award
- LACP Inspire Awards 2019 Won Sustainability Report Category 1<sup>st</sup> Place – Platinum Award
- Received AS9100\* Certification with our Production Plant at Composite Technologies Center of Excellence.
- Raised CDP Climate Change score to C- and Water Security score to B-.

## 2019

- Entered Istanbul Stock Exchange Sustainability Index for the 4<sup>th</sup> time.
- Raised CDP Climate Change score to B and Water Security score to B.
- Started to work on Kordsa 2025-2050 Sustainability Road Map.



\* Conformity with the Aviation, Space, and Defense Industry Quality and Risk Management Standard



# SUSTAINABILITY MANAGEMENT STRUCTURE

In order to disseminate our sustainability approach to all facilities of our company and to establish a more holistic sustainability management, we established a new management structure.

At Kordsa, our performance within the scope of our sustainability priorities is owned at the level of the Board of Directors, which is our top management body. Kordsa Executive Lead Team consists of General Manager, Assistant General Managers and Directors. Executive Lead Team is responsible for operations at the sites, sets goals for sustainability focus areas which are determined biennially within the company, and revises them when necessary.

In 2019, after a structural change, our Corporate & Brand Communication and Sustainability Manager took the responsibility of following up sustainability roadmap actions of the Global SHE Manager who led these actions in the earlier years. With the leadership of our new sustainability manager, we set new targets and prepared our new sustainability roadmap with a more holistic approach.

The Corporate and Brand Communication and Sustainability Manager, who reports directly to General Manager, leads the

Sustainability Management Team and the Sustainability Reporting Group and ensures coordination between departments and senior management to achieve relevant goals while coordinating the preparation of the sustainability performance report, which is published annually.

The Sustainability Management Team is responsible for instilling our sustainability approach and good practices throughout the company. The Sustainability Reporting Group is responsible for the regular collection of target data and good practices for each company plant.

## KORDSA SUSTAINABILITY ROAD MAP 2050

In light of the material sustainability topics, we prepared a five-year sustainability roadmap in the last quarter of 2016, approved by Kordsa Executive Committee. Considering 2016 as the base year, we prepared all sustainability management actions up to 2020. We accomplished most of our targets by the end of 2019.



We decided to include the target of 'adding scope 3 to emission calculation in all plants' to 2020 activities that we could not realize in 2019. We also included another missed target of completing the ISO 14001 certification process at all plants along with ISO 50001 certification completion target in the new period.

We reviewed our roadmap by considering all our plants, including 2018 and 2019, and we took the first steps to implement it in 2020 along with the Kordsa 2050 Sustainability Roadmap that covers new targets for 2025-2030 and 2050.

# COMMUNICATION WITH OUR STAKEHOLDERS

(GRI 102-40, GRI 102-42)

**WHILE STRIVING FOR SUSTAINABLE GROWTH AT KORDSA, WE AIM TO RENDER THE BENEFITS WE CREATE FOR ALL OF OUR STAKEHOLDERS SUSTAINABLY AS WELL.**

## INTERNAL STAKEHOLDER VIEW

*74% of our employees who responded to the sustainability assessment survey think that...*

**KORDSA'S COMMUNICATION PLATFORMS TO FIND OUT ABOUT THE IDEAS/ SUGGESTIONS OR EXPECTATIONS OF KEY STAKEHOLDERS (EXCL. EMPLOYEES) ARE ADEQUATE.**

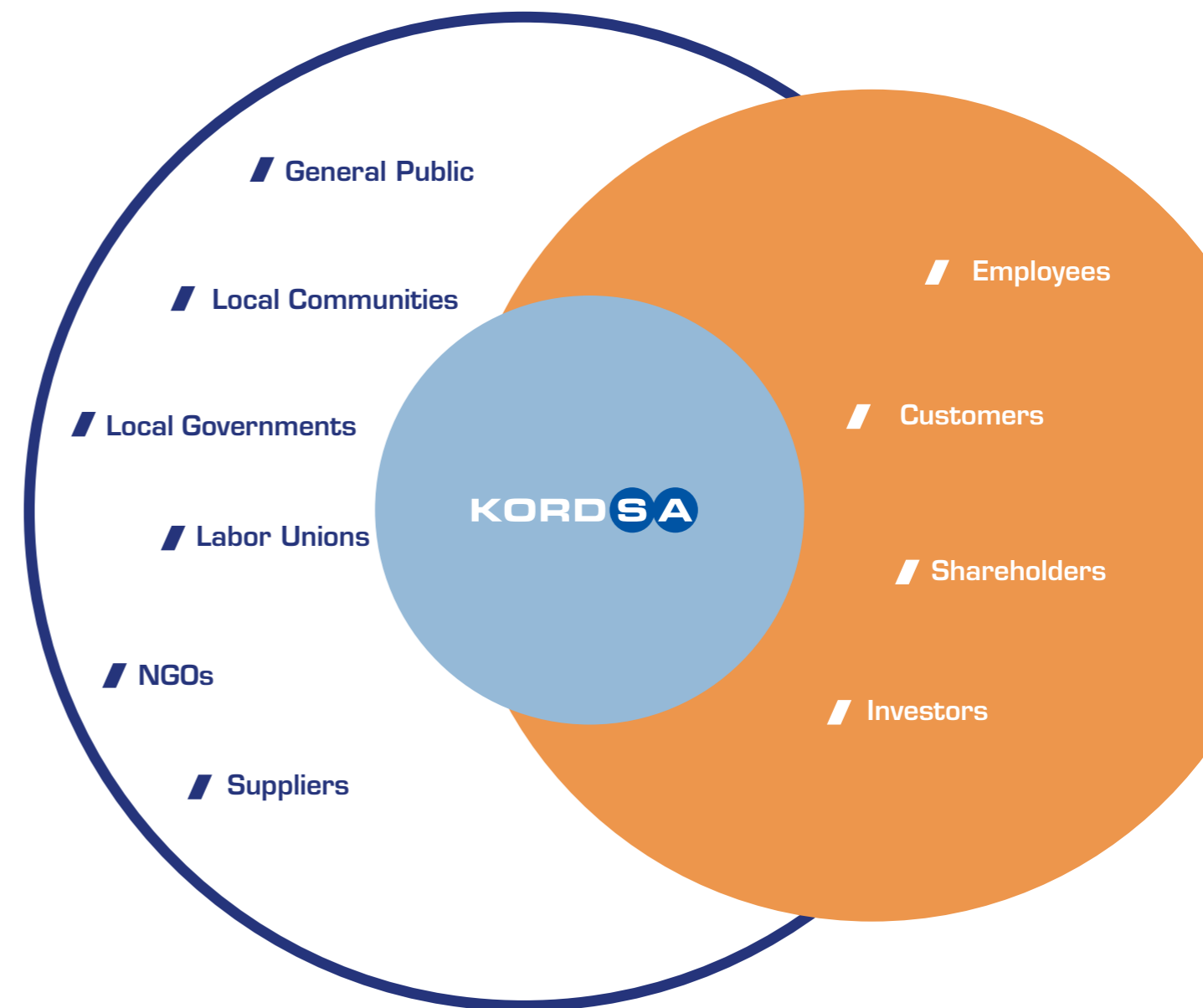
We define our stakeholders as people and organizations that are influenced by our activities, and at the same time that have impacts on our company to achieve its business targets.

In 2019, with the restructuring of our Sustainability Department, we reviewed our stakeholders and prioritized them. We grouped our key stakeholders having the most intense economic, social and environmental interactions with our company, within the framework of our strategic issues; concerning both the scope of their impact on our company's activities, and the impact of our company on achieving its business goals.

In earlier years, we had three groups of stakeholders in terms of communication priorities. As we aimed to have a better focus on our stakeholders and material topics, we grouped our stakeholders into two groups. These groups are given in Key Stakeholders chart.

The communication platforms for our employees and other key stakeholders, together with their content and communication frequency, are included in the Communication Platforms with [Our Stakeholders table](#).

## KEY STAKEHOLDERS





# COMMUNICATION WITH OUR STAKEHOLDERS

## SUSTAINABILITY MATERIALITY COMMUNICATIONS

### 2015

- Sustainability Project Team / Sustainability Strategy Workshop
- Sustainability Project Team / Stakeholder Prioritization
- Kordsa Executive Lead Team / Sustainability Strategy Survey and 1 to 1 Interviews
- Employees / Sustainability Performance Evaluation Survey
- Customers / Sustainability Interviews

### 2016

- Employees / Sustainability Performance Evaluation Survey

### 2017

- Sustainability Task Force / Sustainability Strategy Review Workshop
- Employees / Sustainability Performance Evaluation and Materiality Survey
- Customers / Online Sustainability Survey

### 2018

- Employees / Sustainability Performance Evaluation Survey

### 2019

- Sustainability Task Force / Sustainability Strategy Review Workshop
- Employees / Sustainability Performance Evaluation and Materiality Survey
- Customers / 1 to 1 Meetings
- Shareholders and Investors / Direct Written and Verbal Communication Channels



# COMMUNICATION WITH OUR STAKEHOLDERS

## COMMUNICATION PLATFORMS WITH OUR KEY STAKEHOLDERS

STAKEHOLDERS	COMMUNICATION PLATFORMS	OBJECTIVE / CONTENT OF COMMUNICATION	COMMUNICATION FREQUENCY
Employees	Sustainability Evaluation Survey	Materiality and Performance	Once a year
	Sustainability Report	Sustainability Performance	Once a year
	Plant newsletters such as the Kordsa Magazine	To announce important developments about the company	Several times a year
	People Clip	To make notifications about the company	Continuous
	E-mails by CEO	To share important developments	As needed
	Yammer	To enhance CEO communication and sharing developments about the Kordsa with employees	Continuous
	Intouch	To enhance CEO communication	Three times a year
	All Stars	To select the best projects and most successful activities within the company	Once a year
	Global Leadership Summit (Kordsa GLS)	To review the previous year and share the vision of the next year	Once a year
Customers	Social media	To share news about the company, products and developments	Continuous
	Sustainability Survey	Sustainability Strategy	Once a year
	Sustainability Report	Sustainability Performance	Once a year
	Reinforcer Magazine	To share developments about the company, sector and technology	Twice a year
	Annual Report	To review the performance of the company in the previous year	Once a year
	Press Section on website	To announce new developments about the company through press releases	Continuous
	Magazines and Newspapers	To announce new developments about the company through press releases and interviews in both national and international publications	Continuous
	Social Media	To share news about the company, products and developments	Continuous
	E-Newsletter	To share developments about the company or collaborations exclusive to Big 6 segment	Four times a year
Shareholders	Trade Fairs	To establish contact with existing and new customers	Several times a year
	Earning Calls	To announce mid-year results	Two times a year
	General Assembly	To announce annual results	Once a year
Investors	E-mail by request	To convey information on e-mail for those shareholders who request	Several times a year
	Analyst Meeting	To share important developments about the company in a face-to-face meeting with the participation of top management	Once a year
	Newsletters	To announce important developments about the company through the media	Continuous
	TV Programs	To announce important developments about the company	Several times a year
	Magazines and Newspapers	To announce important developments about the company	Several times a year
	Website	To announce important information	Continuous
	Public Disclosure Platform	To publish the report of the Capital Markets Board	Four times a year
		To announce special situations	As needed
	Telephone/E-mails	To respond to investors' request for information about the company	Upon request from the investors
Social Media	To share news about the company, products and developments	Continuous	



# COMMUNICATION WITH OUR STAKEHOLDERS

(GRI 102-43, GRI 102-44)

## SUSTAINABILITY COMMUNICATION WITH OUR EMPLOYEES

Since 2015, we conduct a sustainability assessment survey annually to raise the awareness of our employees on sustainability and domains of our company. Through this survey, we aim to understand our employees' priorities and collect their opinions on our company's sustainability performance. We share these views in the relevant sections of our report.

335 white-collar employees consisting of engineers, specialists, supervisors, managers, directors, and top management, 31% of which have been working for Kordsa for more than 15 years, participated in the survey to assess 2019 performance. Participants also selected the topics of their concerns and prioritized them.

## SUSTAINABILITY COMMUNICATION WITH OUR CUSTOMERS

Since the first year of sustainability reporting at Kordsa, we have been communicating

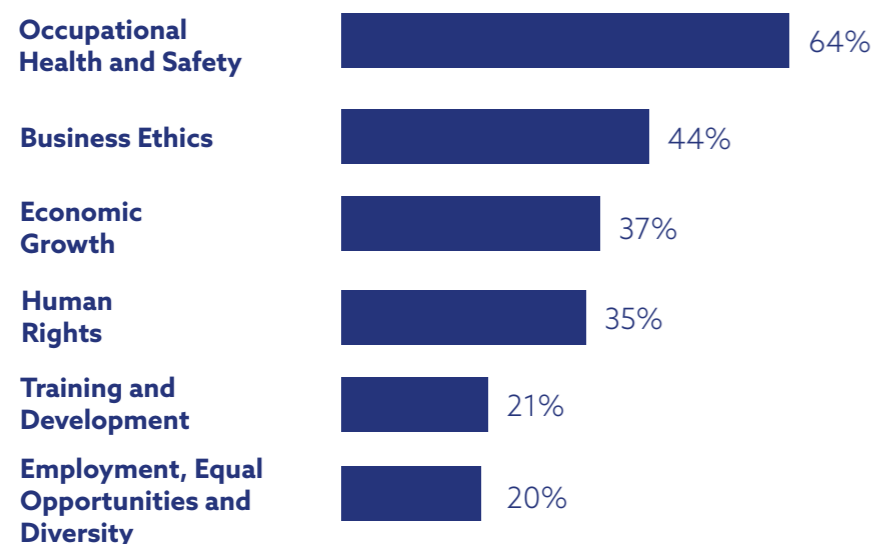
with our customers to receive feedback on both the sustainability performance of Kordsa and the strategic issues focusing. Each year, we aim to include more customers in our sustainability processes.

Until 2019, the first issue we mentioned in the report as a result of the feedback from our customers was "evaluation of social and environmental impacts in the supply chain". Additionally, we have been conducting supplier sustainability performance surveys for our numbers' increasingly growing suppliers since 2017. The details are under [Selecting Suppliers](#) topic of the report.

The second issue we heard from our customers was Human Rights, also featured in BIST Sustainability Index evaluations. As a response, in 2018, we launched Kordsa [Human Rights Policy](#).

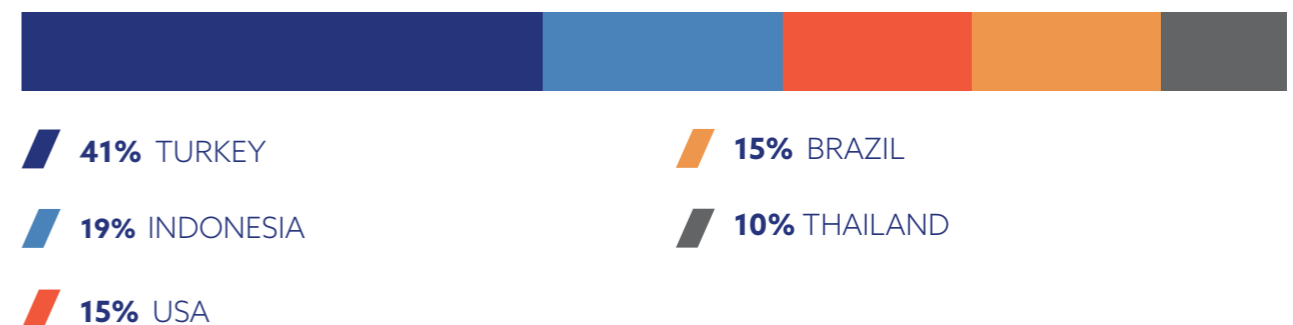
The customer feedback that we received through one to one meetings in 2019 and our responses and actions are in the following pages.

## PRIORITIES OF EMPLOYEES\*



\* Topics which have 20% and higher priority rate are included.

## KORDSA EMPLOYEE SUSTAINABILITY SURVEY PARTICIPATION



# COMMUNICATION WITH OUR STAKEHOLDERS

## EXPECTATIONS OF OUR TIRE REINFORCEMENT CUSTOMERS

## OUR RESPONSES AND ACTIONS

Run supply chain ESG assessment	Integrating social and environmental aspects to supplier selection process.
Prepare Ecovadis Report	Filling our Ecovadis Report annually.
Monitor and reduce CO <sub>2</sub> emissions	Setting targets on GHG emission reduction for 2025, 2030 and 2050.
Monitor and reduce water consumption	Setting targets on water consumption reduction for 2030.
Prepare CDP Reports (Climate Change & Water Security)	Preparing CDP reports since 2014.
Use sustainable materials in production / Monitor and report SMR index (Sustainable Material Ratio) Use recycled raw materials (PET-Polyester) Reduce waste and reuse product wastes	Are ready for NY66 recycling Looking for appropriate sources for recycled materials Reprocessing and using Kordsa's PET waste.
Propose low footprint products / Use Bio-Based materials in production.	Meeting and discussing for opportunities/ Looking for sources and testing them.
Find out about Kordsa's sustainability approach in detail	Visiting and sharing Kordsa's sustainability agenda during customer visits.
Collaborate for environmentally friendly technologies	Continue working with 3 <sup>rd</sup> parties like customers, universities institutions and H2020 projects.





# COMMUNICATION WITH OUR STAKEHOLDERS

## EXPECTATIONS OF OUR COMPOSITE CUSTOMERS

## OUR RESPONSES AND ACTIONS

Light weighting especially for long-range electric vehicles and aircraft

Meeting and discussing for opportunities / Working together with third parties.

Market preference for sustainable "green" products  
Drive to re-use or recycle materials at product end of life

Using reactive thermoplastics or bio-based thermoset resins and develop new resin systems.

Governmental policy, legislation and consumer pressures to find a solution to end of life composites

Reprocessing waste and improve manufacturing processes including digital, analytics and sensors.

Thermoset polymer usually being burnt at the end of life

Increasing bio-content in resins to reduce CO<sub>2</sub> emissions, using reactive thermoplastics to reduce the cost of producing low volume recyclable thermoplastic parts.

The assessments indicating that CO<sub>2</sub> emissions need to be significantly reduced by 2040 to avoid catastrophic climate change

Working to improve the life cycle of composites to further reduce their environmental impact with associated enhancement to the articulation of the benefits.

The cost of waste management and lack of landfill space

Working on supplying our products to assure that they could be fully re-used or recycled at end of life, with no negative sustainability impacts.

Regulatory requirements and cost of virgin raw materials

Continue working with 3rd parties like customers, universities, institutions, H2020 projects etc. Especially working with Sabanci University under the roof of Composite Technologies Center of Excellence.



# COMMUNICATION WITH OUR STAKEHOLDERS

## EXPECTATIONS OF OUR CONSTRUCTION REINFORCEMENT CUSTOMERS

## OUR RESPONSES AND ACTIONS

Eco-friendly concrete reinforcement solutions	Proposing much lower-carbon-footprint products than existing reinforcement materials out of steel, which are produced under high temperatures.
Efficient and less source-consuming application designs	Providing concrete reinforcement solutions that require less labor and less time compared to conventional wire mesh, while achieving better results.
Greatly enhanced product service life and decreased maintenance needs.	Eliminating the risk of corrosion in concrete and provide fiber reinforcement technologies to increase concrete durability resulting with extended service life and minimum maintenance needs, and thus ultimately decreasing energy and source utilization.
Reduce waste and reuse product wastes (especially for export regions like USA, not very common in Turkey)	Studying to reprocess and use Kordsa's polypropylene technologic waste.
Reduce CO <sub>2</sub> emissions	Enabling efficient stocking area and less transportation than conventional steel products, as the weight of Kratos needed for one squaremeter is about six times less at a minimum than a conventional reinforcement material .
Increase the efficiency of systems in magnetic fields	Supplying synthetic raw materials which are not affected by magnetic fields. Serves advantages on construction projects like smart warehouses, light rail systems, highways and bridges where signalization is installed.





# COMMUNICATION WITH OUR STAKEHOLDERS

## EXPECTATIONS OF SHAREHOLDERS\*

## OUR RESPONSES AND ACTIONS

	SDG 4. Quality Education	Run local community school projects.
	SDG 5. Gender Equality	Provide all employees with equal opportunities.
	SDG 8. Decent Work and Economic Growth	With our best practices in employment and OHS, we secure our employees and grow together with them.
	SDG 9. Industry, Innovation and Infrastructure	Directly support two global targets through our R&D works.
	SDG 12. Responsible Production and Consumption	Run projects to reduce consumption of natural resources and reuse our materials.
	SDG 7. Affordable and Clean Energy	Run feasibility works for renewable energy investments. (solar energy)
	SDG 10. Reduced Inequalities	Improve the education environment of children who live in low-income communities.
	SDG 13. Climate Action	Raise awareness among employees and monitor reduction targets for emission intensity.
	SDG 17. Partnerships for the Goals	For the global sustainability goals we cooperate with our customers, public institutions and NGO's.

## EXPECTATIONS OF INVESTORS

## OUR RESPONSES AND ACTIONS

Profitability and growth, especially in the field of composites in the coming years	Continue to invest in composites and create profit mainly in the USA.
Request for information about the efforts made to make Kordsa products environmentally friendly	Include relevant information regarding these issues in Investor Relations presentations which are updated quarterly and located on our web site.
Sustainably sourced raw materials and supplier assessment reporting	Integrate social and environmental aspects to supplier selection process.
Executive pay including a component that is related to sustainability management and targets	Relate executives' salary performance to the performance of all sustainability goals.
Board level responsibility for sustainability management and targets	Attribute all sustainability topics to the relevant Board Committees Lead and monitor ESG efforts of Kordsa.

