



We Know the Value of Life

2020

Sustainability Report



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About the Report

Turkey's biggest industrial enterprise, Türkiye Petrol Rafinerileri A.Ş. (Tüpraş) is a leader in the Turkish economy because it creates new economic value and innovates through its pioneering business practices.

As of 2020, we leave behind 12 years of successful sustainability work at Tüpraş. In that time frame, we treated the issue of sustainability and its reporting as a key management responsibility and committed ourselves to the systematic governance of these processes. We welcome our stakeholders to review our progress in this field, primarily on the social, economic, and environmental impacts of our activities and the results of our sustainability efforts.

This report meets the GRI Standards Basic option requirements. The outline of primary topics included in the report reflects the pattern of our basic process flow, which adheres to the GRI standards and its reporting principles. In the clarifications made in the report, we have taken into account the United

Nations Global Compact (UNGC) Progress Report requirements in addition to the subjects and descriptions stipulated by the GRI Standards. We have also included the progress report produced under the UN Women's Empowerment Principles (UN WEPs), which Tüpraş is a signatory to. Furthermore, the report incorporates the performance indicators recognized industrywide, including Tüpraş's contributions to the United Nations Sustainable Development Goals.

The report covers the refining activities carried out by Tüpraş in Turkey between January 1, 2020, and December 31, 2020. Because it is our policy to include subsidiary activities in our financial reporting, this report also incorporates basic information about Tüpraş subsidiaries: Opet Petrolcülük A.Ş., Körfez Ulaştırma A.Ş., Deniz İşletmeciliği ve Tankerciliği A.Ş. (Ditaş), and Tüpraş Trading Ltd. Under the financial reporting principles followed, we have included our subsidiaries' financial data in the performance figures of Tüpraş.

You can access the digital version of the report and historical reports at www.tupras.com.tr.

RESPONSIBLE PRODUCTION



SOCIAL DEVELOPMENT



MANAGEMENT APPROACH



2020
was a special
year for all of us.

2020 was a special year for all of us. The COVID-19 pandemic has helped us understand, once again, the importance and value of life, aligning our awareness with the more pressing global issues such as rising inequality, the climate change, and the rapid depletion of resources.

We worked in line with our sustainability-based production policies during these challenging times and met our country's energy needs round-the-clock. Our motto, "We Know the Value of Life," inspired our 2020 Sustainability Report theme.

We put people first.

We use resources efficiently and contribute to the circular economy.

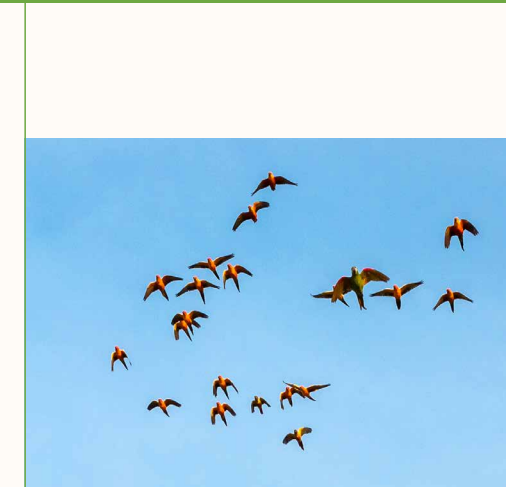
We are rooting our culture of innovation and digitalization deeply in preparation for the future.

We want the rule of social benefit to thrive on inclusion.

"We Know the Value of Life"



RESPONSIBLE VALUE CHAIN MANAGEMENT



TALENT MANAGEMENT



R&D INNOVATION AND DIGITAL TRANSFORMATION



Message from the General Manager

Dear Stakeholders,

The COVID-19 pandemic that shrouded the world in 2020 created unparalleled challenges for humanity. The extraordinary circumstances we encountered deeply affected our health, economy, and social life globally. We are thankful that vaccines have proven successful, and the launch of vaccination drive is promising. Still, the rate at which the mutated virus is spreading requires all individuals to fully follow the government health guidelines until the pandemic is defeated.

Though the global economy bounced back in the second half of 2020, the COVID-19 pandemic caused the deepest recession since the Great Depression, curtailing all kinds of energy demand. The demand for transportation and oil products was hit the hardest due to COVID-19 shutdowns and travel restrictions. According to the International Energy Agency data, demand declined by 8.8 million barrels per day in 2020, 8.8 percent below 2013.