\* Sabancı Holding

# MATERIAL SUSTAINABILITY TOPICS

(GRI 102-46, GRI 102-47)

Since our first report, we regularly review our sustainability issues via a sustainability strategy survey with the participation of our Kordsa Executive Leadership Team and the Sustainability Task Force. Considering the BIST Sustainability Index requirements, we have added biodiversity and climate change issues to the evaluation process. Actions towards climate change are indicated under the Emissions Management topic in the report. As our sites are located within industrial zones, biodiversity is not in our area of impact. So, we disclosed our general approach regarding this issue on our web site for BIST evaluation. Supplier Assessments, as a topic brought up by our major customers in the previous years, are also placed in the matrix this year. Compliance and anti-corruption topics are covered under Business Ethics in the matrix.

In 2019, in addition to our employees and customers, we included our shareholders and investors as well. In this regard, we updated our matrix by taking Kordsa's and four groups of stakeholders' priorities into consideration. The main objective of creating such a matrix was identifying significant issues for both our company and our key stakeholders. We also developed our plans and set our targets around those topics. The explanations on how we grouped the material issues into three are on the same page of Kordsa Sustainability

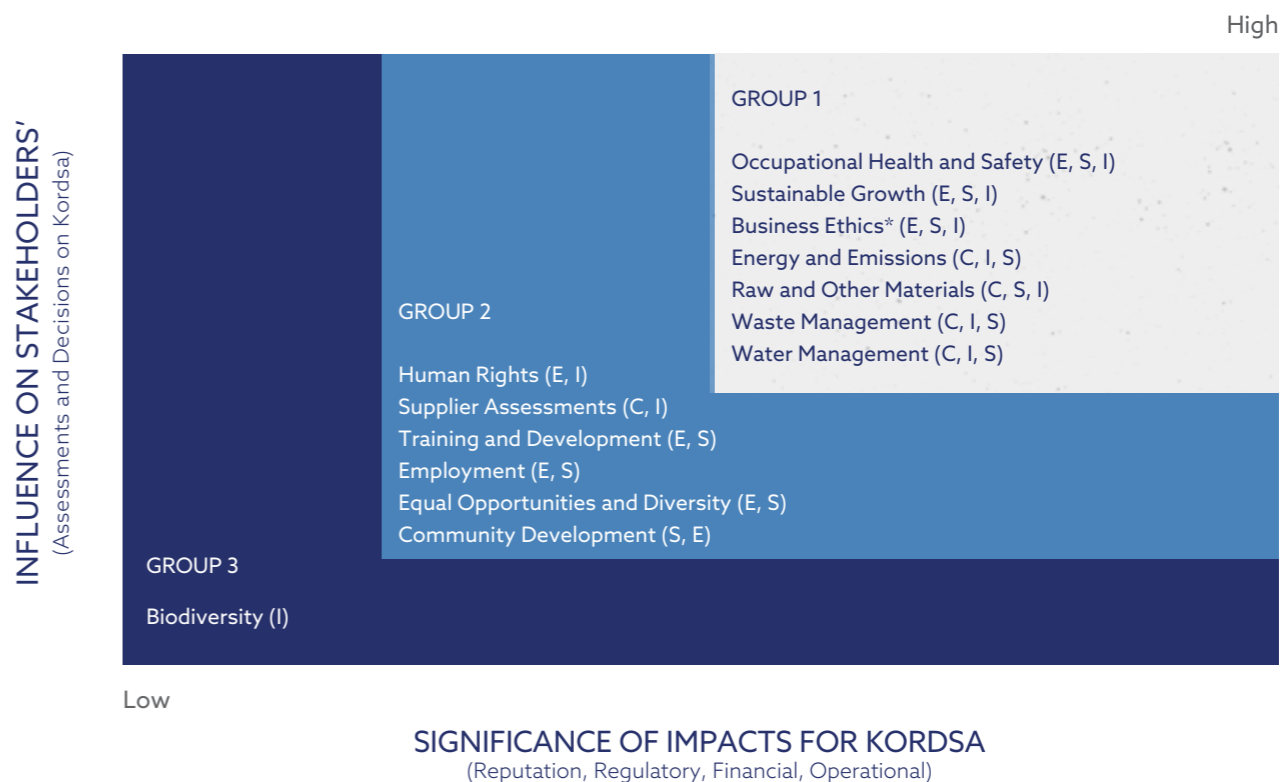
Matrix. We present our prioritized issues as main headings that include the Sustainable Development Goals. The relevant explanations are given under [Material Topic and UN 2030 Global Goals](#).

In the coming terms, we will continue to exchange ideas with the four key stakeholder groups consisting of our employees, customers, shareholders, and investors, and further develop our goals regarding our focal points.

## TOPIC BOUNDARIES AND LIMITATIONS ON REPORTING

The list of topics that we include in our materiality matrix is all relevant to our global operations. Externally our suppliers and contractors also have impacts areas regarding these topics. We provide details on impact areas under [Supplier Assessments](#) heading of this report. Regarding economic performance, we provide figures representing the company as a whole, not as country-specific. In 2018, we included our product value chains in our report to identify the boundaries of impacts of our material topics in tire reinforcement and composite business areas. In 2019, we defined and included our impacts on concrete reinforcement as well.

## KORDSA MATERIALITY MATRIX



### Legends

#### Group 1

Topics raised by three of our key stakeholders.

#### Group 2

Topics raised by two of our key stakeholders.

We provide the disclosures on our performance regarding the topics in the first two groups in detail within the report.

#### Group 3

Topics raised by one of our key stakeholders and we provide the related disclosures only on our web site.

E: Employee  
C: Customer  
S: Shareholder  
I: Investor

\* Business Ethics covers Anti-Corruption and Compliance.



# SUSTAINABILITY IMPACTS ALONG OUR VALUE CHAINS

## SUSTAINABILITY IMPACTS ALONG KORDSA'S VALUE CHAINS (TIRE REINFORCEMENT, COMPOSITE AND CONSTRUCTION REINFORCEMENT TECHNOLOGIES)

### PROCUREMENT

#### Sustainability Impacts (Direct)

- Supply Chain Management
- Raw and Other Materials Management
- Business Ethics
- Human Rights

#### Sustainability Impacts (Indirect)

- Sustainable Growth
- Training and Development
- Employment
- Energy and Emissions Management

### MANAGEMENT

#### Sustainability Impacts

- R&D and Innovation
- Digitalisation
- Business Ethics
- Occupational Health and Safety
- Sustainable Growth
- Supply Chain Management
- Human Rights
- Training and Development
- Employment
- Equal Opportunity and Diversity
- Community Development

### CUSTOMERS (Tire - Automotive - Aerospace - Construction)

#### Sustainability Impacts (Direct)

- Business Ethics
- Sustainable Growth

#### Sustainability Impacts (Indirect)

- Training and Development
- Employment

### PRODUCTION

#### Tire Reinforcement

- Tire Cord Fabric
- Single End Cord

#### Composite

- Prepreg (Resin Impregnated Fabric)

#### Construction Reinforcement

- Synthetic Fiber (Micro ve Macro)

#### Sustainability Impacts (Direct)

- Occupational Health and Safety
- Raw and Other Materials Management
- Energy and Emmissions Management
- Waste Management
- Water Management

#### Sustainability Impacts (Indirect)

- Training and Development
- Employment
- Human Rights

### TRANSPORTATION (Vessels - Trucks - Airplanes)

#### Sustainability Impacts (Direct)

- Business Ethics

#### Sustainability Impacts (Indirect)

- Occupational Health and Safety
- Human Rights
- Energy and Emmissions Management
- Waste Management

### SALES

#### Sustainability Impacts (Direct)

- Business Ethics

#### Sustainability Impacts (Indirect)

- Training and Development
- Employment

# MATERIAL TOPICS AND UN 2030 GLOBAL GOALS

## WE SUPPORT UN SUSTAINABLE DEVELOPMENT GOALS!

We signed the UN Global Compact in 2014 and started to support the vision of a “sustainable and comprehensive global economy” with our commitments. Following the announcement of the Sustainable Development Goals (SDG) by the UN in 2015, as Kordsa, we have matched these global issues with our focus issues within the scope of sustainability, and we have seen that we have positive impacts on the 13 global goals. In 2019, after examining which sub-goals Kordsa activities serve, we decided to focus on the related 5 SDGs.

UN 2030 SUSTAINABLE DEVELOPMENT GOALS	UN TARGETS SUPPORTED BY KORDSA	RELATED DISCLOSURE TOPICS LOCATED IN THE REPORT
	9.4. By 2030, with each country taking action in accordance with its own capacity, improve infrastructure and reinforcement industries in a way that renders them sustainable, through increasing more efficient use of resources and further adopting more solid clean and environmental-friendly technologies and industrial processes more	R&D & Innovation Digitalization Journey
	9.5. Encourage innovation in all but particularly developing countries by 2030, improve scientific research, and expand the technological capabilities of industries through increasing the number of R&D experts per 1M people, public and private studies and governmental spending substantially	R&D & Innovation
	12.2. By 2030, achieve the sustainable management and efficient use of natural resources	Energy Management Water Management
	12.4. By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	Materials Management Emissions Management
	12.5. By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Waste Management
	8.2. Pushing economic efficiency to higher levels through focusing on high value added and labor-intensive industries and by diversification, technology development and innovation	Sustainable Growth Employment Training and Development Human Rights
	8.8. Protect labour rights and promote safe and secure working environments for all workers	Occupational Health and Safety
	5.1. End all forms of discrimination against all women and girls everywhere	Employment
	5.5. Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	Equal Opportunities and Diversity
	4.1. By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	Community Development
	4.c. Significantly increase the number of qualified teachers through international cooperation for teacher trainings in developing countries by 2030	Community Development



# ACHIEVEMENTS ON 2020 ROADMAP

## ROADMAP 2020 ACTIONS



Integrate Supplier Sustainability Assessment System



Obtain 14001:2015 Environmental Management Standard Certification for all sites



Increase CDP Climate Change score gradually



Increase CDP Water Security score gradually



Complete GHG verifications for Scope 1 and Scope 2 for all sites



Integrate sustainability topics in Employee Idea Platform



Waste Reduction



Start Water Program at all sites

## WHAT WE ACHIEVED BY 2019

**2018:** Implemented 1<sup>st</sup> assessment and reached global suppliers with the highest trade volume

**2019:** Implemented a more comprehensive survey and reached 78% of global and 28% of our local suppliers on average.

**Turkey:** Completed recertification audit in May 2017

**Brasil:** Completed in April 2018

**Thailand:** Completed in July 2018

**Indonesia:** Completed in May 2017

**Chattanooga-USA:** Completed in May 2019

Increased our score by two levels every year

**2017:** D **2018:** C- **2019:** B

Increased our score by one level every year

**2017:** C **2018:** B- **2019:** B

**2018:** Completed Turkey Scope 1 verification by a third party

Raised our CDP Climate Change score

**2017:** All key issues are integrated in the system and started collecting thousands of employee feedback regarding key sustainability topics.

In the first five years of the roadmap our waste management targets addressed environmental compliance. Nevertheless, we reduced our total waste by 24% in 2019.

Considering the impacts of water usage in our operations and the expectations of our key stakeholders, we did not focus on this action until 2019.

With the new roadmap we prepared in 2019, we set long term reduction targets in terms of water consumption of all our global sites, starting from 2020.

# OUR SUSTAINABILITY TARGETS

RELATED SDG	EXPLANATION OF TARGET	INDICATOR	BASE YEAR	2019 PERFORMANCE	2021 TARGET	2025 TARGET
	Increase use of renewable energy	Ratio of renewable energy used in total consumption (%)	2018	0%	5%	In progress
	Reduction of emissions	Total emissions (CO2e)	2018	0%	2.5%	17.5% (Scope 1&2)
	Reduction of water consumption	Total consumption (m3)	2018	0%	6% (Turkey) 2% (All sites)	50%
	Reduction of waste	Amount of total waste (tons)	2018	24%	6% (Total)	50% (Hazardous)
	Avoiding accidents	Number of fatal injuries High-consequence injuries Recordable injuries	2019	Fatal injuries: 0 High-consequence injuries: 0 Recordable injuries: 12 (including contractors)	Zero accident	Zero accident
	Reaching global suppliers through sustainability survey	Ratio of supplier participation (%)	2019	73%	100%	Maintain 100%
	Reduction of complaints on human rights violations	Number of complaints on human rights violations	2019	Zero complaint	Zero complaint	Zero complaint
	Increase employee satisfaction	Employee satisfaction rate (%)	2019	68%	65% and over	65% and over
	Continue employee development trainings	Sabancı of New Generation competencies	2019	Ratio of occupational and personal development trainings reached 75%.	Continue trainings to complete the competencies	Continuous development
	Increase women employment	Ratio of women employees (%)	2019	13% of all employees 34% of white-collar employees	25% of all employees 50% of white-collar employees	In progress
	Increase female managers in regions	Ratio of women in management positions %)	2019	Turkey: 27% - APAC: 24% Americas: 14% - Composite: 37%	50% (all regions)	In progress
	Increase number of teachers attending ÖRAV training	Number of teachers trained annually	2019	The project started in 2020*.	250	In progress

\* We supported 14 teachers who reach out to 500 students, to participate in "Leader Teacher in Learning" training.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



# INDUSTRY, INNOVATION AND INFRASTRUCTURE

**In Kordsa where we run operations in four continents to produce reinforcement technologies, we develop innovative, value adding and sustainable products with our ever-growing team at our two R&D centers.**

**With our digital transformation investments, we render our processes more effective and continue to create a difference in all of the sectors we serve with our technologies.**

**We primarily see R&D, innovation and digital transformation as facilitators to our sustainability targets within the scope of sustainable production and consumption targets, and we continue our investments in this field.**

## AWARDS AND ACHIEVEMENTS

### BEST R&D CENTER AWARDS

Kordsa received two "Best R&D Center" awards in "Project Capacity" and "R&D Center with 51-75 recruited R&D staff" categories by the Republic of Turkey Ministry of Industry and Technology.





## SUSTAINABILITY FACILITATORS AT KORDSA

Sustainable Development Goal 9 seeks to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. This SDG encompasses three important aspects of sustainable development: infrastructure, industrialization, and innovation.

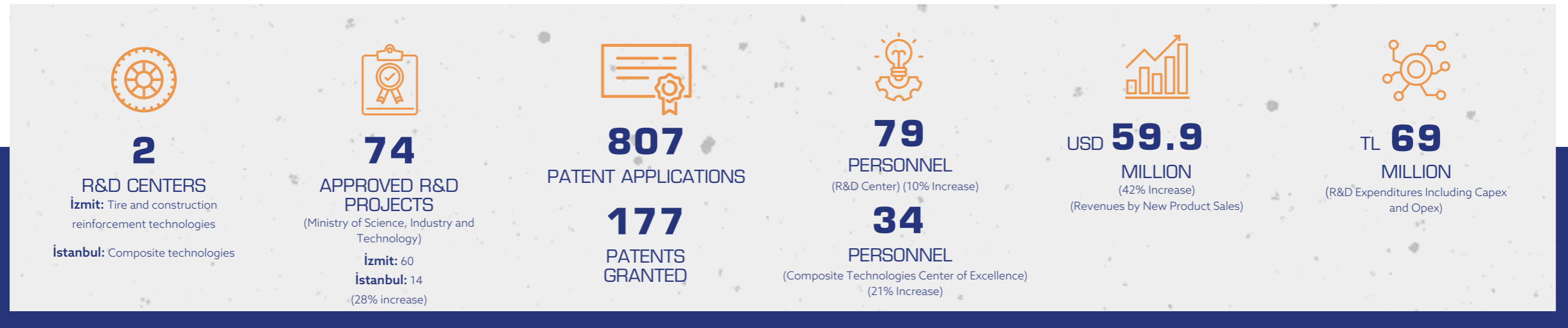
Infrastructure provides the basic physical systems and structures essential to the operation of a society or enterprise. Industrialization drives economic growth, creates job opportunities. Innovation advances the technological capabilities of industrial sectors and prompts the development of new skills. Inclusive and sustainable industrial development increases in living standards for all people and provides the technological solutions needed for socially and environmentally sound industrialization.

To this end we see R&D, innovation, and digitalization as facilitators of our sustainability targets, especially on sustainable consumption and production.



# R&D AND INNOVATION

## FACTS & FIGURES ON R&D AND INNOVATION



### Objectives

- Differentiate into products and services
- Offer our customers more competitive and innovative products
- Achieve production efficiency on materials, processes and equipment
- Position Kordsa as the market and technology leader

### PROJECT CATEGORIES

PROJECT CATEGORIES	NUMBER OF PROJECTS	BUDGET RATIO
Less weight	6	16.9%
Eco-friendly adhesive technology	6	7.1%
Lower CO <sub>2</sub>	5	3.5%
Decreasing Rolling Resistance	8	2.0%
Chemical Recycling	1	0.7%
Ecodesign	2	0.7%
Recycling	1	0.2%
Others	58	16.9%
<b>TOTAL</b>	<b>87</b>	<b>100%</b>

**WE PROTECT ALL OF OUR PROJECTS WITH CONFIDENTIALITY AGREEMENTS AND WE CAREFULLY HANDLE ETHICAL ASPECTS AND INTELLECTUAL PROPERTY ISSUES.**



# R&D AND INNOVATION



## Summary of Main R&D Activities of 2018

We partnered with two Horizon 2020 projects;

- PolynSPIRE: Demonstration of Innovative Technologies Towards A More Efficient and Sustainable Plastic Recycling
- DiCoMI: The Directional Composites Through Manufacturing Innovation

## Main R&D Activities of 2019

- Made R&D visits and measurement studies with leading companies
- Made R&D and technology presentations at universities and international conferences
- Organized internal workshops to improve project management and other processes of R&D using methods such as Design Thinking and Lean
- Participated in trainings on risk analysis and patent literacy
- Organized internal meetings to review R&D and technology projects
- Hosted Kocaeli University (KOU) within the scope of Industry Doctorate Program of TÜBİTAK, aiming to increase the number of researchers to be recruited in the private sector in Turkey

- Met with Ministry of Industry & Technology and KUSI (Public, University and Industry Collaboration) work groups at Kordsa R&D Center to increase collaboration between public, universities and industry in Kocaeli Province.
- Hosted Presidency of The Republic of Turkey Investment Office at Kordsa R&D Center for digitalization projects and potential incentives.
- Launched "I Have an Idea Platform" in Kordsa

## 2019 HIGHLIGHTS OF R&D CENTERS

### Tire and Construction Reinforcement

Participated in the third meeting of the PolynSPIRE project as one of the project partners in Istanbul, hosted by Istanbul Chemicals and Chemical Products Exporters' Association (İKMİB). The polynSPIRE Project is a research project funded by Horizon2020. EU's new research and innovation program, with the aim to demonstrate a set of innovative, cost-effective and sustainable solutions, aiming to improve the energy

# R&D AND INNOVATION

and resource efficiency of plastic recycling processes.

We participated in the H2020 project event “PlasticTwist” which is an innovation platform to impact the circular economy and plastic value chain based on blockchain and token-based digital ecosystem.

## Composites

We continued to participate in the “R&D Staff Training Program for Textile Industry” of Uludağ University Career Center, to encourage young people in technology, innovation, R&D and engineering. On the second visit of Uludağ University, Kordsa R&D team gave training on innovation process, project management and yarn production technologies.

We visited GE Aviation in the scope of 1515 Frontier R&D Laboratory Support Program with Sabancı University. GE Aviation shared their experience on this program. This innovative support program is designed specially to facilitate top performing, leading R&D intense companies to establish and/or expand their R&D laboratories in Turkey, primarily in areas of priority.

We held a seminar on “3D Printing Applications” in Global Technology providing information on “DiCoMi” the H2020 project and “Nylon 6.6 based monofilament for 3D printing” the R&D Project.

## Thin Films and Flexible Electronics

We led the workshop about “Wearable Sensors in Healthcare Applications” with its partners from Sabancı University (SU), Sabancı University Nanotechnology Research and Application Center (SUNUM), Istanbul Technical University (ITU), TÜBİTAK-MAM and Yeditepe University as Kordsa’s Global Technology Thin Films & Flexible Electronics Platform.

## UNIVERSITY COLLABORATIONS

### TIRE AND CONSTRUCTION REINFORCEMENT R&D CENTER

### COMPOSITES R&D CENTER

Aachen Institute of Technology	RWTH Aachen University
Boğaziçi University	Anadolu University
Çankaya University	Boğaziçi University
İstanbul Technical University	Loughborough University
Kocaeli University	Sabancı University
METU Main Laboratory	Uludağ University
Sabancı University	Cluj-Napoca Technical University
Sakarya University	Technical University of Valencia
Süleyman Demirel University	Lund University
University of Texas	National Aerospace University “Kharkiv Aviation Institute”
Tokyo Institute of Technology	
Uludağ University	
Yıldız Technical University	
Purdue University	



# R&D AND INNOVATION

## OUR SUSTAINABLE PRODUCTS

### Contribution to Sustainability Targets

Develop environmentally friendly new products and technologies that increase energy efficiency and reduce carbon emissions

### Brands and Products of Our R&D Centers

**Before 2015:** Twixtra, Monolyx, Capmax, Hartech and Kratos

**2016:** Registered the de industrial design of green cord fabric

**2017:** Established a concrete laboratory for Construction Reinforcement Business Unit. Succeed in producing a resin-impregnated fabric (prepreg) by weaving carbon fiber fabric.

**2018:** Registered products are;

- Epoxy resin with high glassy transition temperature to be used in aerospace industry (Product code: EF12)
- Resin developed to be used for composite trunk covers of mass transportation vehicles (Product code: OM12)
- Resin to produce non-autoclave prepregs to be used automotive and ancillary industry (Product code: CM12)

Kordsa product development processes vary between 5 and 10 years due to the security tests required in the sectors where its customers operate.

### Tire Reinforcement Products

Capmax® the reinforcement product we developed at Kordsa facilities, is a top belt strip that can be directly applied at the tire building machine without the need for rubber coating. Capmax® decreases the production costs and increases efficiency, by eliminating many stages in tire production such as calendaring and cutting. By reducing rolling resistance which contributes to the reduction in fuel consumption, Capmax® also creates cost advantage for the end users. The potential market for Capmax® is the global light vehicle tires market using top belt strip.