As we left the worst year of our refining history behind, we focused heavily on optimizing our processes to make the most of our assets and to offset the decline in demand and profitability. We managed our financial risks using a disciplined and dynamic approach and leveraged our working

capital effectively to bolster our balance sheet structure, leading to significant improvement in cash flow. We met all our obligations promptly, demonstrating our resilience and solvency in times of adversities and negative shocks. Our investment and emphasis in human resources, sustainability, technology, innovation, digitalization, and agile management paid off as we rose to the challenge and quickly adapted to circumstances.

The pandemic has helped us understand, once again, the importance and value of life, aligning our awareness with the more pressing global issues such as rising inequality, climate change, and the rapid depletion of resources. We worked in line with our sustainability-based production policies during these challenging times and met our country's energy needs round-the-clock. Our motto, "We Know the Value of Life," inspired our 2020 Sustainability Report theme. We worked with the urgency of moving energy—a key input in tackling any problem—to every corner of our country, regardless of the circumstances. We strived to deliver the energy needed to keep the economy's wheels turning.

Over the past decade, we directed almost 20 percent of our investments to sustainability.

We continue to improve our environmental, social, and corporate governance performance while giving top priority to sustainability. We directed almost 20 percent of our investments to these areas in the last decade. We plan to allocate 40 percent of our approximately 1.7-billion-Turkish lira investment budget to sustainability projects in 2021.

In line with the United Nations 2030 Sustainable Development Goals, we integrated sustainability into all our processes, including our supply chain and after-sales operations, business model, and corporate culture.

We put people first.

Our employees are our most valuable capital asset. We constantly work to improve the safety of our work environment and cultivate the skilled workforce of the future. We live up to our word, "Safety Is My Future," and keep people and occupational health and safety at the heart of all our processes in our production journey.

From the first day of the outbreak, we took all the necessary measures to protect the health of our employees and business partners. We give top priority to upgrading our activities and business processes in light of the guidelines provided by scientific organizations, primarily the World Health Organization, the Republic of Turkey Ministry of Health, our crisis desk, and the Koç Holding Crisis Center. In this respect, we continually reinvent our work environment and procedures in the field and offices. All our refineries have the COVID-19 TSI Safe Production Certificate.

Because we continually invest in the development of our employees, we made it our priority to support our employees during the pandemic as well. We adopted new business methods that would contribute to the work-life balance. We successfully increased our employee engagement score by 25 percentage points to 61 percent in such an unprecedented times of turbulence, proving the Tüpraş family's solidarity in the face of challenges.

Since we signed the United Nations Women's Empowerment Principles (UN WEPs), our ambition has been to reinvent our business, sporting inclusion, equality, and diversity as the basic minimum requirements in this male-dominated refining sector. In a pioneering move for our industry, we employ women as shift technicians and operators in our production sites today, intending to increase the number of women in every role and level, not just in our field and office positions. In 2020, the ratio of female employees in managerial positions increased to 24 percent, with female employees accounting for 45 percent of our total talent pool.

We use resources efficiently and contribute to the circular economy.

As a responsible producer, we avoid wasting our energy. To mitigate our environmental and social impact, we work on alternative solutions for efficient use of resources, reduced use of natural resources, and waste recycling. In 2020, we invested 238 million Turkish lira in environmental projects promoting efficiency-oriented and innovative refinery methods geared toward our production processes and products.

We strive to be one of the world's best refineries in energy efficiency. Thanks to our energy-saving projects and modernization efforts, our energy intensity stood at 99.1 in 2020. Our 30 energy efficiency projects helped us save 713,000 GJ of energy while reducing our carbon dioxide emissions by 39,600 tons.

We continue to assess how the risks of climate change could affect our business processes. We closely follow the developments taking place in the transition

to a low carbon economy, within the scope of the Task Force on Climate-Related Financial Disclosures (TCFD) formed by the Financial Stability Board (FSB) established by the G20 and European Green Deal. In the feasibility studies of our investment projects, we include the potential carbon pricing and evaluate the environmental impacts of our projects in a holistic way using the Life Cycle Analysis.

We continue to partner with the leading research centers, universities, and industrial organizations worldwide, collaborating on CO₂ reduction projects undertaken as part of our R&D activities. With the Horizon 2020 program coming to an end, we aim to participate in Horizon Europe, focusing on new projects involving renewable fuels and hydrogen production. In 2020, we allocated 43.4 million Turkish lira to our R&D efforts in this regard.