Cord structures formed by twisting two or more different material types together are called hybrid cords. Kordsa launched Twixtra® that can be treated as the world's lightest hybrid cord product, in 2013. The manufacturers' choice in high performance tires is the



Aramid-Nylon 6.6 hybrid cord structure. The product is very much lighter compared to its predecessor, it allows the tire to be produced with less raw materials. Lighter tires lead to less fuel consumption.

Sustainability impacts created by these products;

### Economic Gains:

- New style ready to use product
- Efficient and faster production process
- Improved total cost of use

### Social Gains:

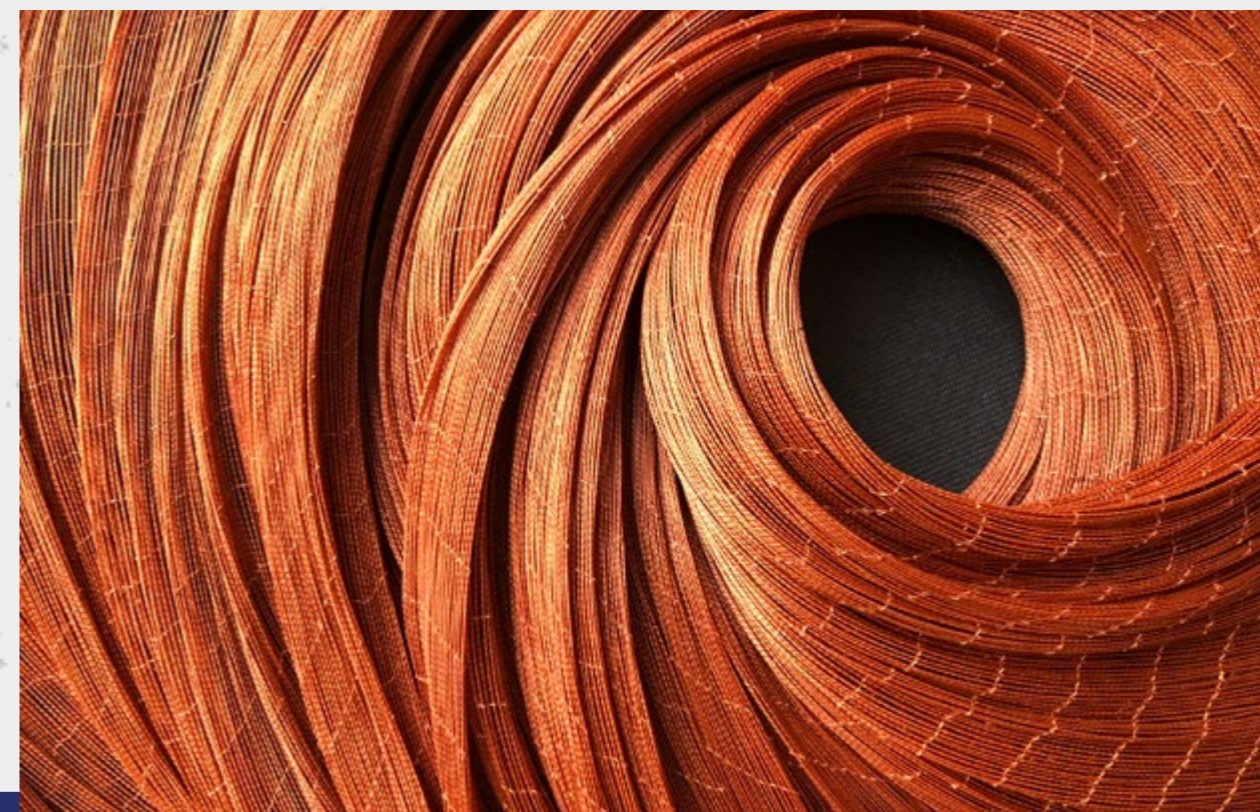
- More safety for all rubber goods
- Comfortable driving at high speed

### Environmental Gains:

- Lighter products thanks to less material usage
- Less pollution as a result of more durability

### Corporate Gains:

- High value-added product in portfolio
- Strong knowledge and experience
- Reputation





# R&D AND INNOVATION

## CoKoon Dipping Technology

Kordsa developed CoKoon, a new eco-friendly dipping technology, which does not contain resorcinol and formaldehyde in bonding textile reinforcing materials to the rubber matrix, instead of the 100 year rubber based formula by joining r&d forces with Continental.

Kordsa provides the CoKoon technology, which does not require additional cost and can be applied without changing process equipment, to everyone who wants to take part in a free of charge licensing pool established together with Continental, and encourages the development of this technology. Hence, CoKoon is positioned to be the new industry standard which offers innovation in both product and business model

**Economic Gains:** Reduced flex-fatigue and prolonged tire life thanks to the reduced solid material amount loaded onto the cord compared to a standard RFL dip.

**Social Gains:** This resorcinol-and-formaldehyde-free formula will be the new industry standard and the developed

technology will be licensed to all companies across the sector free of charge as an outcome of the open-innovation approach.

**Environmental Gains:** In the new technology, more environmentally friendly chemicals that are compatible with REACH regulations will be used.

**Corporate Gains:** We have the pride in leading an innovation that will transform the sector we operate in.

## Construction Reinforcement Products

### KraTos Macro and Micro

KraTos, an innovative synthetic fiber reinforcement is used in concrete reinforcement implementations of infrastructure and superstructure projects. It makes a difference in the construction market by being preferred in prestigious projects with its high performance since 2014.

**Economic Gains:** Thanks to its polymer structure, it extends the life of concrete by not being corroded and creating labor cost advantage.



**Environmental Gains:** Less energy consumption is achieved during its production as against conventional alternatives.

**Social Gains:** It has the features easy handling, homogeneous dispersion in concrete and all-around crack control.

**Corporate Gains:** Thanks to its non-conductive structure, it is used in special projects, in sections where electromagnetic systems are located and where continuous efficiency is required. It is also preferred because it provides long-term safety and high strength.

# R&D AND INNOVATION

## Composite Products

### E-Glass Prepreg

As a company that values strategic industrial partnerships, we create solutions for carbon emission reduction for various industries at Kordsa. We signed a contract with Ford Otosan in 2015 to reduce the weight of the leaf spring systems in heavy duty vehicles by 80% and developed e-glass prepreg as project deliverable this year. This innovative leaf spring includes process optimization, parts qualification and structural health monitoring systems used for online health monitoring purposes.

**Economic Gains:** The commercialization process of the product will begin in 2020. It will create a significant saving opportunity for the vehicle owner.

**Environmental Gains:** Due to less fuel consumption, natural resources will be protected, and less emission will be released. **Social Gains:** It will help reduce air pollution.

**Social Gains:** It will help reduce air pollution.

**Corporate Gains:** A new high value-added product is added to portfolio.

### Water Based Phenolic Honeycombs

Advanced Honeycomb Technologies (AHT), a wholly owned subsidiary of Kordsa, manufactures a wide range of honeycomb cores for aerospace and commercial applications. Honeycomb cores are used in a wide variety of applications found in aircrafts, communications and transportation equipment, space vehicles, construction materials, recreational and sporting goods. Kordsa AHT's Aramid honeycomb core is manufactured from Dupont Nomex® paper and coated with a water-based, heat resistant phenolic resin exhibiting outstanding non-flammability properties. With these qualities, they comply with highly demanding aerospace standards and are deployed in aviation applications. The main difference between AHT and the rest of the industry is the specially developed water-based, solvent free process, that provides a significantly less volatile organic release (VOC) and a safer producing process.

**Economic Gains:** Aviation qualified solvent free water based phenolic honeycomb production creates competitive advantages.

**Social Gains:** Occupational health hazards due to solvent usage are eliminated in water-based honeycomb production. It also eliminates explosion risk during manufacturing and reduces VOC release.

**Environmental Gains:** Water based technology decreases the risk of hazardous solvent release to the environment.

**Corporate Gains:** Depending on current and upcoming necessary restrictions in EU for occupational safety, health and environment, it is expected that avoiding solvent in production and switching water based phenolic resins will make it easier to open new plants and sustain them.



# DIGITALISATION JOURNEY

In today's volatile business world, it has become a must to establish systems that evaluate new generation technologies and integrations together with analytical intelligence that will make more agile and smart decisions. Since 2012, we have been collecting data from production on a global scale and begun to transform all countries into a structure of standard production reporting.

In 2018, the Digital Transformation Committee consisting of Production, Supply Chain and Planning, Quality, Maintenance and Information Systems managers was established. By transforming the concepts of "Digital Transformation and Industry 4.0" into the corporate culture, we accelerated our efforts to digitalize the new products, processes and methods we are developing for all countries we operate.

We began our digitalization journey with a self-assessment by GE Digital. We included benchmark studies in the process along with trainings, conferences, and conventions on Industry 4.0 Insights abroad. We explored good practices through on-site visits to Arçelik, Vestel, Brisa and ÇMS in Turkey and Porsche, BMW and Volkswagen abroad.

We initiated our work with an assessment and evaluation methodology. Different processes were analyzed thoroughly by various expert advisors from different countries and after determining development areas according to corporate priorities, a three-year digital transformation roadmap was prepared for the period 2018-2021.

We commenced projects to ensure fast end-to-end traceability by moving into a big data platform where production data is centralized; to prevent quality defects promptly by advanced sensory systems and image processing technologies; to enable more effective and flexible planning management via optimizations and smart systems in supply chain and planning and to transform into a structure that will facilitate daily life and allow the parts entire corporate structure to communicate with each other.

Industry 4.0 is one of the strategic targets at Kordsa and covers three main topics.

- Advanced Data Analytics
- Robotics and Smart Machines
- Digital Practices and Infrastructure



*Our robots do not only perform standard tasks, but also make decisions by analyzing big data.*

## ADVANCED DATA ANALYTICS

The most important benefits of digitalization are the ability to follow metrics and its potential to analyze data. Indeed, by exploiting these insights, we optimized our strategies and processes in order to yield even better results.

We aim to make use of structured data (customer's personal information) as well as unstructured data (sensors and image-

processing metrics); fusing all our data in a Big Data Platform will be the starting point for the transformation journey. We are highly aware of the importance of data in decision-making and we are advancing smoothly to a higher Return of Investment (ROI) and OEE.

### Advanced Data Analytics Trainings

Giving importance to the training of our employees at Kordsa in the field of advanced data analytics during the digital transformation process, we included a



# DIGITALISATION JOURNEY

total of 17 engineers in the advanced data analytics program of Sabancı University. We initiated advanced data analytics projects with our staff who acquired Data Scientist, Data Engineer and Data Translator titles along with Dx and McKinsey support.

## Advanced Data Analytics at Kordsa and Efficient Production

By means of the optimization studies using advanced data analytics at Kordsa production sites, we achieved more than 10% energy saving at spinning plant where spinning energy consumption is the highest, and more than 2% efficiency increase in production accuracy level in the yarn plant.

## ROBOTICS AND SMART MACHINES

In 2019, we developed our own robotic sensor systems and started to deploy them at our production plants worldwide and actively commissioned constant product monitoring technologies with our quality product and service understanding. We operationalized many innovative technological practices such as robotic process automation, image processing, mobile technologies and machine learning in

our plants, and we continue our investments in this regard.

Until the end of 2020, we aimed to carry out more than 100 processes that do not add value to employees using new systems to complete them uninterrupted, error-free and more efficiently, in maintenance, production, human resources and finance departments of Turkey facilities.

We started to receive positive feedback from our employees and observe an increase in motivation due to their efficient time allocation in value added activities.

On the other hand, when we compare it with current labor costs, we have seen that robotics investments return to our company in about five years.

## DIGITAL APPLICATIONS AND INFRASTRUCTURE

### Image Processing for Quality

To be able to instantly detect production errors that cannot be detected by the human eye and to be able to intervene in the problem by examining more than 50 parameters at the same time has started

to create significant differences in resource efficiency and waste reduction, as well as significant quality improvement.

Kordsa created its own sensor technology for quality smart production with its local partner QPORT. The technology covers 93% of total defects, decrease waste by 30%, decrease breaks by %25 and increase efficiency. Return on Investment is 1.04 year.

### Cyber Security

The landscape of information security is changing rapidly, and digitization is expanding, resulting in an increase in the frequency and magnitude of cyber-attacks. At Kordsa, we understand that information security risks constitute major business risks.

At Kordsa, we regard cyber security scheme as part of digital transformation and hold practices such as regular vulnerability scans, phishing tests and disaster recovery solutions.

All Kordsa premises around the World have the necessary systems installed to monitor global threats and take preventive timely action by making use of Security Operations Center practices.



Kordsa takes place in TÜSİAD's Digital Transformation at Industry Program.



# RESPONSIBLE CONSUMPTION AND PRODUCTION

One of the seven values underlying Kordsa's growth strategy is to protect our people and the environment. We strive to sustain this value with our 'make better with less resource' approach since the day we were established, and we reinforce life while increasing our economic competitive power.

We invest in clean technologies to ensure efficient use of energy, reuse our materials, reduce emissions and other wastes along with reduction in water consumption; and in continuous improvement projects together with our R&D and production teams to increase recycled material usage ratio and to use bio-based materials.

## AWARDS AND ACHIEVEMENTS

### QUALITY AWARD FROM KALDER TO KORDSA

Kordsa was presented the Quality Circle Award for a project that offered a solution to the problem of breaking during product change by Turkey Quality Association (KALDER).





## ENVIRONMENTAL MANAGEMENT APPROACH

At Kordsa we carry out our operations and projects with people and nature at the core.

### Policies

OHSES (Occupational Health & Safety, Environment & Sustainability) Policy and ENPOL Energy management Policy.

### Management Systems

In addition to Turkey site which already has ISO 14001 Environmental Management System Certificate, our site in Indonesia received its certificate in 2017. Thailand and Brazil sites followed in 2018 and USA-Chattanooga site received its system certificate in 2019. Since 2015, we have ISO 50001-2011 Energy Management System Certificate in Turkey sites.

### Team

We have 35 colleagues in SHE Departments and 13 in Energy Committee.

### Measuring and Monitoring Mechanisms

ISO 14001 internal and external audits, TPM SHE Pillar Committee, Energy Monitoring System and Kordsa internal audits.

### Budget

In 2019, we invested in USD 841,000 dollars in environmental protection expenditures.

### Continuous Targets

(These targets are updated in 2020, within the scope of 2025 Sustainability RoadMap.)

**Energy:** Reduce consumption by 1% compared to previous year (kWh/ton)

**Emission:** Maintain emissions within legal limits.

**Waste:** Maintain wastes within legal limits.

**Water:** Reduce consumption by 1% compared to previous year (ton/ton)





# RAW AND OTHER MATERIALS MANAGEMENT

## INTERNAL STAKEHOLDER VIEW

69% of our employees who responded to the sustainability assessment survey think that...

**KORDSA'S PRACTICES FOR EFFICIENT USE OF RAW MATERIALS ARE ADEQUATE.**

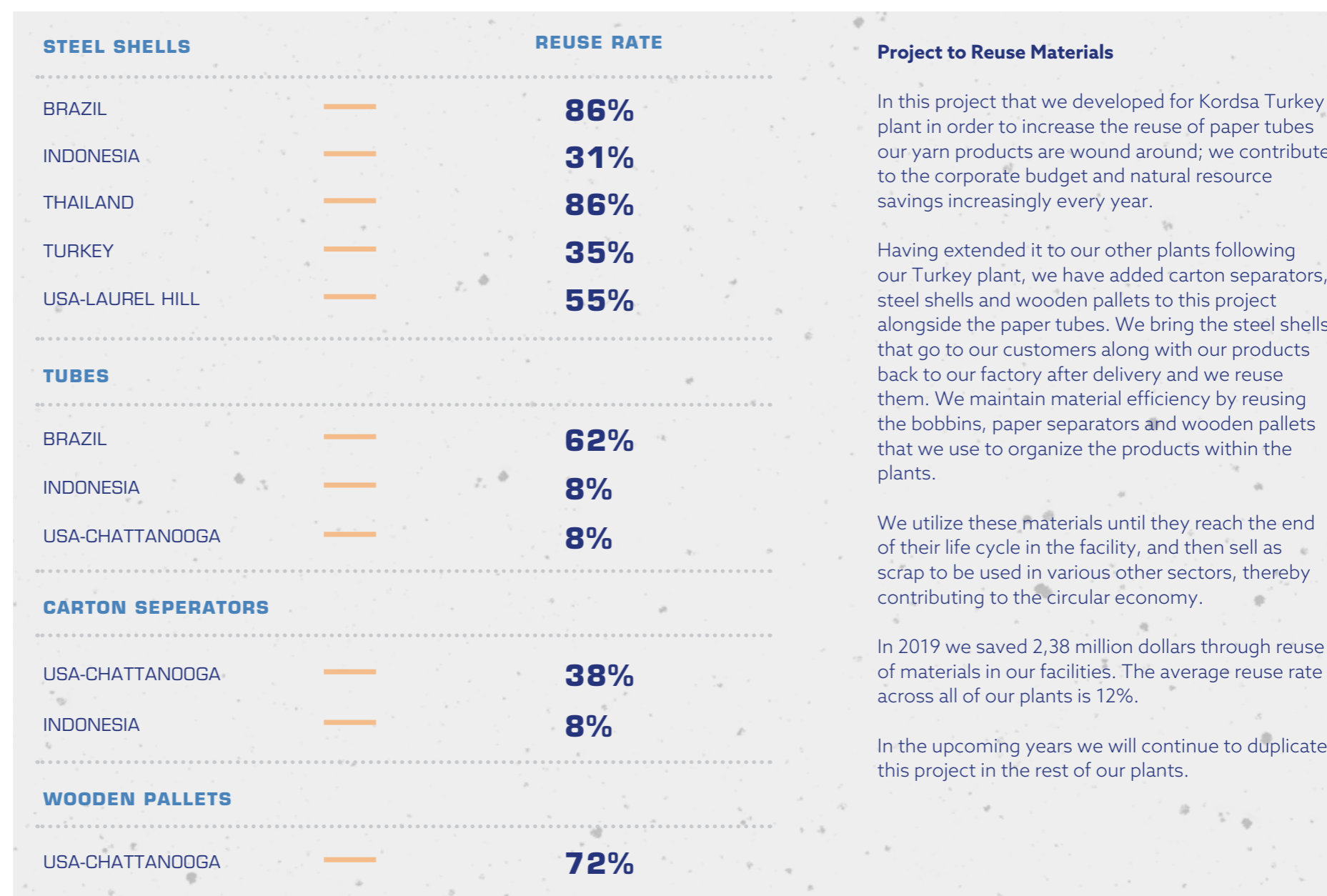
Selection and efficient use of raw materials rank among the top indispensable elements of our company's production. Raw and other materials expenditures constitute about 61% of our total procurement.

The policy that we base our materials management is our SHE policy. Our targets vary depending on different production processes of product groups. We implement projects to reuse materials and to decrease the consumption of raw materials we use in the production.

In 2019, we identified the metrics to be used in OPEX for composite product group reporting

in the coming years which is currently done on OEE (Overall Equipment Effectiveness), labor productivity and energy.

The details of our Raw and Other Materials Management Approach is [here](#).



### Project to Reuse Materials

In this project that we developed for Kordsa Turkey plant in order to increase the reuse of paper tubes our yarn products are wound around; we contribute to the corporate budget and natural resource savings increasingly every year.

Having extended it to our other plants following our Turkey plant, we have added carton separators, steel shells and wooden pallets to this project alongside the paper tubes. We bring the steel shells that go to our customers along with our products back to our factory after delivery and we reuse them. We maintain material efficiency by reusing the bobbins, paper separators and wooden pallets that we use to organize the products within the plants.

We utilize these materials until they reach the end of their life cycle in the facility, and then sell as scrap to be used in various other sectors, thereby contributing to the circular economy.

In 2019 we saved 2,38 million dollars through reuse of materials in our facilities. The average reuse rate across all of our plants is 12%.

In the upcoming years we will continue to duplicate this project in the rest of our plants.

# RAW AND OTHER MATERIALS MANAGEMENT

## PROJECT TO REDUCE USE OF MATERIALS

As a result of monitoring our performance in the use of materials and our efficiency efforts, we achieved significant improvements in the use of chemicals and flake rates at our plants since 2014, our baseline year. In spite of capacity optimizations in USA, Brazil and Indonesia and R&D programs ran in Turkey, there

has not been any significant increases in chemical consumptions but we achieved to decrease chemical use at some of our plants.

The table below shows the ratios of data of materials and chemicals used at our plants and the reduction performances in 2019 compared to 2017.

MATERIALS	PLANTS	2017	2018	2019
TCF Chemical Ratio	Dipping NY - Turkey	1.00	1.16	0.98
	Dipping PE - Turkey	1.00	1.11	1.02
	Dipping - USA / LH	1.00	1.03	1.04
	Dipping - Brazil	1.00	1.04	1.01
	Dipping TCF1 - Indonesia	1.00	1.01	0.99
	Dipping TCF2 - Indonesia	1.00	0.96	0.94
	Dipping - Thailand	1.00	0.98	1.04
MATERIALS	PLANTS	2017	2018	2019
NY Salt / Flake Ratio	NY Yarn Line 1 - Turkey	1.00	1.03	0.99
	NY Yarn Line 2 - Turkey	1.00	0.99	1.00
	PE Yarn - Turkey	1.00	1.01	1.02
	NY Yarn - USA / CH	1.00	1.00	0.98
	Yarn - Brazil	1.00	1.77	1.79
	NY Yarn - Indonesia	1.00	1.01	1.01
PE Yarn - Indonesia	1.00	0.95	1.00	
MATERIALS	PLANTS	2017	2018	2019
SEC Chemical Ratio	SEC - Turkey	1.00	1.21	1.42
	SEC - Brazil	1.00	1.00	0.98



**Project Name:** Development of Glass-Fiber Reinforced Nylon 6.6 Engineering Plastics

**Leader / Application Location:** R&D Center (Izmit)

**Timing:** 2018-2019

**Objective:** To create added value by reinforcing the waste generated in PA66 yarn production with glass fiber as requested by original equipment manufacturers.

**Results and Gains:**

- Economical:** We took advantage of the opportunity to offer our clients products with higher specifications in comparison with the existing products available in the market, and provide them with products that meet their demands.
- Social:** We started to contribute more to the national economy by adding an important base material of the Turkish automotive sector, P66, back to the supply chain with an increased added value as an export item.
- Environmental:** We put our mark on a project that has very positive impacts on environment through enabling the reuse of an important engineering polymer, PA66, and stopping scraps from being a waste and gaining them back to the production.

# ENERGY MANAGEMENT

## INTERNAL STAKEHOLDER VIEW

68% of our employees who responded to the sustainability assessment survey think that...

**"KORDSA'S INVESTMENTS AND PROJECTS TO ASSURE ENERGY EFFICIENCY ARE ADEQUATE."**

Our goals of energy efficiency and using less energy per unit product we produce has a strategic importance for our company. At Kordsa, electricity, natural gas and steam are the main types of energy we use as input for production.

Energy Committee, which consist of white-collar employees and Maintenance, and Auxiliary Facilities Group Manager as energy representative, measures and monitors energy use based on ISO 50001 Energy Management System, prepares energy reports and manages energy reduction projects.

We monitor our energy consumption trends on plant and manufacturing process base and taking 2013 data as base year. The increase and decrease in the amount of production does not have one-on-one effect on energy consumption. The energy consumption can remain constant in either case. What has an effect on the change are the changes in the product content (product mix). We are tracking the parameters such as Dtex, speed, scrap and unit rates on a monthly basis, and go over the changes in the BPR meetings with the participation of all related managers.

### PERFORMANCE IN 2019

Following the significant improvements between 2011-2014 period, as a result of efficiency project, we reduced the natural gas consumption of all our facilities from 2014 to 2017 by 43-51% thanks to our efficiency projects.

In 2019, together with of the reductions by 8-13% in dipping processes of Thailand and Indonesia sites and in spite of the data inclusion of our four composite companies, we achieved 4% reduction in our global electricity consumption. One of the reasons

behind the increase is the new polyester yarn line that we started up in April. In 2019, our global natural gas consumption increased by 1.6% as a result of data inclusion of new sites.

All energy consumption data is [here](#).

### ELECTRICITY CONSUMPTION (MWH)

2019 576,012

2018 599,492

### NATURAL GAS CONSUMPTION (MILLION SM<sup>3</sup>)

2019 62.4

2018 61.4

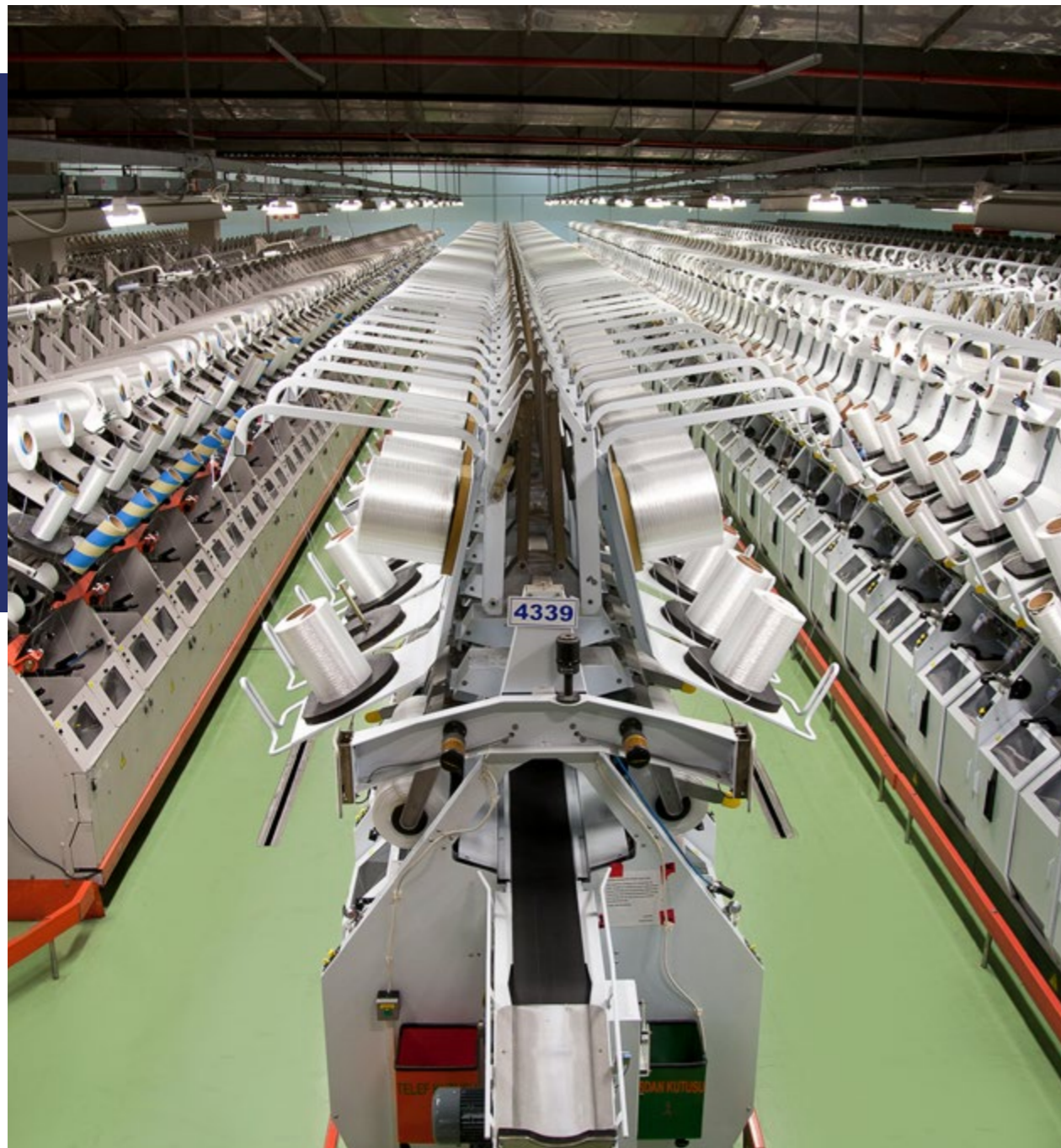
2018 data covers all sites except for four new composite companies in the USA.

2019 data covers all sites.





# ENERGY MANAGEMENT



Project Name: **Climatization Efficiency Project**

Location: Brazil

Timing: June 2019- July 2020

We collaborated with the local energy distribution company and an energy efficiency company which is hired for the project, to reduce energy consumption in our plant. The reasons behind the project were; high energy consumption in our climatization, and in our production and distribution of chilled water. Our target is to save 3,400 MWh/year. Consequently, we will save USD 210,000/year.

Project Name: **Warehouse Heating Optimization**

Location: Turkey (Fabric Plants)

Timing: October- December 2019

Steam heating the auxiliary facility warehouses during redundancy resulted in unnecessary energy consumption. Thermal clothing is obtained for all warehouse staff. 14 steam apparatus were turned off due to elimination of heating need. Thanks to this practice, we saved 13,369 dollars annually by reducing emissions resulting from 534,750 kWh steam generation. We plan to employ this practice at all warehouses.

# EMISSIONS MANAGEMENT

## INTERNAL STAKEHOLDER VIEW

65% of our employees who responded to the sustainability assessment survey think that...

**KORDSA'S PROJECTS AND PREVENTIVE MEASURES TO MONITOR AND REDUCE EMISSIONS ARE ADEQUATE.**

Management and reduction of emissions including GHGs and combatting climate change are among Kordsa's priorities. Our goal is to act in compliance with local regulations on greenhouse gas emissions in all countries we operate.

## CDP CLIMATE CHANGE REPORTING

In 2014, we calculated our greenhouse gas emission in accordance with the GHG regulation and approved by the Ministry of

Environment in Turkey. Later in 2016, we started Carbon Disclosure Project (CDP) Climate Change reporting. From 2016 to 2019, in four years, we raised our score gradually from D to B.

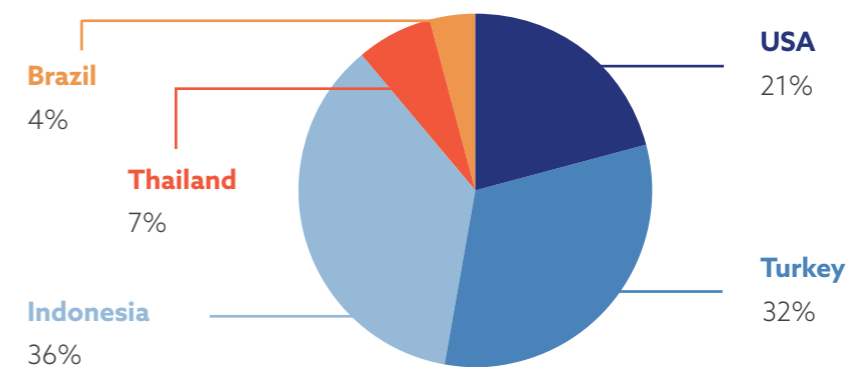
We started calculating and monitoring our direct emissions (Scope 1) of Indonesia and Thailand plants in 2015 and the rest of the plants in 2017.

We completed 2018-2019 Scope 1 and Scope 2 emission calculations of all plants in 2019. Compared to 2018, in 2019 our Scope 1 emissions increased by 0.55% and Scope 2 emissions decreased by 4%. Consequently, our total emissions decreased by 2.66%.

At Kordsa, we aim to continue emissions management, monitoring and measurements, and to make systematic improvements for emission reduction.

Kordsa CDP Climate Change Report is [here](#).

## TOTAL GHG EMISSIONS REGIONAL SPLIT



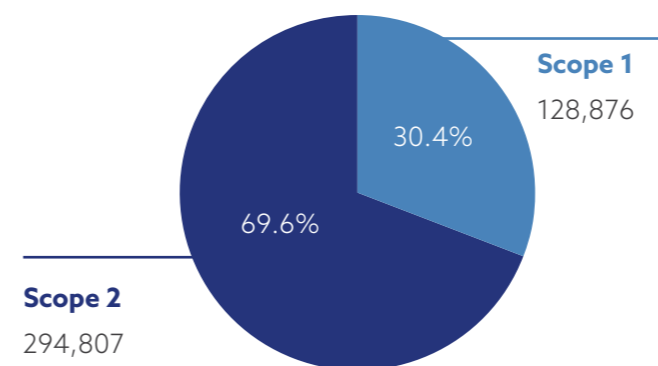
Kordsa Plants (tCO<sub>2</sub>e)

Turkey - İzmit	32.05%	USA - Laurel Hill	3.28%
Turkey - İstanbul (CTCE)	0.41%	USA - Quakertown (FDI)*	0.12%
Indonesia	35.93%	USA - Anaheim (TPI)*	0.06%
Thailand	6.55%	USA - San Marcos (AHT)*	0.07%
Brazil	3.66%	USA - Santa Ana (Axiom)**	0.34%
USA - Chattanooga	17.54%	<b>TOTAL</b>	<b>100.00%</b>

**CTCE:** Composite Technologies Center of Excellence

## TOTAL GHG EMISSION SPLIT

(423,683 tCO<sub>2</sub>e)



**Scope 1 data includes:** Natural gas, generators & pumps, cooling gases, fire extinguishers, company vehicles.

**Scope 2 data includes:** Electricity

# EMISSIONS MANAGEMENT

Project Name: **Drying Silo Optimization**

Location: Turkey

Timing: January 2019-December 2019

We aim to reduce air consumption at the warehouses by 15% by drying silo optimization project led by the Polyester Yarn Production Management. We saved 420,000 kWh electricity and USD 36,000 thanks to the efficiency level achieved.

Project Name: **Air Conditioning Systems Improvement**

Turkey (Spinning)  
We aimed to obtain energy efficiency by reducing the speed of air conditioning fans when they were not in use. We saved USD 35,530 annually by reducing energy consumption by 418,000 kWh.

Brazil (Spinning)  
We adjusted the air conditioning systems according to the changes in the processes for energy efficiency and cost reduction. We also eliminated air conditioning in obsolete areas. Thus, we saved USD 12,700.

Project Name: **Reducing Air Leakages**

Location: Turkey (Spinning)

Timing: January-December 2019

In the project led by Fabric Maintenance Management, we cut pressurized air during the idle times by adding solenoid valve connection to each spinning machine to improve air leakages. Our target was 32,880 kWh pressurized air efficiency. At the end of the Project, we achieved 947,826 kWh electric energy efficiency and USD 76,491 saving annually.

Project Name: **Equipment Development to Reduce the Impact of the Chemicals Used In Cord Fabric Production**

Leader /Application Location: Turkey Global Engineering

Objective: Development of treatment equipment to reduce chemicals' environment impacts and to reduce odorous chemicals from the finishing furnaces below the legal limit of 1,000 KB

Timing: 01.12.2019-30.06.2021  
Budget: USD 220,000  
Collaboration: Aerox B.V Netherlands (Technology Support)

Targeted Results and Gains: **Social:** To create a safety basis for new chemical development and application.  
**Environmental:** To obtain sustainable and environmentally friendly production conditions



# WASTE MANAGEMENT

## INTERNAL STAKEHOLDER VIEW

70% of our employees who responded to the sustainability assessment survey think that...

**KORDSA'S PRACTICES TO MANAGE WASTE AND WASTEWATER TO PREVENT ENVIRONMENTAL POLLUTION ARE ADEQUATE.**

In Kordsa plants, disposal, recovery and reuse of production wastes and wastewater as specified by law are among our regular activities. We dispose 100% of the wastes generated in our facilities by recycling, reclamation, landfill, incineration and direct disposal in accordance with national regulations.

## 2019 PERFORMANCE

In 2019, we decreased the amount of hazardous waste by approximately 30% and non-hazardous waste by 22%. We achieved some of our waste reduction by reusing our product wastes in the production.

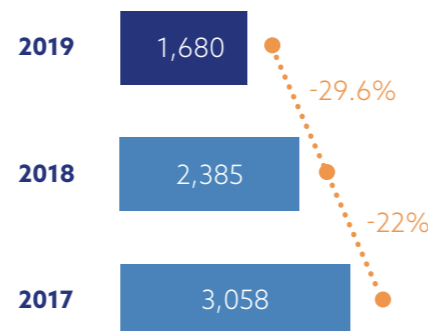
In 2019, we continued to efficiently use our corporate resources and also prevented

environmental pollution with our ongoing projects by recovering some of our materials and reusing them in the production. We disposed 73% of the waste generated at Kordsa sites by recycling methods in 2019.

Our waste data according to disposal methods are [here](#).

Details of our Waste Management Approach is [here](#).

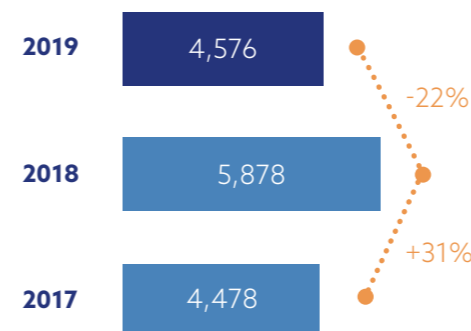
## HAZARDOUS WASTE REDUCTION PERFORMANCE



**Data includes:** Turkey – İzmit, Turkey - İstanbul (CTCE), Indonesia, Thailand, Brazil, USA – Chattanooga, USA - Laurel Hill

**CTCE:** Composite Technologies Center of Excellence

## NON-HAZARDOUS WASTE REDUCTION PERFORMANCE



## Global Cooperation for Plastic Recycling



Kordsa became a part of a new project named PolynSPIRE: Demonstration of Innovative Technologies Towards

A More Efficient and Sustainable Plastic Recycling, under the European Union's "Horizon 2020" R&D and innovation program along with twenty-two partners. The project is initiated to strengthen research and technology-development capabilities in Europe while encouraging university-industry collaboration.

In the 48-month period of the PolynSPIRE project, three innovation pillars covering the TRL7 level will initiate and it is expected to recycle/reuse 60 kilotons of plastic waste, to reduce 300 kilotons equivalent CO<sub>2</sub> emissions, and to save 70 kilotons oil equivalent fossil resources. Targeted impacts in 20 years are treating annually 4.5 million tons of residue, 45 million tons of CO<sub>2</sub> emissions reduction per year and 10 million tons of oil equivalent of fossil fuel recovery per year.

The third meeting of the PolynSPIRE project in Istanbul was hosted by Istanbul Chemicals and Chemical Products Exporters' Association (IKMIB) and supported by Kordsa. On the last day of the 3-day event in October, participants visited İzmit facility of Kordsa.

# WASTE MANAGEMENT

## Kordsa's Contribution to Circular Economy

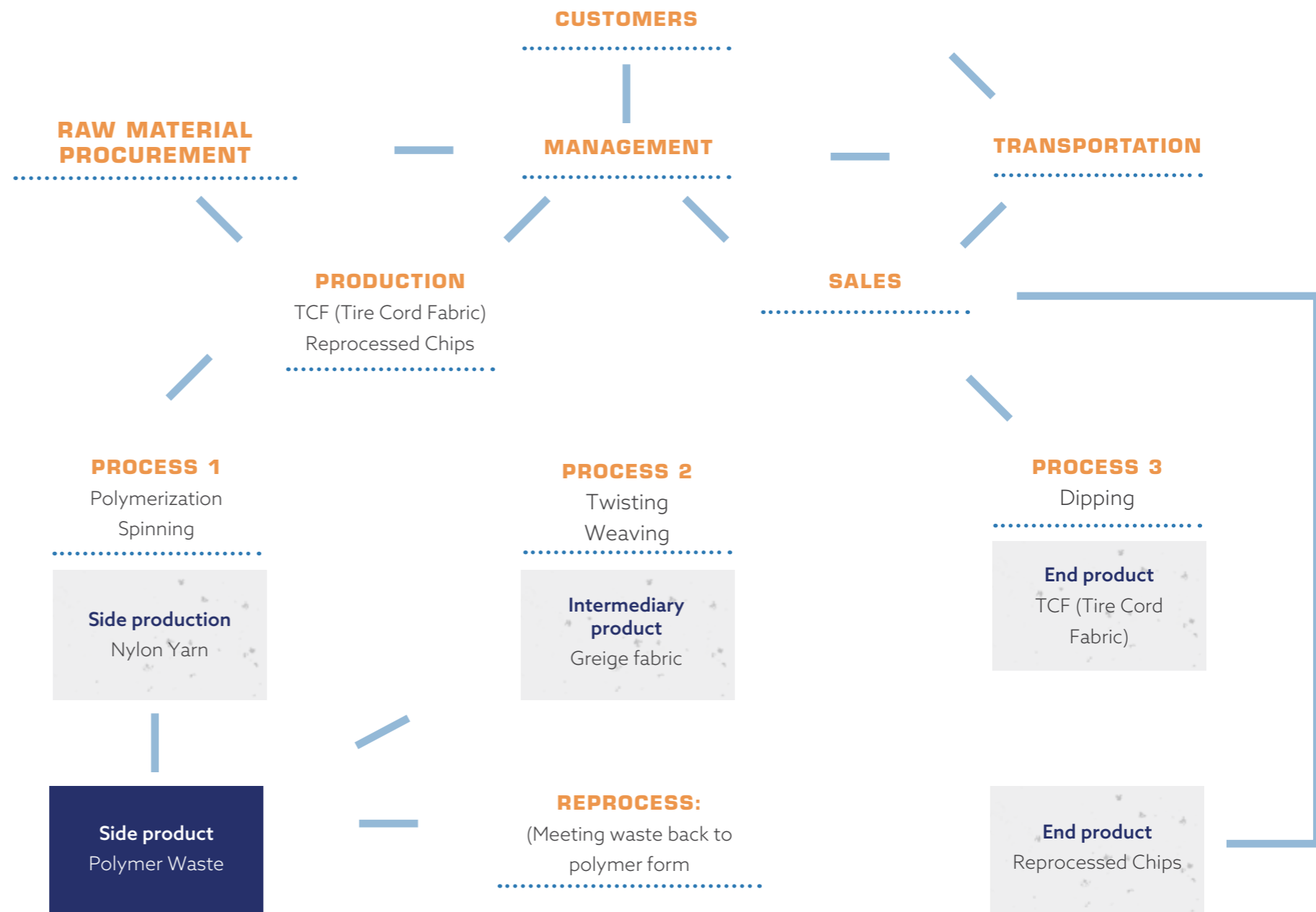
Since 2014, we turn the side products that come out in Nylon 6.6 yarn production facilities into pellet form at Kordsa Turkey and turn them into a raw material for engineering plastics industry. Those plastic raw materials provide zero-emission raw material input in various sectors and are turned into a variety of products in industries such as automotive and white appliances, thereby regaining them into the economy.

### Results and Gains

**Economic:** We turned Nylon 6.6 yarn by products into a high value-added product. Our revenue gains from the sales of the products we turned into pellet form to date reached over 20 million dollars to date.

All of these products are being used by the manufacturers in Turkey. Since the local engineering plastics manufacturers can obtain these materials locally, there has been a drop in Nylon 6.6 import, which resulted in the reduction of costs and increasing the manufacturers' profitability. We contributed to our country's economy by being instrumental in this new chain.

**Environmental:** The recycling of the side products was available only in our plants in Turkey up until 2018, but from 2019 on we added our other facilities to the list, and we gained about three thousand tons of polymer waste to the circular economy on a global scale.



# WASTE MANAGEMENT

Project Name: **Integration of Dynamic Crosslinking Mechanisms into Thermoplastic and Thermoset Polymers to Improve Sustainability**

Leader /Application Location: Kordsa Turkey (Chemicals and Laboratories Platform)

Timing: 14.06.2019-14.06.2021

Objective: Contributing to sustainability by making a research of the polymers that have recyclability and finding ways to improve the durability of polymers.