In our refineries, we adopt processes that help preserve water resources. One example is waste water reuse, a process aimed at reducing water consumption. In this project, we also aim to reduce any adverse impact on the biodiversity value of the natural receiving environment. In 2020 alone, we reused 15.1 million cubic meters of waste water through our water efficiency efforts and processes, including waste water recovery and reuse in processes.

Our primary aim in waste management is waste reduction and recovery at the source. This way, we can contribute to the circular economy. Accordingly, all our refineries have a Zero Waste Certificate.

Currently, we are working on improving the environmental and social impact of our supply chain and logistics operations because they are an important component of our value chain. We have already increased our rail transport ratio to over

90 percent through our Gulf Transport Company, which owns the first private rail transport license in Turkey. In 2021, we aim to launch Turkey's first hybrid locomotives. Our maritime transport company Ditaş operates in line with the International Maritime Organization's (IMO) strategy of reducing greenhouse gas (GHG) emissions.

We are rooting our culture of innovation and digitalization deeply in preparation for the future.

We strive to become an energy company that stands out with its new product development and pioneering refinery methods that focus on R&D, innovation, and digitalization—the core of our business strategy. In 2020, we took a significant step in accessing new technologies as part of our innovation efforts and signed a partnership agreement with Emerald Technology Ventures. As a company that is actively engaged in open innovation development in Turkey, we aim to reach new technology companies operating abroad with the help of this collaboration.

We envisage and plan our digital transformation steps by introducing technology and development to support refinery processes and production flow without compromising safety and cybersecurity. Every day, we process and try to make sense of 650 million lines of data produced by our refineries. As a refinery with the world's best data analytics unit, we aim to make our data-driven decision-making process an indispensable part of our working culture and managerial discipline.

We want the rule of social benefit to thrive on inclusion.

In addition to its duty of providing Turkey's energy needs, Tüpraş undertakes projects, as part of its commitment to being a responsible corporate citizen, to support the development of our society. Through its social responsibility project dubbed "Our Energy for the Future: I Code, I Model, I Produce," Tüpraş produced 10,000 face shields for healthcare workers during the pandemic, using 3D printers in robotic coding classes instructed by our volunteer teachers.

We continue our collaboration with the UN Women's HeForShe movement and Fenerbahçe Sports Club on our "Our Energy for Equality Never Ends" project to raise public awareness on gender equality.

"We Know the Value of Life"

In the days ahead, we will continue to prove to the world that there is the "Our Energy Never Ends" project as we work hard toward our goal of leaving a more livable planet to future generations, a life-size ambition enshrined in our motto, "We Know the Value of Life," a testament to our sustainability approach. I want to take this opportunity to thank all our stakeholders, primarily, our employees, suppliers, and business partners, who have never stopped supporting us on our sustainability journey and have always helped us attain our goals and combat the pandemic.

İbrahim Yelmenoğlu
General Manager

TÜPRAŞ IN FIGURES

Refining Capacity:

30 million ton/year

Average Nelson Complexity:

9.5

Processed Crude Oil

22.6 million tons

Production

23.4 million tons

KÖRFEZ ULAŞTIRMA A.Ş.

Railroad Cars:

465 (Tüpraş),
100–150 (TCDD Lease)

Locomotives:

5 (TCDD Lease), 5
(Tüpraş)

Tüpraş owns 100% of Körfez
Ulaştırma A.Ş.

DİTAŞ

3 Crude Oil Tankers:

479,765 DWT

1 Crude Oil/Product Tanker:

51,532 DWT

10 Product Tankers:

171,453 DWT

3 Product Tankers in Bareboat Charter:

46,031 DWT

13 Tugboats, 6 Mooring Boats,

3 Service Boats, 1 Pilot Boat

Tüpraş has a 79.98% stake in Ditaş.

TÜPRAŞ TRADING

2.3 million ton exports

1.8 million ton imports

Tüpraş owns 100%
stake in the company.

Crude Oil Supply

21.5

million tons

Total Storage Capacity:

8,2 million m³

Opet terminals:

1.1 million m³

Tüpraş terminals:

7.1 million m³

OPET

Tüpraş has 40% stake in Opet.