Targeted Results and Gains: **Economic:**  

- To gain ability to reuse thermoset materials and decrease the material waste.
- To gain ability to self-healing of materials and increase durability.
- To obtain new class of polymeric materials which have more sustainable characteristics.

**Social:**  

- To obtain recyclable thermosets to guarantee the production of the sustainable materials.
- To improve the durability of the polymers by integration of self-healing abilities or by increasing their mechanical properties.

**Environmental:** Application of polymers with recyclability or self-healing ability will result in decrease of the waste and help to support environmental sustainability.

**Future plans:** The project was opened under the subject of development of alternative adhesives. At the end of the research, a detailed report will be shared with R&D departments. According to needs of the divisions, new projects that are focused on integration of dynamic bonds will be opened.

Project Name: **Noise Reduction in Passenger Tires by TCF Applications**

Leader /Application Location: Kordsa Turkey Industrialization and Approvals Platform

Timing: 01.09.2019-01.09.2020

Objective: Usage of light reinforcement material in the tire to reduce the noise pollution of the tire and the weight of tire. Standard tire decibel level is 74. Target of the project is to reach 70.

Targeted Results and Gains: **Economic:** This product can be used instead of polyurethane foam which causes increasing of the heat in the tire and decreasing the tire life.

**Social:** By using this material, noise pollution due to the tire will be decreased.

**Environmental:** By using this material, tire weight will be decreased. Therefore amount of rubber in the tire will be less. Consequently, fuel consumption and waste generation will be lower during the use and after use phase of the tire.

**Future plans:** Based on tire results and approval of the product; we will continue with prototype-scale up & deployment phase.



# WATER MANAGEMENT

## INTERNAL STAKEHOLDER VIEW

64% of our employees who responded to the sustainability assessment survey think that...

**KORDSA'S PRACTICES TO MANAGE AND EFFICIENTLY USE WATER RESOURCES ARE ADEQUATE.**

Water use is of paramount importance for the manufacturing processes at Kordsa plants and auxiliary operations. Water quality, accessibility and preservation of usable water resources are essential for the sustainability of our production and cost control.

In all our operations, we treat all the water we use at water treatment plants before discharging it to river or any local government piping. Our investments ensure that our water treatment capacity will meet the demand of future expansions.

At all plants and offices, we put efforts to use water more efficiently, we encourage industrial reuse of treated water through reverse osmosis system.

### 2019 PERFORMANCE

In 2019, we treated and reused 182,000 m3 of water in Turkey and Indonesia sites. Although we included the water consumption of four new composite sites in the data, we decreased the amount withdrawn from municipal resources by 31.6%. As a result of the water we withdrew from other water resources, our overall global consumption increased by 0.3%.

### WATER CONSUMPTION (M<sup>3</sup>)

2019 1,431,896

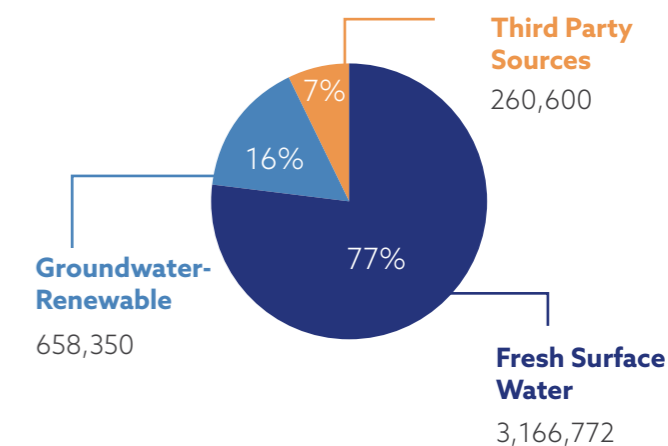
2018 1,427,509

### RECYCLED WATER (M<sup>3</sup>)

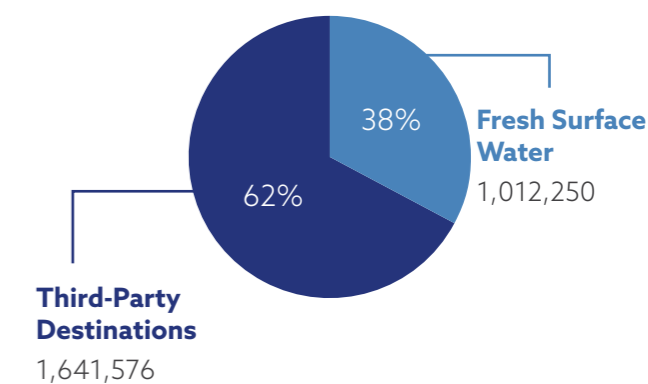
2019 181,671

2018 189,437

### WATER WITHDRAWALS (4.09 MILLION M<sup>3</sup>)



### WATER DISCHARGES (2.65 MILLION M<sup>3</sup>)



Kordsa CDP Water Security Report is located [here](#).

2018 data includes all sites except the four new composite sites. 2019 data includes all sites.

Project Name: **Reduction of Water Usage from Yuvacık Dam**

Location: Turkey (Auxiliary Facilities)

Timing: January- December 2019

Yuvacık water used at auxiliary facilities was better quality water than needed. We built untreated water lines from other facilities in order to use underground water instead of drinking quality Yuvacık water. The maintenance of wells and their use were improved. Systems revisions and enhancements were carried out. As a result, we both created a social value by not using 97,470 m<sup>3</sup> drinking water and saved USD 153,000 annually. We also achieved 25,000 m<sup>3</sup> water efficiency.

## 8 DECENT WORK AND ECONOMIC GROWTH



# DECENT WORK AND ECONOMIC GROWTH

As Kordsa, we continued to offer value to our stakeholders both with the economy we created and with our investments in 2019. With the technologies we developed in all three lines of business, we grew sustainably by increasing our net profit by 12%.

We continued to provide safe and secure work environment which enhances productivity, for all our human resources of about 4,500 people including subcontractors located in five countries and maintained their human and labor rights. We strongly mind retaining our talented employees and investing in their development.

## AWARDS AND ACHIEVEMENTS

### BEST LABOR RELATIONS IN THAILAND

Kordsa, has been honorably awarded the Excellent Establishment on Labour Relations and Welfare for 10 consecutive years by Thailand Ministry of Labor.



### AMONG THE BEST EMPLOYERS IN BRAZIL

Kordsa is listed among the Best Employers in Brazil 4<sup>th</sup> consecutive year by Great Place to Work Institute. Kordsa strengthens its global success once more with the prestigious award as the 17<sup>th</sup> best company among 150 companies.



### COMPANY OF THE YEAR IN BRAZIL

Você S.A., one of Brazil's most prestigious magazines, named Kordsa "the best company to work for", "the best company in textiles to work for" and "the best small company to work for with less than 500 employees". Kordsa Brazil received an impressive job happiness index of 87.5%.



# OCCUPATIONAL HEALTH AND SAFETY

## INTERNAL STAKEHOLDER VIEW

87% of our employees who responded to the sustainability assessment survey think that...

**KORDSA TAKES NECESSARY MEASURES SUFFICIENT TO OVERSEE AND SECURE HEALTH AND SAFETY OF ITS EMPLOYEES.**

Health and safety of our employees comes first among our company's strategic sustainability priorities. The common and only goal of all our people and departments in charge of occupational safety is to attain zero occupational accident and zero occupational disease. We are aiming to hit this target by establishing the behavior centered occupational health and safety consciousness culture in all of our employees.

**Our Policy:** OHSES Occupational Health and Safety, Environment and Sustainability Policy.

**Our Management System:** Our Turkey-Izmit plant is ISO 45001-2018 certified.

**Our Team:** There are 35 people in total in the SHE Departments in all of our plants.

**Our Measurement and Tracking**

**Mechanisms:** ISO 45001 External Audits, TPM SHE Pillar Committee and Kordsa Internal Audits.

**Our Continuous Targets:** Zero accident

We implement "The 10 Golden Rules of Occupational Safety" to prevent employee injuries across all our plants. We renew the process hazards researches every three years. We have Management-Worker Health and Safety Committees in all our facilities with the same operating structure. 100% of our workforce is represented in these committees.

## 2019 PERFORMANCE

During the reporting period, no fatal accident has occurred at Kordsa or at any of its subcontractors. We transferred process based occupational health and safety risk management to online platform. Thus, all occupational health and safety trainings can be monitored on employee basis now. Machine equipment safety systems project is completed. Process security risk management standards training is completed. Accident investigation, chemical

approval process and change management portals became global. Majority of project ideas on occupational health and safety improvements originate from our employees. We took precautions against accidents thanks to our employees' ideas.

Details of our Occupational Health and Safety Management Approach is [here](#).

Data on Occupational Health and Safety performance by country are [here](#).

Project Name:	<b>Change Management EBA Project</b>
Location:	Kordsa İzmit
Timing:	30.06.2019 - 30.06.2020
<p>The project run by SHE Management was initiated for thorough risk assessment of changes in process, machine equipment, material, energy source, etc. at the plant and to minimize the negative impacts of changes and mitigate unexpected losses. Our aim was to manage three process changes in the field and complete them on EBA platform. We organized workshops, meetings and visits with stakeholders, and prepared documents and provided trainings.</p>	
Targeted Results and Gains	The project will enable us to make correct and thorough risk assessment, prevent environmental accidents thus, loss of life and property, and conform with legal regulations and avoid consequent penalties.
Our Future Plans:	We plan to integrate this system with chemical management EBA project, online risk assessment, machine safety, accident, scorecard and similar systems.



# OCCUPATIONAL HEALTH AND SAFETY

Project Name: **Spindle Sliding Cover Improvement**

Location: Kordsa Thailand

Timing: 01.05.2019 / 25.10.2019

Maintenance department started an improvement project on the twisting machine to increase safety for the operator and to reduce energy consumption. As a result of the project, we saved about USD 56,000 as cost of spare parts.

Project Name: **Oil Leakage in Weaving Looms**

Location: Kordsa Brazil

Timing: 10.04.2019 / 10.10.2019

Maintenance Manager led a project at weaving process with the aim of reducing oil leakage which resulted in excessive oil consumption, dirtiness in weaving looms. By selecting looms, replacing washers and periodic inspection of hoses and o’rings and replacing them when needed we managed to decrease oil leakages by 80%. We also reduced fire risk and risk of accidents.

Project Name: **Chemical Safety EBA Project**

Location: Kordsa İzmit

Timing: 30.06.2019 / 30.06.2020

The project run by SHE Department was initiated for receiving all chemicals entering Kordsa facilities after control and approval, thereby determining and implementing correct and adequate precautions, avoiding accidents, and complying completely with regulations. The differences between electronic system flow and physical flow were resolved through workshops, meetings, and on-site observations of stakeholders.

Targeted Results and Gains

Preventing nonuniform and uncontrolled chemicals usage at the plant will enable elimination of environmental accidents and thus, losses of life and property and avoid penalties by full compliance with regulations.

Our Future Plans

We plan to integrate this system with all the other online risk assessment, MOC (Management of Change), machine safety, accident, scorecard and quasi digital systems.

Project Name: **Online Risk Assessment Project**

Location: Kordsa İzmit

Timing: 30.06.2019 / 30.06.2020

The project run by SHE Department was initiated to easily reach and update risk analyses, to keep them alive and monitor them. Risk analyses entries of all departments in the system are completed. We organized workshops, meetings and on-site visits with stakeholders, and prepared documents and provided trainings.

Targeted Results and Gains

Ensuring legal compliance by completing lacking risk analysis, live monitoring of risks and taking precautions quickly will prevent accidents that rise from lack of risk analysis and thus, penalties and compensations.

Our Future Plans

We plan to integrate the system with all other machine safety, accident, scorecard and similar digital systems.

# OCCUPATIONAL HEALTH AND SAFETY

Project Name: **SHE Journey**

Location: Brazil

Timing: December 2019

The intense program of activities reminded to motivate actions and inspire behaviors aimed to reinforce the SHE culture. With this initiative, Kordsa Brasil reinforces its commitments to:

1. Act preventively in the management of risks to the SHE of people and the integrity of facilities.
2. Meet the legal requirements of SHE established and those assumed voluntarily.
3. Promote a healthy work environment considering issues related to the physical and psychosocial work environment.

## Results and Gains

Created an engagement program to share knowledge of the practices and strengthening of the SHE culture.

Reminded that SHE is everyone's responsibility, valuing SHE means valuing people and following rules and procedures established for risk control and mitigation is a Golden Rule for Kordsa.

Reminded that everyone is encouraged to help each other and has the right to refuse to perform any activity in which the risks involved are not properly controlled.

## Future Plans

We plan to make this practice part of the company's calendar regardless of the occurrence of collective holidays.





# OCCUPATIONAL HEALTH AND SAFETY



## OHS TRAININGS

In 2019, we provided our employees with theoretical and applied trainings such as process security risk management, reasons of occupational illnesses and accidents and application of protective techniques, electricity threat, risk and preventions, safety and health marks, chemical, ergonomic, biological and psychosocial risk factors, personal protective equipment usage, occupational health and safety general rules and safety culture, first aid, evacuation and rescue besides with trainings to inform them about the damages of tobacco products and passive smoking

CTCE: Composite Technologies Center of Excellence

\* Composite companies joined Kordsa in 2018

\*\* Composite company joined Kordsa in 2019

## OHS TRAINING HOURS/ EMPLOYEES

2019

Turkey - İzmit	13
Turkey - CTCE	6
Brazil	27
Indonesia	8
Thailand	9
USA - Chattanooga	17
USA - Laurel Hill	6
USA - Quakertown (FDI)*	11
USA - Anaheim (TPI)*	2
USA - San Marcos (AHT)*	2
USA - Santa Ana (Axiom)**	-



# OCCUPATIONAL HEALTH AND SAFETY

## MANAGEMENT-WORKER HEALTH AND SAFETY COMMITTEES

NAME OF COMMITTEE	DEFINITION	LEGAL / VOLUNTARY	PARTICIPANTS
OHS Committee	Official meeting of the representatives of the employer and employees. All legal decisions are made by this committee.	Legally required	Employer representatives, union representatives, managers, subcontractor representatives
Emergency Response Team	Organized for all shifts in the plant.	Legally required	Blue and white-collar employees
Electrical Safety Committee	Lays down all rules and standards on electricity hazards in the plant; makes inspections and provides training.	Company initiative	Mostly white-collar and also blue-collar employees
Process Safety Management	Carries out activities and inspections for explosions, fires, leaks and occupational accidents that may arise from the production process. Have annual targets.	Company initiative	White-collar employees
Hazardous Chemicals Committee	Identifies hazards wherever chemicals are used, conducts risk analyses, sets safety markings properly and provides trainings on chemical hazards.	Company initiative	White and blue-collar employees
Ergonomics Committee	Oversees the identification of ergonomic risks and improvement works	Company initiative	White-collar employees
OHSES (Occupational Health & Safety, Environment & Sustainability) Management Committee	Works to improve OHSES performance, disseminate OHSES culture, manage improvement and development activities, and review performance.	Company initiative	All department managers and representatives, and Operations Director as Chairman
SHE TPM Committee	Oversees the work on developing SHE consciousness and culture and performance improvement	Company initiative	White and blue-collar employees

SDG 9. Industry, Innovation and Infrastructure

SDG 12. Responsible Consumption and Production

SDG 8. Decent Work and Economic Growth

SDG 5. Gender Equality

SDG 4. Quality Education

# OCCUPATIONAL HEALTH AND SAFETY

## Total Productive Maintenance (TPM) Integration

TPM integration launched in 2015, is regarded as one of the most essential initiatives under sustainability management because of the positive economic, social, environmental and corporate benefits it generates.

### Activities in 2019

#### Turkey

TPM's eight pillars were activated by completion of SHE (Safety, Health, Environment), Early Management, E&T (Education & Training) pillars. With Early Management pillars, we plan to start production on time at once with quality products, smart equipment at safe production sites within budget. We intend to have employees who develop themselves and their works by means of training committee. We also established Technical Training division at Kordsa.

Our intention to undertake all these practices is to stop information dependency on people. With SHE pillars, we aim to prevent accidents while serving sustainability. We began studies for award process and autonomous maintenance

step four trainings. Therefore, we were able to enhance knowledge and skills of operators.

#### Indonesia

We prepared Human Resources TPM booklet for TPM Award process. Autonomous maintenance fourth step trainings are completed. We started training on the fifth step, the control step, of autonomous maintenance practice. The purpose of the fifth step is to create cleaning, lubrication and control standards that are illustrative and can be used efficiently.

#### Brazil

We intended to expand TPM perspective and commitment homogeneously by switching committee leaders. We deployed OTPM pillars studies. Hence, company support functions are included in TPM. Brazil office is visited by Turkey lean office representative and set an example of synergy, expansion and support between these premises.

#### Thailand

Our team grew stronger in FI by focusing efforts on this topic. We made sure that everyone in the management team participated in all TPM sessions for TPM philosophy to be fully understood. We started award studies for the 2020 TPM Awards. We activated SHE, OTPM, E&T pillars. So, TPM perspective was digested into sustainability and occupational safety understanding. We managed to include whole company in TPM activities through OTPM pillar. We intended to keep Kordsa knowledge within Kordsa by systematic trainings facilitated by E&T pillar.

#### USA-Chattanooga & Laurel Hill

We performed activities on Planned Maintenance (PM) and Autonomous Maintenance (AM) topics. We plan to start studies on third and fourth steps in 2020. We intend to establish Quality Maintenance and Early Management committees by the end of 2020.

#### Composite (USA)

We commenced 5S studies and Turkey lean office representatives gave support in this regard. We also began preventive maintenance work in TPI.

#### Composite (EMEA)

We began autonomy studies with the help of lean office. We gave general TPM training to our staff.

#### Our Future Plans

We will keep up with the trainings where the pillars of the TPM are explained in detail in order to broaden the awareness and increase the leadership across all of our employees in our facilities. We will activate all TPM pillars where the committee leaders will play influential roles. We will continue to work for TPM Excellence Award application process and to collect the resources for the future Kordsa TPM Activity Book. We began to write the TPM Activity Book. Studies on TPM pillar KPIs (Key Performance Indicators) and KAls (Key Attitudinal Indicators) are completed.

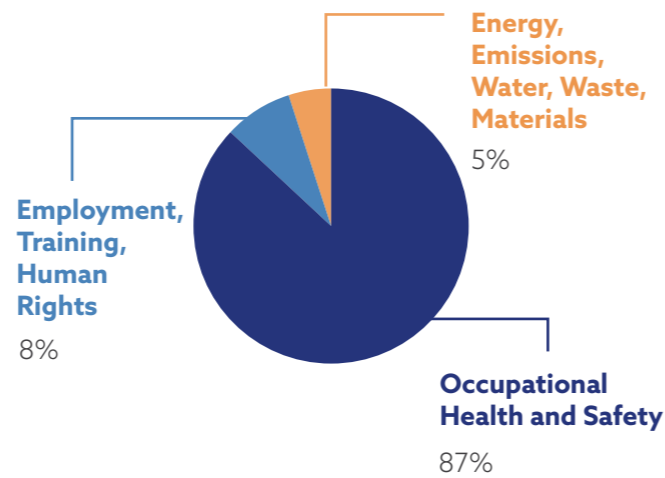
# OCCUPATIONAL HEALTH AND SAFETY

## EMPLOYEE SUGGESTIONS FOR OPERATIONAL EXCELLENCE

The classical suggestion system which was transformed by TPM integration continued to be available on the Kaizen portal since 2019. All improvement suggestions which also include material sustainability issues, from all employees across Kordsa premises will be reviewed on this system from 2020 on.

In 2019, we received nearly 10 thousand improvement suggestions from our employees in all our premises. Around 7 thousand of these suggestions included 5S, TPM, product quality, machine efficiency topics, and 87% of nearly three thousand suggestions regarding directly our sustainability material issues were about occupational health and safety where 89% of these suggestions were put in practice.

## OUR EMPLOYEES' SUGGESTIONS



## 2019 ALL STARS AWARDS WON BY TPM TEAMS

**KORDSA INDONESIA AGATE TEAM**  
*Grand Award*

**Reduced rate of broken cord and consequently reduced waste**

**KORDSA TURKEY TCF ELECTRIC TEAM**  
*Grand Award*

**Dedcreased number of breakdowns, waste and damaged spare parts.**

**KORDSA THAILAND REDUCE STYLE CHANGE PET DIPPING TEAM**  
*Grand Award*

**Reduced process duration by 20%, eliminated source of contamination and saved about USD 40K in five months.**

**KORDSA INDONESIA OPTIMIZE PACK CHANGE**  
*Grand Award*

**Reduced process duration by first 50%, later another 50% and saved about USD 7K annually.**

**KORDSA BRAZIL TWISTANDO TEAM**  
*Grand Award*

**Inreased OEE (Overall Equipment Effectiveness) to 77% and reduced sources of comtamination.**



# SUSTAINABLE GROWTH

## INTERNAL STAKEHOLDER VIEW

*81% of our employees who responded to the sustainability assessment survey think that...*

**KORDSA CREATES SIGNIFICANT ECONOMIC VALUE FOR ITS KEY STAKEHOLDERS.**

Over the past two years, Kordsa has invested nearly 300 million and has become a company that manufactures advanced material technologies on a global scale. In 2018, we have acquired Fabric Development, Textile Products and Advanced Honeycomb Technologies companies which are among the strategic suppliers of the world's major brands of commercial aviation sector in composites, with an investment of 100 million dollars.

In 2019, we acquired Axiom Materials, which manufactures high-tech composite materials for next generation transportation vehicles and the aerospace industry and has thus become the key player in the market of high temperature resistant oxide-oxide ceramic composites used in aircraft engines. Kordsa has built a business line worth over USD 150 million annually following the acquisition of four leading companies in the field of aerospace industry operating in the US and has become a supplier to the world's giants.

In tire reinforcement technologies, we made 30 million dollars polyester yarn lines investment and commenced our Indonesia yarn line in January 2018. With 18 million dollars of this total investment, we started an additional polyester yarn line at Izmit plant in April 2019. Thanks to these investments Kordsa reinforced its position among the largest polyester yarn producers in the world.

In 2019, the support from government concerning tax discounts and incentives decreased by 25% and reached TL 60.7 million.

## THE VALUE WE DISTRIBUTE TO OUR STAKEHOLDERS

In 2019, our suppliers which also cover the operational expenses had the highest share of the economic value we distributed to our stakeholders by 79% and employees followed by 12%.

We donated a total of 20.1 million TL to educational institutions like Sabancı University and selected educational institutions in need, as well as NGO's like The Turkish Foundation for Education.

## ECONOMIC VALUE DISTRIBUTED



**79% SUPPLIERS**

**12% EMPLOYEES**

**2% GOVERNMENT & COMMUNITIES**

**1% SHAREHOLDERS**

**6% PROFIT**

# SUPPLY CHAIN MANAGEMENT

## INTERNAL STAKEHOLDER VIEW

79% of our employees who responded to the sustainability assessment survey think that...

**KORDSA'S POLICIES, TRAININGS AND AUDITS ON HUMAN RIGHTS CONCERNING ITS SUPPLIERS'S OPERATIONS ARE ADEQUATE.**

## PROCUREMENT PRACTICES

The global purchasing function, located at our headquarters in Istanbul, is responsible for the procurement of the raw materials used in 12 plants in five countries and/or whose supply is considered strategic, in addition to capex and service procurements above a specific budget.

Local purchasing departments are responsible for the supply and follow up of all services and raw materials other than the above-mentioned items. The suppliers of which the trading terms are specified by Global Purchasing Department are also

managed by local purchasing departments in terms of operational order processes. The consolidated import ratio of all Kordsa operations is 70%.

As Kordsa produces nylon and polyester yarns, cord fabric, single end cord, concrete reinforcement fiber and composite, our main procurement items are raw materials.

## SELECTING SUPPLIERS

As Kordsa we require our suppliers and business partners to operate in accordance with the principles in the Statement on Code of Business Ethics we prepared based on Kordsa Code of Business Ethics. This code outlines our company's expectations for the undersigned conduct regarding labor and human rights, health and safety, environmental protection, ethics, and management practices.

The details on processes of supplier selection is [here](#).

Following the 2019 performance reviews and system audits, one local and one global supplier among those that scored less than 60 point have been removed from our approved suppliers list.

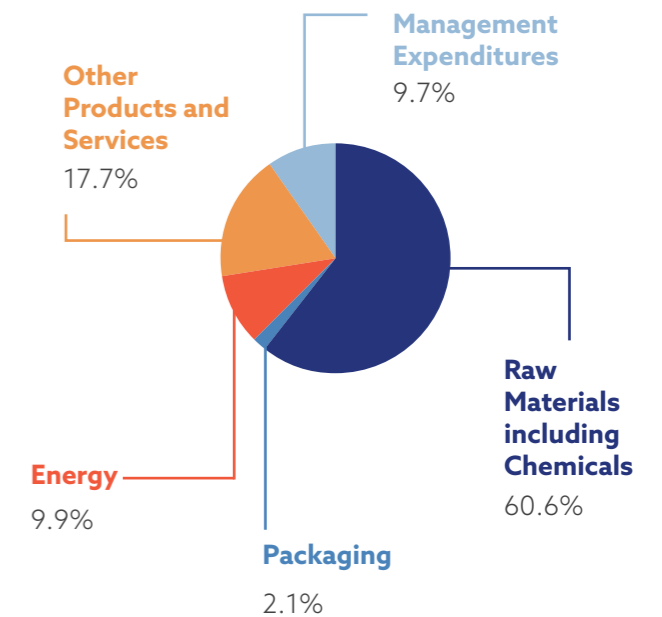
## Supplier Sustainability Assessment Survey

We included the implementation of a more comprehensive sustainability impact assessment in addition to our current processes in 2019. We started to directly integrate the sustainability scores of suppliers to our current assessment system.

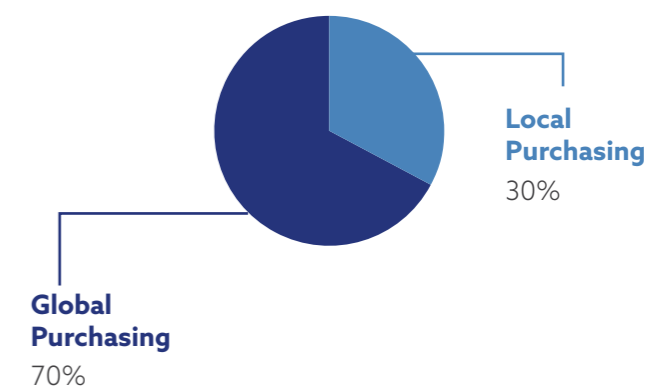
We managed to persuade 73% of our global suppliers to participate in the supplier sustainability assessment survey in 2019. The share of the suppliers we could reach in our global raw materials procurement is 79.5%, which excludes the suppliers we get packing, transportation and similar services from. (Our global procurement team carries out the purchasing of 90% of the raw materials that all of our plants require.)

The survey that we will continue in 2020 will evaluate the performances of our suppliers on topics of Reporting, Ethics Policies and Practices, Occupational Health and Safety, Human Rights, Supplier Screening, Labor, and Environmental Management. We plan to initiate working on improvements with each supplier starting with the global ones and aim to increase the number of suppliers that we reach.

## BREAKDOWN OF PURCHASING EXPENDITURES



## SHARES OF PURCHASING FUNCTIONS



# HUMAN RIGHTS

(GRI 102-41)

## INTERNAL STAKEHOLDER VIEW

*84% of our employees who responded to the sustainability assessment survey think that...*

**KORDSA'S POLICIES, TRAININGS AND AUDITS ON HUMAN RIGHTS IN ITS LOCATIONS ARE ADEQUATE.**

At Kordsa, we aim to comply with initially Universal Declaration of Human Rights and all regulations in the countries of operation, and look after all rights of our employees by adopting the international declarations, conventions and principles that our country is a party too.

Our approach towards our people is honest and fair. We commit to a non-discriminative

working environment for all, making sure our people enjoy their employee rights fully and properly. We also monitor and maintain protection of human rights for our sub-contractors and suppliers in the value chain through Supplier Sustainability Evaluation Survey and the supplier contracts.

Details of our Human Rights Management Approach is [here](#).

Please [click here](#) for Kordsa Human Rights Policy.

## 2019 PERFORMANCE

We have not received any complaints regarding human rights violations or discriminative practices at any of our locations in the reporting period. On top of new hires, 167 employees received ethics training that includes human rights topics in 2019. In function meetings following the Global Leadership Summit, we provided ethics training to local human resources managers, local ethics consultants and legal

staff. This training informed them about deployment of ethics and compliance culture throughout the organization and internal investigations.

In Turkey, Indonesia and Brazil, the ratio of total number of employees under any type of collective agreement with respect

to total number of blue-collar workers has reached 55% in 2019, totaling to 2,004 employees. Our employees in USA, Thailand and China are not unionized. There has been no incidence of violation for freedom of association in 2019. Our operations do not bear any apparent and significant risk concerning these issues.



SDG 9. Industry, Innovation and Infrastructure

SDG 12. Responsible Consumption and Production

SDG 8. Decent Work and Economic Growth

SDG 5. Gender Equality

SDG 4. Quality Education



# EMPLOYMENT

## INTERNAL STAKEHOLDER VIEW

*78% of our employees who responded to the sustainability assessment survey think that...*

**AT KORDSA, THE COMMUNICATION CHANNELS FOR EMPLOYEES TO SHARE THEIR IDEAS AND OPINIONS WITH THE MANAGEMENT ARE ADEQUATE.**

We see our human resources as the most valuable capital of Kordsa. From recruitment to retirement our priorities are to secure their health and safety, to enhance personal and occupational development and to provide them with a pleasant work environment where their employee and human rights are fully assured.

## EMPLOYEE SATISFACTION

We monitor our employee satisfaction through employee engagement surveys, roundtable meetings with the CEO and ELT where they listen to employees' opinions and receive their feedback and also with white-collar / blue-collar interaction meetings.

We conduct employee satisfaction surveys biennially and the most recent one was in 2018. The engagement ratio in 2014 raised from 44% to 62% in 2016 and to 68% in 2018. Our target is to maintain an engagement ratio over 65%.

## LONG TERM TENURES

The average employee tenure across Kordsa plants is 12 years. As of 2019, the longest period is 14 years in Thailand and Indonesia. Our employee turnover rate which was 10.1% in 2018 turned 11.5% in 2019.

## PERFORMANCE EVALUATION

All Kordsa employees are subject to regular performance and career development evaluations.

## INTERNAL CAREER OPPORTUNITIES

We provide overseas assignments to ensure the personal development of employees, and to develop a common culture across all Kordsa plants. Currently, 17 of our employees are positioned at abroad locations for long term assignments.

Our Performance on Equal Opportunities and Diversity is [here](#).

Detailed data on employment and diversity is [here](#).

### Excellent Establishment on Labor Relations and Welfare for 10 Consecutive Years

Timing: June 2018 – March 2019

Location: Thailand

Internal stakeholders: Welfare Committee, Employee Engagement Driver Team

External stakeholder: Ministry of Labor Department of Labor Protection and Welfare

In our facility, we established committees and teams in order to reduce labor issues and employees' complaints about welfare and to be able to solve these issues according to employee suggestions.

We ran a series of activities, meetings, projects and evaluations to enhance level of employee satisfaction in company's welfare and benefit structure, to maintain engagement and relationship between employee and employer, to promote effective industrial management in the organization in which everyone took part, to support well-being of employees in workplace and also well-being of underprivileged people outside the company through corporate social responsibility projects.

The target of these activities was to pass the audit sessions of Ministry of Labor, Department of Labor Protection and Welfare, by providing welfare level for employees higher than the government-standard.

#### Results and Gains

Internal and external stakeholders', especially employees' perspective about organization and their engagement level is improved. Better understanding between employer and employees created higher employee satisfaction and more dedication at workplace with positive reflections on the turnover rate.

# EMPLOYMENT

## All Stars

Since 2006 at Kordsa, we reward successful projects, employees who take part in these projects, and high performing Kordsa sites globally and annually under 'All Stars Awards' scheme.

We pay utmost attention to implement this fair, inspiring recognition and rewarding strategy since we know it is critical to retain the skilled, talented employees at all responsibility levels. All Stars is a Global Recognition and Rewarding practice run by Global Human Resources on top of local recognition and rewarding processes managed by each country's human resources teams.

Each employee is encouraged to participate with any project of her taste. The process starts at the end of each year. After evaluation by judging team, ELT reviews the results. Submission of projects and evaluation take approximately two months.

All employees are invited to awards ceremony that takes place in the following year and the ceremony is broadcasted live through video conference.

In All Stars 2019, we rewarded USD 100 thousand to 35 projects where 678 employees participated with 92 different projects.



## Flexxa (Kordsa Flexible Work Model)



Our flexible work model that we initiated to contribute in work life balance of our employees and support them to gain more control over work schedule was also very impactful in aligning with expectations of generations Y & Z and to enhance employee engagement.

All our white-collar staff at our İzmit plant and İstanbul Head Office benefits from this new work model which enables them with flexibility to work where and when according to outline determined by the company.

### Results and Gains

- Plays an important part in increasing employee motivation and facilitating their decisions to continue working for Kordsa.
- Enhances efficiency and competitive power, impacts positively to employer brand.
- Decreases late show up and absence ratios as a result of employee control over work schedule
- Increases our service quality and eliminates stress and tension in the case when all positive factors go astray.
- Increases employee happiness and desire to go to work with a more content and healthier mindset.
- Shines out as an impactful working system in terms hiring and retention of skilled employees.
- We believe it will contribute positively in results regarding employee satisfaction and engagement.



# EMPLOYMENT

## New Grad's Program

In order to meet young talents, feed our talent pool, and support our organizational enhancement, we collaborated with student clubs of elite universities in Turkey for the New Grad's Program that we planned to roll from January 2019 to September 2020.

Within the project scope, we have done needs assessment, career day organizations for technical and support departments and diversified selection process organizations. We organized their rotation and development program after they were hired. By the end of sixth month, they presented their projects and by the end of their first year at Kordsa, they were graduated from the program. We also assessed whether our interns can be suitable to nominate for open positions after graduation by letting them take project-based responsibilities during training.

### Results and Gains

- We provided both workforce and intern resource for operational technique and support departments.
- Since the start of the program, five young talents began to work as interns and seven participants began to work full time.
- We fulfilled the requirements of Sabancı of New Generation.
- Our brand awareness as an employer enhanced.

### Our Future Plans

Through visits and activities at local and international universities, we intend to raise brand awareness as an employer among the talents in potential target audience, to attract talents, diversify assessment stages, and to provide participants with an extraordinary experience.



## Kordsa Reinfores



In 2016, we grouped processes of climate, culture and engagement surveys under the roof of Reinfores brand and began to conduct our human resources activities with this internal brand's framework.

The Reinfores concept is derived from the words reinfores which regulates earth's climate, and our market placement Reinforcer, which represents Kordsa's reinforcement products. Reinfores is promptly embraced by our staff. We intend to empower our employees via Reinfores brand, which we developed by integrating Kordsa's reinforcer positioning with climate, culture and engagement components that interact and trigger each other, and with our practices that support it.

The activities of Reinfores in five countries of operation are given in the following pages.







# EMPLOYMENT

<b>LOCATION</b>	Turkey
<b>NAME</b>	Happy Hour Meetings
<b>FREQUENCY</b>	A few times a year
<b>TARGET GROUP</b>	All white-collar employees
<b>PARTICIPATION</b>	200 people year-round
<b>PURPOSE</b>	To enhance employee satisfaction, balance, accord and energy; to relieve from daily stress, to support their concentration, focus, attention, creativity skills and flexibility of mind and to gather employees to enjoy themselves.
<b>ACTIVITIES OF 2019</b>	Yoga, Breath and Meditation Work, Happy Donuts, Rhythm Workshop, Sculpture Workshop, Mind Games

<b>LOCATION</b>	Indonesia
<b>NAME</b>	Communication Forum
<b>FREQUENCY</b>	Annually (1-2 days)
<b>TARGET GROUP</b>	AI Employees
<b>PARTICIPATION</b>	Over 1,000 people
<b>PURPOSE</b>	To keep employees informed on current condition/ action plans and on future plans of company in the next one year. To gather top management and employees in workshops and QA sessions.

<b>LOCATION</b>	Thailand
<b>NAME</b>	Employee Engagement Driver
<b>FREQUENCY</b>	Monthly meeting
<b>TARGET GROUP</b>	All employees
<b>PARTICIPATION</b>	50-70 people
<b>PURPOSE</b>	To share employees' opinions about any issue in the company and find solutions together.

<b>LOCATION</b>	Brazil
<b>NAME</b>	Engagement Focus Groups
<b>FREQUENCY</b>	Biannually
<b>TARGET GROUP</b>	Representatives of each department
<b>PARTICIPATION</b>	About 70 people
<b>PURPOSE</b>	Transparency with our results, share the engagement results and build together an action plan to get better results.

<b>LOCATION</b>	USA
<b>NAME</b>	Off-site Quality Meeting
<b>FREQUENCY</b>	Annually
<b>TARGET GROUP</b>	All employees
<b>PARTICIPATION</b>	331
<b>PURPOSE</b>	Business information and team building

<b>LOCATION</b>	Turkey
<b>NAME</b>	A Step Forward with HR (Structured meetings series)
<b>FREQUENCY</b>	20+ interviews in 50 hours
<b>TARGET GROUP</b>	All white-collar employees under manager role
<b>PARTICIPATION</b>	220 people
<b>PURPOSE</b>	To create a two-way communication channel for employees, to help build strong employee relations, share information on inquired HR issues and get feedback

<b>LOCATION</b>	Indonesia
<b>NAME</b>	Bipartite Discussion
<b>FREQUENCY</b>	Monthly
<b>TARGET GROUP</b>	Labor Union
<b>PARTICIPATION</b>	About 20 people
<b>PURPOSE</b>	To sustain the collaborative and smooth relationship between the Management and Union.

<b>LOCATION</b>	Thailand
<b>NAME</b>	Welfare Committee
<b>FREQUENCY</b>	Bimonthly
<b>TARGET GROUP</b>	Representatives of each department
<b>PARTICIPATION</b>	15-20 people
<b>PURPOSE</b>	To discuss issues on employees' work-related welfare and benefits, satisfaction from internal services To act as a communication bridge with top management

<b>LOCATION</b>	Brazil
<b>NAME</b>	Shift Meetings
<b>FREQUENCY</b>	Daily
<b>TARGET GROUP</b>	All employees
<b>PARTICIPATION</b>	420
<b>PURPOSE</b>	To talk about safety

<b>LOCATION</b>	Indonesia
<b>NAME</b>	Communication as Employee Engagement Follow-up
<b>FREQUENCY</b>	Annual Forum (1 day)
<b>TARGET GROUP</b>	All Employees/Representative from Employees
<b>PARTICIPATION</b>	About 100 people
<b>PURPOSE</b>	To keep employees informed on current status and action plans of employee engagement survey result.

SDG 9. Industry, Innovation and Infrastructure

SDG 12. Responsible Consumption and Production

SDG 8. Decent Work and Economic Growth

SDG 5. Gender Equality

SDG 4. Quality Education

# TRAINING AND DEVELOPMENT

## INTERNAL STAKEHOLDER VIEW

70% of our employees who responded to the sustainability assessment survey think that...

**KORDSA'S PERSONAL DEVELOPMENT AND TRAINING PROGRAMS PROVIDED FOR ITS EMPLOYEES ARE ADEQUATE.**

As Human Resources Department, with our training and development teams at all Kordsa facilities, we implement various practices to align training and education activities, to meet local requirements and needs, and to support employees in realizing their career goals as they perform their duties safely and effectively.

## 2019 PERFORMANCE

The total hours of training provided to our employees reached 236 thousand hours in 2019. The majority of the trainings covered career development topics by 66%.

We invested over TL 3 million on training and development of Kordsa employees and sub-contractor employees.

Please click [here](#) for our Training and Development Management Approach and Global Development Programs.

Detailed training data is located [here](#).

## TRAININGS



- 64% CAREER DEVELOPMENT**
- 11% PERSONAL DEVELOPMENT**
- 24% HEALTH AND SAFETY**
- 1% OTHER**

## AVERAGE TRAINING HOURS BY GENDER

Male	72
Female	52



## TALENT MANAGEMENT-DEVELOPMENT PROGRAMS PARTICIPANTS

Global Alignment (Middle Management)	121
X-Celerate (Holding)	8

### Sabancı Holding Trainings

Besides the inhouse development programs we have in our company, we can also direct our employees to other development programs offered by Sabancı Holding such as the TP-X aimed at specialist-engineers level, and X-Posure Sabancı Program aimed at intermediate level managers.

## KEEP (Kordsa E-Learning & Empowerment Platform)



Since 2010, KEEP serves as an easily accessible and individualized training program

tailored to our company, and to cascade the technical expertise of the world leader in the industry to all our employees in a more efficient method.

All employees with a corporate e-mail address can access the e-learning sessions delivered over the KEEP system in local languages on various categories anytime they want, in or outside company premises, on all our locations.

Our employees can join personal development, technical development, corporate integrity, and other development trainings over the KEEP system, as well as managing their training plans, apply for classroom trainings, and suggest new trainings. As the classroom training-planning module has been designed to run over the KEEP system, employees can manage all training development activities over the system in a 'self-service' mode.

We regularly share all updates and notices with our employees since the launch of the system through e-mails, videos, and posters hung up in our plants, screensavers, intranet announcements, and various rewarding activities.

In 2019, with 17% increase, our employees took 1,025 hours of training over KEEP.

# TRAINING AND DEVELOPMENT

## Exercise Room Chattanooga - USA

In order to create a wellness environment for our employees, we renovated a room and turned it to a free exercise area that they could benefit before or after work hours. We also installed a ping pong table to help build teamwork and remove work stress. We completed the project in three months and organized a ping pong tournament among full time employees for the opening.

We hope to raise employee engagement scores, contribute to their health, and lower medical costs. We will continue to utilize and add alternative equipment for employees to use in the coming year.



## The Hub Chattanooga - USA

Our office area is filled with cubicles and offices with a small area for lunch and breaks. So we wanted to create an environment for employees to meet and collaborate in small teams, have a nicer lunch and break area and to go and get away to clear their minds. We renovated a room by removing four cubicles and decorated with comfortable furniture.

Creating a more stress free environment for employees created a more productive environment. This area allows for employees to communicate better.

We hope to raise employee engagement scores creating a team sharing environment.



5 GENDER EQUALITY



# GENDER EQUALITY

At Kordsa, we mainstream equality from recruitment to retirement providing equal work environment for men and women. We support our approach complying with the principles of international initiatives.

Diversity and differences on our global human resources constitute the corporate culture of Kordsa. We manage all human resources issues taking into consideration both the local approaches and practices and also the global trends.



SDG 9. Industry, Innovation and Infrastructure

SDG 12. Responsible Consumption and Production

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SDG 5. Gender Equality

SDG 4. Quality Education

# EQUAL OPPORTUNITY AND DIVERSITY

## INTERNAL STAKEHOLDER VIEW

76% of our employees who responded to the sustainability assessment survey think that...