Gas Stations:

1,766

Storage Capacity:

1.1 million m³

Operations include commercial trading,
mineral oil, ship fuel, aircraft fuel and
storage.

TÜPRAŞ 2021 TARGETS and 2030 UN SUSTAINABLE DEVELOPMENT GOALS

Since 2008, Tüpraş has regularly shared its environmental, social and corporate governance performance and practices with its stakeholders. Tüpraş **treats the issue of sustainability as a key management responsibility** and prioritizes it in all its operations, from investment decisions to operating mode. Accordingly, **Tüpraş considers its Sustainable Development Goals as an important guide to providing creative solutions to global problems.** The Company is working to identify areas that will contribute to these goals that align with its business objectives and sustainability strategy. Through the steps taken in line with its transparency and accountability principles, Tüpraş **plans to implement more responsible and effective reporting methods** by allowing its stakeholders to **monitor their sustainability performance against concrete goals.**

MANAGEMENT APPROACH

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
	18%	18%	25%
	Maintaining female representation in the Board of Directors	Women board members continued to sit on the Board of Directors.	Membership by gender in the Board of Directors in the last five years
	Development and review of policies on Human Rights, Anti-Bribery and Anti-Corruption, Donations and Sponsorships, Gifts and Entertainment and Supply Chain	Started working on the policy development and review.	Publication of policies
	Organizing ethics training for employees	Prepared the ethics training content and started working with the consulting firm for online access.	Providing access to ethics training for employees
	Continue to be listed in the BIST Sustainability Index	Tüpraş continued to be included in the BIST Sustainability Index in 2020.	Continue to be listed in the BIST Sustainability Index
	Developing a value creation model for the company in parallel with the UN SDGs	Tüpraş increased its competency score for excellence to five stars thanks to the EFQM Model employed.	Continuing the work on the EFQM excellence model
	Effectively managing the risks and opportunities in line with the Company strategies and risk appetite	Tüpraş identified its risks within the scope of the Corporate Risk Management methodology and assessed them for impact and frequency. The Corporate Risk Management guide was updated.	Training organization to raise awareness about Corporate Risk Management Organizing workshops with risk-holding departments to expand Tüpraş risk inventory

TALENT MANAGEMENT

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
	Increasing the number of methods that use equitable and inclusive workplace modeling	A Women's Committee was established as part of the model methodologies. The continual development of the women's committee at Izmir Refinery was supported by continued training.	Continuing the activities of the Women's Committee
	Improving the physical work conditions of female field employees at the refineries	All refineries improved the physical work conditions of female field employees.	Designing customized programs for the development of female field employees and increasing their numbers
	Completing the end-to-end design of employee experience	The Company conducted the necessary surveys. Tüpraş established the Future of Work employee experience team in addition to other similar teams formed simultaneously. The teams began receiving training for heightened awareness and better education on the subject.	Implementing employee experience exercises








R&D, INNOVATION, AND DIGITAL TRANSFORMATION

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
	Increasing the number of applications and acceptances in international and national projects	The number of applications increased from 20 to 33, and 7 projects received acceptances.	Increasing the number of applications and acceptances
	Launch of new projects under Horizon 2020	Horizon 2020 accepted five of our projects.	Achieving the objectives of ongoing projects and initiating new projects
	Completing the Horizon 2020 Program as the most successful Turkish industrial enterprise	Tüpraş was acknowledged as the most successful organization in the Horizon 2020 program in Return-On-Investment terms.	Apply to Horizon Europe with a robotic technologies project
	Introducing new demo-scale technologies on Carbon Capture, Utilization, and Storage (CCUS) to different refinery sites (Izmir, Kırıkkale)	We applied to the Horizon 2020 program with 11 projects.	Apply to Horizon Europe with a CCUS project
			Being part of the national work group in the field of Hydrogen Technologies
	Increasing the number of innovation volunteers and developing customized programs	The number of innovation volunteers reached 145. An awareness event was organized as part of the innovation volunteers' meeting.	Increasing the number of innovation volunteers and developing customized programs