**KORDSA'S RECRUITMENT, PLACEMENT AND WAGING PRACTICES TO SUPPORT EQUAL OPPORTUNITIES FOR WOMEN & MEN, AND EMPLOYEE DIVERSITY ARE SUFFICIENT.**

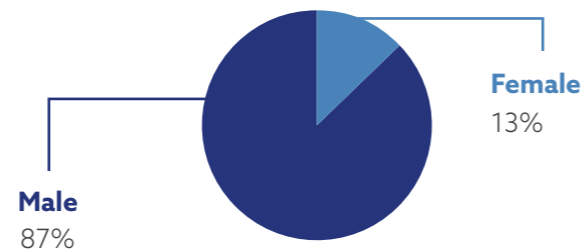
Besides the fair working environment for hiring and career planning for women, we also offer private health insurance that covers childbirth, and lactation rooms for their convenience. We provide health services, health insurances and retirement plan for all our full-time employees.

In 2018-2019 period 7 female and 55 male employees used their maternity leaves and 100% of them returned their job to work at least another 12 months in our company.

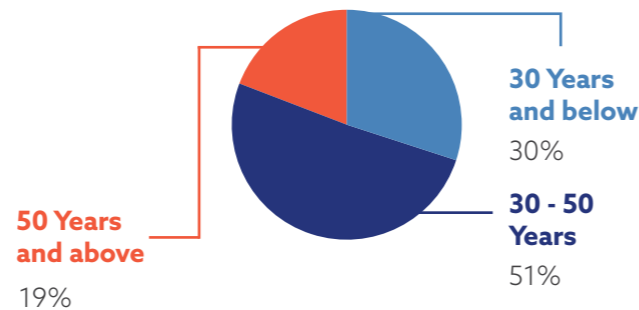
In 2019, at all sites we exceeded the legally required rate of disabled employment by 34%.

Details of our Management Approach on Equal Opportunities and Diversity is located [here](#).

### EMPLOYEES BY GENDER



### EMPLOYEES BY AGE GROUP



### NUMBER OF EMPLOYEES

EMEA	1,673
Asia Pasific	1,710
South America	376
North America	738

### AVERAGE LENGTH OF SERVICE (YEARS)

All Kordsa	11.7
Thailand	14.2
Indonesia	14.1
Brazil	11.1
USA	11.1
Turkey	9.5

### AVERAGE LENGTH OF SERVICE (YEARS)

Female	11.5
Male	11.8



# EQUAL OPPORTUNITY AND DIVERSITY

<b>PLACE</b>	Brazil
<b>NAME</b>	Being Plural Program
<b>FREQUENCY</b>	During the whole year (Twice a month)
<b>TARGET GROUP</b>	All employees
<b>PARTICIPATION</b>	Over 600 (including contractors)
<b>PURPOSE</b>	To enhance people's awareness about Inclusion and diversity
<b>ACTIVITIES OF 2019</b>	Lectures, Inclusion & Diversity Week, Month of Diversity, Forums

<b>PLACE</b>	Turkey
<b>NAME</b>	Women's Club
<b>FREQUENCY</b>	A few times a year
<b>TARGET GROUP</b>	All female employees
<b>PARTICIPATION</b>	120 people all year around
<b>PURPOSE</b>	To support our women employees in social life as well; to contribute to their creativity, concentration, communication skills
<b>ACTIVITIES OF 2019</b>	Painting Workshop, Breast Cancer Awareness Seminar, "Book at the Office" Seminar, "Everything Starts with You! Internal Development and Success at Work" Seminar, Flower Paint Workshop

## Women's Co. (Equality at Work Project)

In 2016, our Human Resources Department launched Women's Co. Project for women employees at Kordsa plants across the globe. The primary concern of the project is to raise awareness and consciousness among employees, starting from the top management, regarding gender equality. Our objective is to design a systematic approach in equality at work and integrate all our efforts under this framework.

The actions we took to incorporate these practices in our processes are; identification of local and global targets, detailed analysis of female-male employees, observation of women's expectations through surveys and their satisfaction level regarding the current situation and designing development programs in line with the survey results. We determined 5 years objectives for the project that cover numerous cultures in four continents.

**Targeted Social Gains** Empower women employees to become more competent in their work and private lives

**Targeted Economic Gains** Increase women employment where the ratio is low

**Targeted Corporate Gains** Create opportunities for women employees to be more effective in decision making mechanisms that will lead us to reach our corporate objectives





# EQUAL OPPORTUNITY AND DIVERSITY

## Diverse, Integrated and Value-Added Selection Process

Location: Brazil

Timing: 2018-2019

At Kordsa Brazil, we redesigned our employee selection process in hiring for greater diversity who are in line with our organization's values and culture. We aimed to eliminate preconceived ideas and unconscious biases that are based on discrimination and also wanted to create value for our society.

Implementation of blind selection with the focus on getting to know people by their values, their ethical principles, their essence and their matching with Kordsa's ideals, as well as being able to evaluate more objectively their professional experiences and skills to deal with the challenges of the position. A blind selection focuses more on the alignment between the person and the company.

This way, photographs and information such as gender, age, skin color, marital status, knowing if they have a child or not, the college they studied and other personal information are not requested and are not considered. Values, skills and professional achievements are the criteria for analyzing and hiring the candidate. Our target is to reach a diversity of 50% and increase the number of women employees by 20% in two years.

### Results and Gains

- Created opportunities for diversity.
- Reinforced our company's values.
- Contributed to employer branding internally and in the community.
- Increase employee engagement.



SDG 9. Industry, Innovation and Infrastructure

SDG 12. Responsible Consumption and Production

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# QUALITY EDUCATION

**In our social responsibility projects, we perform at Kordsa with participation of our volunteer employees, we put Quality Education in our focus. We believe all encompassing quality education is a vital tool for sustainable development.**

**This understanding leads us to undertake projects in cities where our facilities are located to support education of children and youth irrespective of their gender and income level and therefore reinforce their future.**



SDG 9. Industry, Innovation and Infrastructure

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# COMMUNITY DEVELOPMENT

**43% OF OUR EMPLOYEES WHO PARTICIPATED IN 2019 SUSTAINABILITY ASSESSMENT SURVEY INDICATED THAT THEY ARE READY TO CONTRIBUTE IN KORDSA'S EDUCATION FOCUSED SOCIAL RESPONSIBILITY PROJECTS.**

## INTERNAL STAKEHOLDER VIEW

*71% of our employees who responded to the sustainability assessment survey think that...*

**KORDSA HAS SUFFICIENT SOCIAL DEVELOPMENT INVESTMENTS FOR THE LOCAL COMMUNITY.**

Our "Inspired to Reinforce Life" vision drives our social responsibility projects in all geographies we operate. We initiated the "Reinforcing the Future Project" which sets the framework for our education support projects based on United Nations Sustainable Development Goals quality and equality in education article in 2016 at İzmit where our main plant is and began deploying it in Turkey and other countries.

## REINFORCING THE FUTURE PROJECT

### Project Scope

Through our regular visits we make every year, we identify the schools which require the most support in terms of infrastructure and educational equipment, and we provide them with heating system, sports arena, educational equipment, science lab, library, dining hall, and nursery classroom and so forth. We make renovations each year in January in which our volunteer staff are actively involved in all stages of projects from idea, project setup, equipment purchasing and setup, logistics to physical activities on the renovation day such as painting.

### 2016-2019 Highlights

**4 Years**  
**4 Schools**  
**870 Students**  
**700 Kordsa Volunteers**  
**About TL 630 K Investments**

Cooperation with Kocaeli City and İzmit National Education Administrations, and Local Managements



### Volunteer Involvement

Each year, we implement "School Renovation Project" just after Kordsa's "Global Leaders' Summit" to ensure that all volunteers from premises around the world can participate in the project. With this project while supporting our staff around the world to collaborate, we also provide opportunities for the students and teachers to meet various cultures. Around 250 Kordsa employees voluntarily participate in the project every year. Besides providing education and learning in better physical conditions for students at renovated schools, we also ensure our volunteers to deepen their loyalty and engagement

in our company. Thus, employee satisfaction enhances due to their volunteer contributions in society.

In the last four years, we supported four primary and secondary schools at Kocaeli's İzmit district that serve 870 students to receive education in better physical conditions and with enough equipment. This project inspired Indonesia plant employees and they renovated a school each year since 2017 at Bogor region.

### Monitoring Work

We monitor the renovated schools each year through District Directorate of National Education that we communicate for the next year renovation. We also keep in touch regularly with school principles. If problems arise in infrastructure or in equipment renovated, we ensure that either Kordsa or subcontractor technical teams take care of these problems.



# COMMUNITY DEVELOPMENT



## We Got Together with our Sister School Students in Chattanooga USA!

Kordsa Reinforcers got together with the students of Dupont Elementary School in the US, with which they developed a sister school partnership. Within the scope of the company's social responsibility project, Kordsa Reinforcers spent the day playing various games and making activities with the junior students of the school, enjoying a very pleasant time with them.

Due to communication of these projects between principals and teachers, we now receive many school renovations requests both from Kocaeli and other cities around Turkey. We primarily evaluate requests from and around İzmit to include in the project for the coming year.

### Future Plans

We plan to continue school renovations every year in and around İzmit, especially selecting the ones with the highest need, in the future. We also intend to implement various education reinforcement projects by companies, plants and production centers in other geographies where Kordsa operates.

## We Reinforced Children's Future in Indonesia

In Bogor region where our Indonesia plant is, we renovated SDN Gunungsari school and donated laptops and gave training on computer office program usage at the school ceremony with the participation of Indonesia Beauty Queen Maria Harfanti.

We implement similar projects at our premises in Brazil Bahai region.







# PERFORMANCE INDICATORS

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# ECONOMIC PERFORMANCE INDICATORS

## ECONOMIC VALUE CREATED & DISTRIBUTED ('000 TL)

**2017**
**2018**
**2019**

Economic Value Generated (Net Revenues)	2,658,594	4,059,715	5,304,724
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## ECONOMIC VALUE DISTRIBUTED TO STAKEHOLDERS

Operating Expenses	2,037,652	3,160,181	4,184,107
Benefit to Employees	360,519	463,502	636,172
Benefit to Government	35,829	73,265	85,701
Benefit to Providers of Capital	66,885	68,085	48,632
Benefit to Community	12,371	24,222	20,103
Economic Value Retained (Profit)	145,338	270,459	329,856

## FINANCIAL ASSISTANCE RECEIVED FROM GOVERNMENT

Turquality	1,339	2,505	595
Tax Reliefs	27,854	37,458	19,164
Incentives	24,238	35,637	40,915



# SOCIAL PERFORMANCE INDICATORS

## EMPLOYEES

BY TYPE OF EMPLOYMENT	UNIT	2017	2018	2019
White-collar	Female	244	263	287
White-collar	Male	455	462	558
Blue-collar	Female	207	200	300
Blue-collar	Male	2,968	3,270	3352
<b>Total</b>	<b>Number</b>	<b>3,874</b>	<b>4,195</b>	<b>4,497</b>

BY LOCATION	UNIT	2017	2018	2019
Turkey	Female	114	138	144
Turkey	Male	1,321	1,496	1,529
Indonesia	Female	79	77	78
Indonesia	Male	1,233	1,360	1,219
Thailand	Female	112	106	115
Thailand	Male	275	284	297
Brazil	Female	53	44	40
Brazil	Male	329	352	336
USA	Female	89	94	210
USA	Male	265	242	528
China	Female	3	1	0
China	Male	1	1	1

BY GENDER	UNIT	2017	2018	2019
Female	Number	450	460	3,910
Male	Number	3,424	3,735	587

## EMPLOYEES

BY AGE	UNIT	2017	2018	2019
30 Years and below	Female	87	109	110
	Male	1,145	1,245	1,248
30 - 50 Years	Female	272	259	266
	Male	1,875	1,969	2,037
50 Years and above	Female	91	86	117
	Male	404	515	719

BY OTHER GROUPS	UNIT	2017	2018	2019
Expats	Female	0	0	1
	Male	12	15	16
Persons with disabilities	Female	0	0	0
	Male	36	40	59

BY MANAGEMENT CATEGORY	UNIT	2017	2018	2019
Executives (ELT)	Female	2	1	2
	Male	8	9	8
Director	Female	5	6	2
	Male	12	14	12
Manager	Female	31	36	39
	Male	103	102	108
Engineer & Specialist	Female	123	132	156
	Male	206	218	209
Supervisor & Technician	Female	11	9	10
	Male	138	145	183
Officer (White-collar)	Female	85	89	94
	Male	90	107	102
Operator	Female	193	172	277
	Male	2,867	3,155	3,295

# SOCIAL PERFORMANCE INDICATORS

## EMPLOYEES

MANAGEMENT STRUCTURE (Board of Directors and ELT)	UNIT	2017	2018	2019
Women	Ratio	12.50%	12.50%	18.75%
30 Years and below	Ratio	0.00%	0.00%	0.00%
30 - 50 Years	Ratio	56.25%	68.75%	43.75%
50 Years and above	Ratio	43.75%	31.25%	56.25%
Expats	Ratio	18.75%	12.50%	18.75%
Employees with disabilities	Ratio	0.00%	0.00%	0.00%

EMPLOYEE HIRES AND DISMISSALS (All Kordsa)	UNIT	2017	2018	2019
New hires	Female	49	88	92
Dismissals	Male	51	56	74
New hires	Female	403	529	324
Dismissals	Male	339	366	443
<b>TOTAL - Dismissals</b>	<b>Female</b>	<b>390</b>	<b>422</b>	<b>517</b>
<b>TOTAL - New hires</b>	<b>Male</b>	<b>452</b>	<b>617</b>	<b>416</b>

TURNOVER	UNIT	2017	2018	2019
Employee Turnover*	Ratio	11.2	10.1	11.5

\* Number of employees that quit work/ total number of employees \*100

## TRAINING HOURS BY TYPE

	2017	2018	2019
Career Development	155,065	181,281	150,516
Personal Development	36,668	24,858	26,667
Health and Safety	97,963	72,456	57,116
Other	4,645	7,884	1,261
<b>TOTAL</b>	<b>294,341</b>	<b>286,478</b>	<b>235,559</b>

TRAINING INVESTMENTS	2017	2018	2019
Training Expenditures (TL)	1,947,000	3,168,280	3,148,671
Trained Employees	3,375	3,335	3,349

SHARE OF TRAININGS BY TYPE (HOURS PER EMPLOYEE)	2017	2018	2019
Career Development	44.1	46.98	40.04
Personal Development & Other	11.7	8.48	7.43
Health, Safety & Environment	27.8	18.78	15.19
<b>TOTAL</b>	<b>83.6</b>	<b>74.24</b>	<b>62.67</b>

TRAINING INVESTMENTS (HOURS PER EMPLOYEE)	2017	2018	2019
<b>BY EMPLOYEE CATEGORY</b>			
Executives (ELT)	19	17.13	24.50
Director	50.05	38.24	35.71
Manager	80.61	67.85	67.98
Engineer & Specialist & Officer (White-collar)	67.06	64.72	63.74
Supervisor & Technician	45.93	53.83	61.65
Operator	104.88	113.01	72.77

BY GENDER	2017	2018	2019
Female	44.92	50.13	51.86
Male	92.12	89.73	72.43



# KORDSA OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

PLANTS			TURKEY			THAILAND		
ACCIDENTS	GROUP	UNIT	2017	2018	2019	2017	2018	2019
The number and rate of fatalities as a result of work-related injury	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of highconsequence work-related injuries (excluding fatalities)	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of recordable work-related injuries	Kordsa Employee	Number	3 LWC	3 LWC	3 LWC - 2 MTC	0.00	0.00	0.00
		Rate	0.23	0.21	0.31	0.00	0.00	0.00
	Contractor	Number	3 LWC	1 LWC	3 LWC	0.00	0.00	0.00
		Rate	0.72	0.63	0.55	0.00	0.00	0.00
The number of hours worked	Kordsa Employee	Number	2,757,652	3,024,446	3,242,891	967,259	811,056	783,834
		Rate	0.70	0.68	0.66	0.82	0.82	0.81
	Contractor	Number	838,328	952,889	1,096,769	172,013	149,013	146,648
		Rate	0.30	0.32	0.34	0.18	0.18	0.19

PLANTS			INDONESIA			BRAZIL		
ACCIDENTS	GROUP	UNIT	2017	2018	2019	2017	2018	2019
The number and rate of fatalities as a result of work-related injury	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of highconsequence work-related injuries (excluding fatalities)	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of recordable work-related injuries	Kordsa Employee	Number	1 LWC	4 LWC	1 LWC	1 RWC	1 RWC	1 KIO
		Rate	0.08	0.40	0.08	0.20	0.31	0.28
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number of hours worked	Kordsa Employee	Number	2,466,354	2,008,260	2,392,802	1,024,990	647,819	713,432
		Rate	0.80	0.63	0.67	0.70	0.66	0.66
	Contractor	Number	503,874	738,112	783,733	311,830	221,752	240,555
		Rate	0.20	0.37	0.33	0.30	0.34	0.34

# KORDSA OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

PLANTS			USA - CHATTANOOGA			USA - LAUREL HILL		
ACCIDENTS	GROUP	UNIT	2017	2018	2019	2017	2018	2019
The number and rate of fatalities as a result of work-related injury	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of highconsequence work-related injuries (excluding fatalities)	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of recordable work-related injuries	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number of hours worked	Kordsa Employee	Number	429,473	472,508	485,940	221,303	183,376	202,421
		Rate	0,88	0,82	0,81	0,88	0,88	0,83
	Contractor	Number	52,842	87,058	90,572	25,486	21,323	34,957
		Rate	0.12	0.18	0.19	0.12	0.12	0.17

PLANTS			COMPOSITE TECHNOLOGIES CENTER OF EXCELLENCE			USA - ANAHEIM (TPI) *	USA - QUAKERTOWN (FDI) *	USA - SAN MARCOS (AHT) *
ACCIDENTS	GROUP	UNIT	2017	2018	2019	2019	2019	2019
The number and rate of fatalities as a result of work-related injury	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of highconsequence work-related injuries (excluding fatalities)	Kordsa Employee	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
	Contractor	Number	0.00	0.00	0.00	0.00	0.00	0.00
		Rate	0.00	0.00	0.00	0.00	0.00	0.00
The number and rate of recordable work-related injuries	Kordsa Employee	Number	0.00	0.00	0.00	0.00	1 MTC - 1 RWC	0.00
		Rate	0.00	0.00	0.00	0.00	1.44	0.00
	Contractor	Number	0.00	2 LWC	0.00	0.00	0.00	0.00
		Rate	0.00	6.46	0.00	0.00	0.00	0.00
The number of hours worked	Kordsa Employee	Number	111,097	131,731	173,765	245,905	277,763	44,100
		Rate	0.88	0.68	0.48	100.00	99.97	100.00
	Contractor	Number	15,919	61,843	190,664	0.00	8,133	0.00
		Rate	0.12	0.32	0.22	0.00	0.03	0.00



# KORDSA OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

## OHS TRAINING HOURS

EMPLOYEES	2017	2018	2019
Turkey - İzmit	11	10	13
Turkey - CTCE	1,8	4	6
Brazil	12	10	27
Indonesia	14	12	8
Thailand	13	11	9
USA - Chattanooga	5	8	17
USA - Laurel Hill	2	8	6
USA - Quakertown (FDI)*	-	-	11
USA - Anaheim (TPI)*	-	-	2
USA - San Marcos (AHT)*	-	-	2
USA - Santa Ana (Axiom)**	-	-	-

### Explanations for OHS Data:

\* Composite companies joined Kordsa in 2018

\*\* Composite company joined Kordsa in 2019

**CTCE:** (Composite Technologies Center of Excellence)

**Lost Workday Case (LWC):** When the worker cannot return to work the first workday following an occupational accident resulting in injury.

**Medical Treatment Case (MTC):** When an accident occurs that require medical treatment and the injured person can return to work the first workday following injury.

**Restricted Workday Case (RWC):** When the injured can return to work the first workday after injury. but is asked to work on another task, as he cannot perform his/her regular task.

### Formulas:

**Rate of fatalities as a result of work-related injury:**

$(\text{Number of fatalities as a result of work-related injury} / \text{Number of hours worked}) \times 200,000$

**Rate of high-consequence work-related injuries (excluding fatalities):**

$(\text{Number of high-consequence work-related injuries (excluding fatalities)} / \text{Number of hours worked}) \times 200,000$

**Rate of recordable work-related injuries:**

$(\text{Number of recordable work-related injuries} / \text{Number of hours worked}) \times 200,000$

# ENVIRONMENTAL PERFORMANCE INDICATORS

## KORDSA MATERIALS MANAGEMENT

MATERIALS	PLANTS	2017	2018	2019
TCF Chemical Ratio	Dipping NY - Turkey	1.00	1.16	0.98
	Dipping PE - Turkey	1.00	1.11	1.02
	Dipping - USA - Laurel Hill	1.00	1.03	1.04
	Dipping - Brazil	1.00	1.04	1.01
	Dipping TCF1 - Indonesia	1.00	1.01	0.99
	Dipping TCF2 - Indonesia	1.00	0.96	0.94
	Dipping - Thailand	1.00	0.98	1.04

MATERIALS	PLANTS	2017	2018	2019
NY Salt / Flake Ratio	NY Yarn Line 1 - Turkey	1.00	1.03	0.99
	NY Yarn Line 2 - Turkey	1.00	0.99	1.00
	PE Yarn - Turkey	1.00	1.01	1.02
	NY Yarn - USA - Chattanooga	1.00	1.00	0.98
	Yarn - Brazil	1.00	1.77	1.79
	NY Yarn - Indonesia	1.00	1.01	1.01
	PE Yarn - Indonesia	1.00	0.95	1.00

MATERIALS	PLANTS	2017	2018	2019
SEC Chemical Ratio	SEC - Turkey	1.00	1.21	1.42
	SEC - Brazil	1.00	1.00	0.98

## REUSED MATERIALS

STEEL SHELLS	REUSE RATE	TUBES	REUSE RATE
Brazil	86%	Brazil	62%
Indonesia	31%	Indonesia	8%
Thailand	86%	USA-Chattanooga	8%
Turkey	35%		
USA-Laurel Hill	55%		

CARTON SEPARATORS	REUSE RATE	WOODEN PALLETS	REUSE RATE
USA-Chattanooga	38%	USA-Chattanooga	72%
Indonesia	8%		

# ENVIRONMENTAL PERFORMANCE INDICATORS

## KORDSA ENERGY USAGE (TIRE REINFORCEMENT)

DIPPING NY - TURKEY	2017	2018	2019
Natural Gas (kWh/ton)	1.00	1.03	1.01
Other Energy Consumption (kWh/ton)	1.00	0.95	1.17
DIPPING PES - TURKEY	2017	2018	2019
Natural Gas (kWh/ton)	1.00	1.02	1.1
Other Energy Consumption (kWh/ton)	1.00	1.08	1.24
DIPPING - LH / USA	2017	2018	2019
Natural Gas (kWh/ton)	1.00	0.96	1.06
Other Energy Consumption (kWh/ton)	1.00	1.03	0.96
DIPPING - BRAZIL	2017	2018	2019
Natural Gas (kWh/ton)	1.00	0.98	1.03
Other Energy Consumption (kWh/ton)	1.00	0.99	1.23
DIPPING TCF1 - INDONESIA	2017	2018	2019
Natural Gas (kWh/ton)	1.00	0.97	0.99
Other Energy Consumption (kWh/ton)	1.00	0.92	0.97
DIPPING TCF2 - INDONESIA	2017	2018	2019
Natural Gas (kWh/ton)	1.00	0.91	0.83
Other Energy Consumption (kWh/ton)	1.00	0.97	0.91
DIPPING - THAILAND	2017	2018	2019
Natural Gas (kWh/ton)	1.00	1.01	0.98
Other Energy Consumption (kWh/ton)	1.00	1.04	1.06
NY YARN LINE 1 - TURKEY	2017	2018	2019
Energy (kWh/ton)	1.00	1.00	1.06

## KORDSA ENERGY USAGE (TIRE REINFORCEMENT)

NY YARN LINE 2 - TURKEY	2017	2018	2019
Energy (kWh/ton)	1.00	0.92	1.03
NY YARN - CH / USA	2017	2018	2019
Energy (kWh/ton)	1.00	1.07	1.41
NY YARN - INDONESIA	2017	2018	2019
Energy (kWh/ton)	1.00	1.01	1.04
PES YARN - TURKEY	2017	2018	2019
Energy (kWh/ton)	1.00	0.98	1.01
PES YARN - BRAZIL	2017	2018	2019
Energy (kWh/ton)	1.00	0.78	0.8
PES YARN - INDONESIA	2017	2018	2019
Energy (kWh/ton)	1.00	0.93	0.96
SEC - TURKEY	2017	2018	2019
Natural Gas ( kWh/ton )	1.00	0.95	1.01
Other Energy Consumption (kWh/ton)	1.00	0.82	0.89
SEC - BRAZIL	2017	2018	2019
Natural Gas (kWh/ton)	1.00	1.07	1.07
Other Energy Consumption (kWh/ton)	1.00	0.83	0.87



# ENVIRONMENTAL PERFORMANCE INDICATORS

## KORDSA ENERGY CONSUMPTION

ELECTRICITY (KWH)	2018	2019
Turkey - İzmit	189,127,000	191,481,392
Turkey - İstanbul (CTCE)	2,133,022	2,682,228
Indonesia	201,966,389	175,133,832
Thailand	45,583,191	41,919,497
Brazil	81,367,492	79,163,328
USA - Chattanooga	59,569,706	60,262,715
USA - Laurel Hill	19,745,140	20,776,885
USA - Quakertown (FDI)*	n.a.	1,360,320
USA - Anaheim (TPI)*	n.a.	903,000
USA - San Marcos (AHT)*	n.a.	258,609
USA - Santa Ana (Axiom)**	n.a.	2,070,588
<b>TOTAL</b>	<b>599,491,940</b>	<b>576,012,394</b>

## KORDSA ENERGY CONSUMPTION

NATURAL GAS (SM <sup>3</sup> )	2018	2019
Turkey - İzmit	21,271,945	22,676,543
Turkey - İstanbul (CTCE)	102,950	145,913
Indonesia	9,949,774	8,284,715
Thailand	3,777,459	3,802,126
Brazil	3,131,902	2,884,710
USA - Chattanooga (Scf)	21,411,641	22,178,329
USA - Laurel Hill (Scf)	1,718,664	1,832,822
USA - Quakertown (FDI)*	n.a.	25,312
USA - Anaheim (TPI)*	n.a.	399
USA - San Marcos (AHT)*	n.a.	73,718
USA - Santa Ana (Axiom)**	n.a.	444,298
<b>TOTAL</b>	<b>61,364,335</b>	<b>62,348,885</b>

## KORDSA EMISSIONS (SCOPE 1)

KORDSA PLANTS (TCO <sub>2</sub> E)	2018	2019
Turkey - İzmit	44,843.57	47,500.87
Turkey - İstanbul (CTCE)	412.39	495.87
Indonesia	21,062.63	17,538.43
Thailand	7,903.34	7,929.30
Brazil	6,862.89	6,231.94
USA - Chattanooga	43,712.33	44,369.71
USA - Laurel Hill	3,378.69	3,552.70
USA - Quakertown (FDI)*	n.a.	59.12
USA - Anaheim (TPI)*	n.a.	23.72
USA - San Marcos (AHT)*	n.a.	221.26
USA - Santa Ana (Axiom)**	n.a.	953.07
<b>TOTAL</b>	<b>128,175.84</b>	<b>128,875.99</b>

## KORDSA EMISSIONS (SCOPE 2)

KORDSA PLANTS (TCO <sub>2</sub> E)	2018	2019
Turkey - İzmit	87,944.06	88,272.92
Turkey - İstanbul (CTCE)	991.86	1,236.51
Indonesia	147,233.50	134,677.92
Thailand	21,743.18	19,827.92
Brazil	9,764.10	9,262.11
USA - Chattanooga	29,613.48	29,957.99
USA - Laurel Hill	9,815.76	10,328.67
USA - Quakertown (FDI)*	n.a.	469.41
USA - Anaheim (TPI)*	n.a.	216.07
USA - San Marcos (AHT)*	n.a.	61.88
USA - Santa Ana (Axiom)**	n.a.	495.46
<b>TOTAL</b>	<b>307,105.93</b>	<b>294,806.85</b>

### Explanations for Data:

**CTCE:** Composite Technologies Center of Excellence

\* Composite companies joined Kordsa in 2018

\*\* Composite company joined Kordsa in 2019

n.a.: data not available

**2019 Total Diesel Oil Consumption (liter):** 314,956.57

**2019 Total Gasoline Consumption (liter):** 125,388.75

**2019 Total LPG Consumption (kg):** 40,407.38

Turkey İzmit, Indonesia and USA Chattanooga sites' 2019

Scope 1 and Scope 2 emission data are verified.

# ENVIRONMENTAL PERFORMANCE INDICATORS

## KORDSA EMISSIONS (TOTAL)

KORDSA PLANTS (TCO <sub>2</sub> E)	2018	2019
Turkey - İzmit	132,787.62	135,773.79
Turkey - İstanbul (CTCE)	1,404.25	1,732.37
Indonesia	168,296.12	152,216.35
Thailand	29,646.53	27,757.23
Brazil	16,626.99	15,494.05
USA - Chattanooga	73,325.81	74,327.69
USA - Laurel Hill	13,194.45	13,881.37
USA - Quakertown (FDI)*	n.a.	528.52
USA - Anaheim (TPI)*	n.a.	239.80
USA - San Marcos (AHT)*	n.a.	283.14
USA - Santa Ana (Axiom)**	n.a.	1,448.53
<b>TOTAL</b>	<b>435,281.77</b>	<b>423,682.84</b>

## Explanations for Data:

**Scope 1 Data Includes:** Natural gas, generators & pumps, cooling gases, fire extinguishers, company vehicles

**Scope 2 Data Includes:** Electricity

\* Composite companies joined Kordsa in 2018

\*\* Composite company joined Kordsa in 2019

**n.a.:** data not available

Turkey İzmit, Indonesia and USA Chattanooga sites' 2019 Scope 1 and Scope 2 emission data are verified.

## KORDSA WASTE MANAGEMENT DATA

TURKEY	WASTES BY TYPE (TONS)			
		2017	2018	2019
	Hazardous Waste	1,757	1,091	450
	Non-hazardous Waste	2,385	2,557	2,505
	<b>TOTAL WASTE</b>	<b>4,142</b>	<b>3,648</b>	<b>2,955</b>
	WASTES BY DISPOSAL METHOD			
		2017	2018	2019
	Recycling	2,379.4	2,553	2,504
	Reclamation	1,755.5	1,075	415
	Landfill	0.6	0.80	0
Incineration	6.7	19.20	36	
<b>TOTAL DISPOSED WASTE</b>	<b>4,142</b>	<b>3,648</b>	<b>2,955</b>	

COMPOSITE TECHNOLOGIES CENTER OF EXCELLENCE - TURKEY	WASTES BY TYPE (TONS)			
		2017	2018	2019
	Hazardous Waste	3.1	2	60.4
	Non-hazardous Waste	5.7	6	0.00
	<b>TOTAL WASTE</b>	<b>8.8</b>	<b>8</b>	<b>60.4</b>
	WASTES BY DISPOSAL METHOD			
		2017	2018	2019
	Recycling	5.7	5.82	0.00
	Reclamation	2.7	2	0.1
	Landfill	0	0.08	0.00
Incineration	0.4	0.10	60.3	
<b>TOTAL DISPOSED WASTE</b>	<b>8.8</b>	<b>8</b>	<b>60.4</b>	

# ENVIRONMENTAL PERFORMANCE INDICATORS

## INDONESIA

WASTES BY TYPE (TONS)	2017	2018	2019
Hazardous Waste	886	866	849.2
Non-hazardous Waste	1,379	2,262	1,297.4
<b>TOTAL WASTE</b>	<b>2,265</b>	<b>3,128</b>	<b>2,146.6</b>
WASTES BY DISPOSAL METHOD	2017	2018	2019
Recycling	1,379	2,262	1,297.4
Reclamation	885	866	847.6
Landfill	0	0	0,2
Incineration	0.8	0	1.4
<b>TOTAL DISPOSED WASTE</b>	<b>2,265</b>	<b>3,128</b>	<b>2,146.6</b>

## BRAZIL

WASTES BY TYPE (TONS)	2017	2018	2019
Hazardous Waste	7	8	5,4
Non-hazardous Waste	702	1,046	707.9
<b>TOTAL WASTE</b>	<b>709</b>	<b>1,054</b>	<b>713.3</b>
WASTES BY DISPOSAL METHOD	2017	2018	2019
Recycling	701.3	1,045.1	707.9
Reclamation	2.5	4.6	3.8
Landfill	5	2.6	1.5
Incineration	0.5	1.7	0.1
<b>TOTAL DISPOSED WASTE</b>	<b>709</b>	<b>1,054</b>	<b>713.3</b>

## THAILAND

WASTES BY TYPE (TONS)	2017	2018	2019
Hazardous Waste	220	215.6	115.4
Non-hazardous Waste	1	0.8	43.6
<b>TOTAL WASTE</b>	<b>221</b>	<b>216.4</b>	<b>159</b>
WASTES BY DISPOSAL METHOD	2017	2018	2019
Recycling	0	0	43.3
Reclamation	220	215.5	115.3
Landfill	0.14	0.1	0.1
Incineration	0.81	0.8	0.3
<b>TOTAL DISPOSED WASTE</b>	<b>221</b>	<b>216.4</b>	<b>159</b>

## USA / LAUREL HILL

WASTES BY TYPE (TONS)	2017	2018	2019
Hazardous Waste	171	189	198.4
Non-hazardous Waste	0	0	0
<b>TOTAL WASTE</b>	<b>171</b>	<b>189</b>	<b>198.4</b>
WASTES BY DISPOSAL METHOD	2017	2018	2019
Recycling	0	0	0
Reclamation	171	189	198.4
Landfill	0	0	0
Incineration	0	0	0
<b>TOTAL DISPOSED WASTE</b>	<b>171</b>	<b>189</b>	<b>198.4</b>



# ENVIRONMENTAL PERFORMANCE INDICATORS

USA / CHATTANOOGA	WASTES BY TYPE (TONS)			2017	2018	2019
	Hazardous Waste			14	12	0.9
	Non-hazardous Waste			6	5	21.4
	<b>TOTAL WASTE</b>			<b>20</b>	<b>18</b>	<b>22.3</b>
	WASTES BY DISPOSAL METHOD			2017	2018	2019
	Recycling			6	5.6	21.4
	Reclamation			13	12	0
	Landfill			0.3	0.2	0.2
	Incineration			0.3	0.2	0.7
	<b>TOTAL DISPOSED WASTE</b>			<b>20</b>	<b>18</b>	<b>22.3</b>

## KORDSA WATER MANAGEMENT DATA

WATER WITHDRAWALS	2018	2019	SITES AND CHANGE RATE
Fresh Surface Water	2,556,608	3,166,772	Indonesia & USA-Chattanooga
Groundwater-Renewable	544,604	658,350	Turkey & Indonesia & Brazil
Third Party Sources	381,446	260,600	All except Indonesia
<b>TOTAL WITHDRAWALS</b>	<b>3,482,659</b>	<b>4,085,721</b>	<b>+17%</b>

WATER DISCHARGES	2018	2019	SITES AND CHANGE RATE
Fresh Surface Water	782,221	1,012,250	Indonesia & USA-Chattanooga
Third-Party Destinations	1,272,929	1,641,576	All except Indonesia
<b>TOTAL DISCHARGES</b>	<b>2,055,150</b>	<b>2,653,826</b>	<b>+29%</b>
<b>TOTAL CONSUMPTION</b>	<b>1,427,509</b>	<b>1,431,896</b>	<b>+0.3%</b>

RECYCLED WATER	2018	2019	SITES
<b>TOTAL RECYCLED WATER</b>	<b>189,437</b>	<b>181,671</b>	<b>Turkey &amp; Indonesia</b>

### Explanations Regarding Data:

2018 data includes all sites except the four new composite sites.

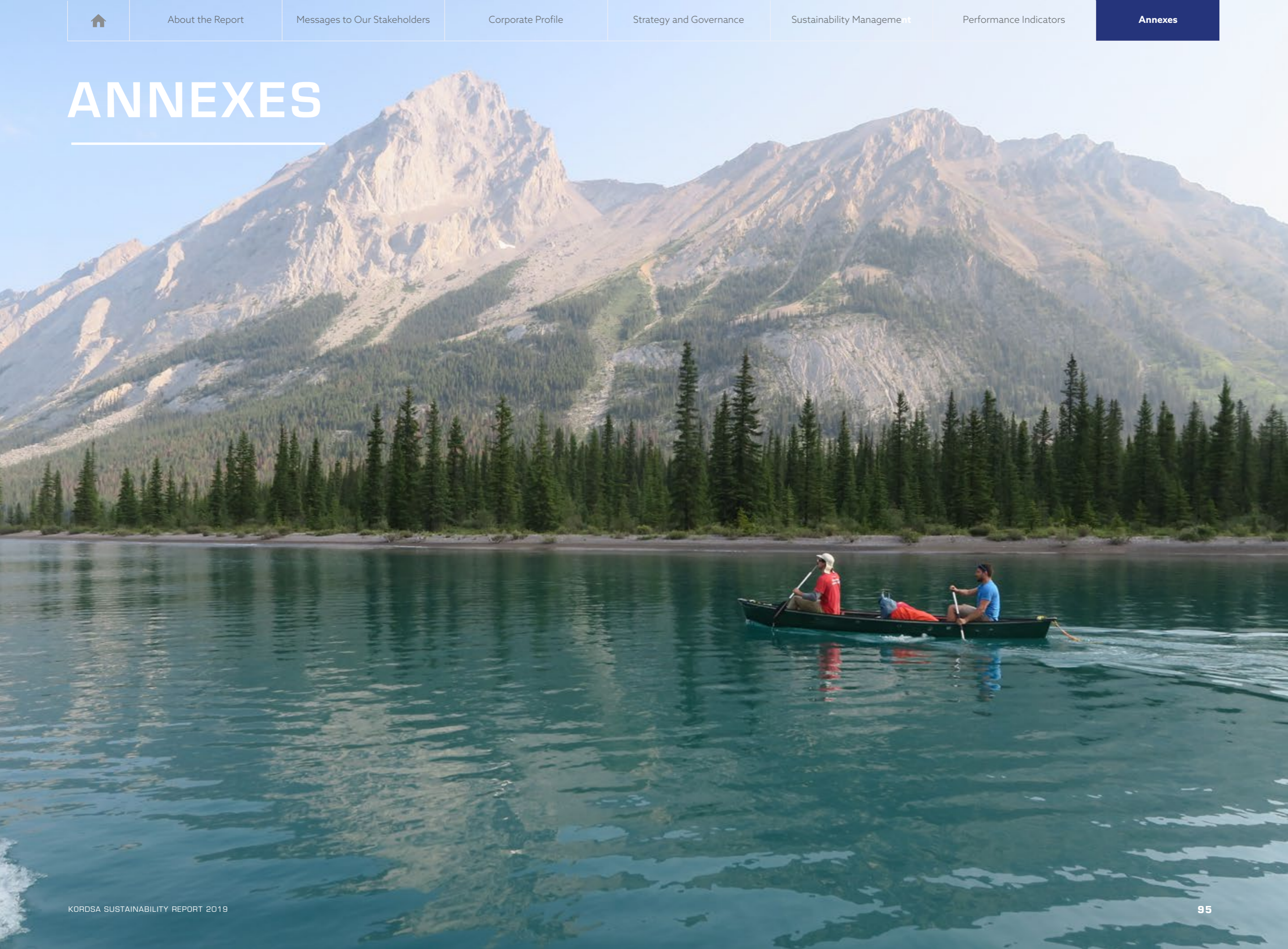
2019 data includes all sites.





# ANNEXES

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# MEMBERSHIPS

## CEO IN MANAGEMENT OF MEMBERSHIPS (TURKEY)

DEİK Foreign Economic Relations Board / Member of General Board  
 DEİK Turkey - USA Business Council / Member of Executive Council  
 DEİK Turkey - Indonesia Business Council / Member of Executive Council  
 DEİK Turkey - Thailand Business Council / Member of Executive Council  
 DEİK Turkey-Asia Pasific Business Councils / Member of Executive Council

## OTHER ELT MEMBERS IN MANAGEMENT OF MEMBERSHIPS (TURKEY)

DEİK Turkey - Brazil Business Council / Member of Executive Council  
 TURKCHAM - Turkish Chamber of Commerce / Board Member - Indonesia

## TURKEY

ACC Legal Consultants Association  
 Equality at Work Platform  
 İSO Istanbul Chamber of Industry  
 İTO Istanbul Chamber of Commerce  
 İTKİB The General Secretariat of Istanbul Textile & Apparel Exporter's Associations  
 İTHİB Turkish Textile Employer's Associations  
 KALDER Quality Association  
 Rubber Association  
 KİD Corporate Communication Professionals Society  
 Kocaeli Chamber of Industry  
 Kocaeli Chamber of Commerce  
 Turkish Composites Manufacturers Association  
 LES Turkey Technology and License Executives Society  
 PERYÖN Personnel Management Association of Turkey  
 SAHA Istanbul - Defence, Aviation and Space Cluster  
 TBCSD Turkish Business Council of Sustainable Development  
 TİDE The Institute of Internal Auditing Turkey  
 TMMOB Turkish Chamber of Mechanical Engineers  
 TTSİS Turkish Textile Industry Employers' Union  
 TÜSİAD Turkish Industry & Businessmen Association  
 TÜYİD Turkish Investor Relations Society  
 UN Global Compact

## INDONESIA

AmCham Indonesia American Chamber of Commerce in Indonesia  
 APINDO The Employers' Association of Indonesia  
 HIBERKIBRA - Neighborhood Corporate Association  
 Indonesian Public Listed Companies Association

## THAILAND

FTI The Federation of Thai Industries  
 TNSC The Thai National Shippers' Council  
 DFT Department of Foreign Trade, Ministry of Commerce  
 Ayutthaya Personnel Management Group

## BRAZIL

Bahia's Spinning and Weaving industries Union  
 COFIC - Industrial Foment Committee of Camaçari  
 FIEB/CIEB  
 ABRAFAS - Brazilian Association of Producers of Artificial and Synthetic Fibers  
 American Chamber of Commerce  
 BM Küresel İlkeler Sözleşmesi

## USA

AFMA - American Fibers Manufacturers Association  
 ISIFM - International Society of Industrial Fabric Manufacturers  
 Turkish American Coalition  
 LBG Scotland County Chamber of Commerce



# GRI CONTENT INDEX



For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report.

The service was performed on the Turkish version of the report.

## GRI 101: FOUNDATION 2016

GRI 102: GENERAL DISCLOSURES 2016		LOCATION OF DISCLOSURE
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## STAKEHOLDER ENGAGEMENT

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102-49	Changes in reporting	Page 3
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**GRI 103 MANAGEMENT APPROACH 2016****GRI 200-300-400 TOPIC SPECIFIC STANDARDS 2016****LOCATION OF DISCLOSURE****GRI 200 ECONOMIC STANDARDS SERIES**

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GRI 204 PROCUREMENT PRACTICES, 2016	204-1 Proportion of spending on local suppliers	Page 67
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GRI 301 MATERIALS, 2016	301-1 Materials used by weight or volume	Page 49
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GRI 103 MANAGEMENT APPROACH 2016	103-1 Explanation of the material topics and their boundaries	Pages 31-32
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GRI 302 ENERGY, 2016	302-1 Energy consumption within the organization	Page 91
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GRI 103 MANAGEMENT APPROACH 2016	103-1 Explanation of the material topics and their boundaries	Pages 31-32
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A scenic mountain landscape with a person standing on a rock peak. The background features rolling hills and dense forests under a hazy sky. The KORDSA logo is overlaid in the center.

**KORDSA**