R&D, INNOVATION, AND DIGITAL TRANSFORMATION

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
	Active involvement of company mentors in the intrapreneurship program and open innovation efforts	Company mentors started to support selected intrapreneurship projects.	Increasing the number of company mentors and providing active mentoring for intrapreneurship and open innovation efforts
 	Cooperation with international open innovation programs	Tüpraş signed a long-term cooperation agreement with the Emerald Industrial Innovation Fund, an international venture capital fund. The number of startups developed in collaboration increased.	Increasing the number of startups developed in collaboration; increasing expertise on investment and joint project development/commercialization
 	Managing national and international open innovation activities and collaborations under an umbrella program	Tüpraş diversified its access channels to domestic and international startups. The design of an umbrella program for collaborating with open innovation work began.	Designing a logo, title, and standards for the umbrella program
 	Creating new revenue streams for the Company with the help of innovation efforts	Tüpraş commercialized two projects within the scope of its intrapreneurship program.	Commercializing three projects within the scope of the intrapreneurship program.
 	Increasing the use of digital and analytical structures	Tüpraş kicked off more than 15 data analytics projects. The completed projects helped cultivate a data-based decision-making culture.	Increasing the multiplier effect on efficiency and savings by replicating the projects in different refineries
	Developing the training content, alternative implementation plans, and infrastructure needs for the Analytical Tüpraş training course Improving processes with the participation of data analysts from different departments	Tüpraş organized training programs on data-driven coding, data editing, heuristic data analysis, data processing, modeling, and panel building.	Allowing Tüpraş access to basic data analytics training
 	Increasing the number of structures that access and use big data systems Increasing the use of Pentaho software	In four refineries, more than 50 developers used Pentaho to digitalize the processes. Tüpraş increased the reach and use of big data systems.	Improving continuous distribution and integration (CI/CD) processes
 	Applying to the Global Lighthouse Network	The first application did not deliver the expected results.	Participating in the Global Lighthouse Network
	Increasing the use of new Robotic Process Automation (RPA) processes and robotic applications	We worked with three new departments analyzing their prospective RPA processes and determined the target processes. We also completed the work on 50 RPA processes of five different departments.	Surveying new business/operational areas for potential RPA applications, studying prospective processes that could generate new revenue streams, signing up new units for robotic applications

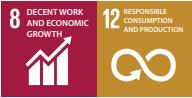

OCCUPATIONAL HEALTH AND SAFETY

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
 	Setting the occupational health and safety objectives	We aim to reduce the lost time injury (LTI) frequency rate to the 0.3 bandwidth within five years.	Keeping the LTI frequency rate at around 0.55 and the Process Incident Frequency Rate at around 0.65
  	Continuing training for awareness and safety campaigns for the personnel (employees of Tüpraş and its contractors)	Training on OHS and Process Safety continued on online basis during the pandemic.	Sharing new content on process safety and OHS with employees
 	Continuing with the process safety external audits and starting the inter-refinery internal audits	Could not be performed due to the pandemic.	Initiating the audits







RESPONSIBLE PRODUCTION

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
   	Obtaining Zero Waste Certificates for the refineries	Four refineries received Basic Level Zero Waste Certificates.	Obtaining Basic Level Zero Waste Certificate for Headquarters Applying for Advanced Level Certificates for refineries after the publication of relevant legislation
  	Following the global trends and new technologies in the energy industry	Tüpraş joined the Decarbonization Leaders Network. Closely followed the European Green Deal. Followed the global and sectoral developments on climate change.	Participating in relevant platforms
 	Increasing the water recovery amount	Recovered 15.1 million m ³ of water.	Increasing the water recovery amount
   	Decrease in Energy Intensity: -0.85 (delta)	99.1	Decrease in Energy Intensity: -1.5 (delta)
  			Supplying up to 25 percent of the annual electricity needs of the refinery from renewables by making use of the 2-MW solar power plant
 	Continuing with the circular economy contribution projects	Treated wastes in industrial symbiotic projects and used them as raw materials.	Developing symbiosis projects for disposal waste and pilot composting projects for domestic waste
   			Developing a Life Cycle Analysis model for processes and performing Life Cycle Analysis for CCUS projects

RESPONSIBLE VALUE CHAIN MANAGEMENT

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
	Designing a new SAP-CRM software to measure the 360° customer experience and manage customer notifications more actively, following the standards	Commissioned Customer Notification Management software.	Starting the driver portal/mobile app project Increasing the number of Tüpraş Solution Center and Tüpraş Client Portal headings and service area
	Reducing the share of highway use in logistics	Reduced the share of highway use to 2.5 percent and increased the share of railroad transportation.	Continuing with the regular scheduled work plan
	Increasing the number of Ditaş information security awareness training sessions	Transferred the information security awareness training sessions delivered in the classroom in 2019 to the online training platform in 2020.	Carrying out awareness and training activities within the scope of ISO 27001 Information Security Certification
			Installation of the Ballast Water Treatment unit for vessels to be docked in the dry dock for maintenance under the Ditaş Ballast Water Management Convention

SOCIAL DEVELOPMENT

UN SDG	2020 Targeted	2020 Achieved	2021 Targeted
	Deploying and promoting the “Our Energy for the Future: I Code, I Model, I Produce” project in regional schools	Revised the project during the pandemic and produced 10,000 face shields for healthcare workers with the support of 60 volunteer teachers using the 3D printers in schools.	Deploying and promoting the “Our Energy for the Future: I Code, I Model, I Produce” project in regional schools
	Reaching more students with the “Our Energy for Students” project	Designed the experiments and prepared the setups during the pandemic.	Taking the experiments to a wider audience by moving them online
	Undertaking projects aimed at raising awareness of employees on gender equality	Tüpraş supported the #HeForSheAtHome awareness campaign highlighting gender equality in sharing household chores and child care, both of which spiked during the pandemic.	Raising public awareness on our female field employees project
	Raising public awareness on gender equality in cooperation with the UN Women's HeForShe movement and Fenerbahçe Sports Club	Provided support to the “16 Days of Activism Campaign to End Violence Against Women” launched by the UN Women's Turkey Office with the participation of volunteer employees. Organized three Athlete Workshops and one Leaders of Change training.	Continuing with the awareness projects
	Continuing with our collaboration efforts to preserve cultural and artistic assets	Added the book, “The Carians: From Seafarers to City Builders,” to the Anatolian Civilizations Series of Yapı Kredi Publications (YKY).	Continuing ongoing and new cooperation activities
	Contributing to the preservation of marine life and biodiversity in the seas	Collected the waste from the boats in cooperation with the DenizTemiz Association/Turkish Marine Environment Protection Association (TURMEPA)	Increasing public awareness

SUSTAINABILITY JOURNEY



2008

- Upgraded refineries to sell Euro V-standard diesel fuel.
- Kicked off railway transport under TCDD contract.
- Commissioned construction of Fuel Oil Conversion Facility.
- Started using OSAR-Risk Assessment Table.
- Published first corporate social responsibility report in line with GRI Reporting Framework.
- Increased Corporate Governance Score to 8.20.



2009

- Commissioned improved gas specs investment at Izmit Refinery.
- Upgraded all gasoline products to Euro V specs.
- Commissioned Contractor Management System.
- Completed conversion to Customer Relations Management (CRM) System.



2010

- Inaugurated R&D Center.
- Updated Tüpraş Ethical Values.
- Commissioned the Waste Management Automation Software.



2013

- Received ISO 50001:2011 Certification for Energy Management System Standard.
- Received ISO/IEC 27001:2005 Certification for Energy Management System Standard.



2014

- Completed Izmit Refinery Fuel Oil Conversion Facility.
- Tüpraş stock included in the BIST Sustainability Index by Borsa İstanbul.
- Inaugurated R&D Center Campus.



2015

- Attended 21st Climate Change Conference (COP21), where UNFCCC Paris Agreement signed.



2016

- Commissioned Waste Water Treatment Plant to reclaim effluent discharge of ISU Bay Waste Water Facility and reuse at the refinery for industrial purposes.
- Railroad Car Maintenance and Repair Shop at Kırıkkale Refinery received Responsible Unit Certificate in recognition of being the most comprehensive Railroad Car Maintenance and Repair Shop in Turkey.
- Launched Tüpraş Supplier Portal.
- Horizon 2020 Multinational Research and Innovation Program accepted three projects submitted by Tüpraş R&D Center with record-setting assessment and admission scores.
- EBRD provided a \$150-million loan for use in environmental and energy efficiency projects.
- Attended 22nd Climate Change Conference (COP22).



2017

- First private company to operate railway trains in Turkey under contract with Körföz Ulaştırma A.Ş.
- Established the first catalyst pilot facility at the R&D Center.
- Participated in 23rd Climate Change Conference (COP23) and presented two papers.
- Signed United Nations Women's Empowerment Principles (WEPS).
- Received ISO 10002 Certification for Customer Satisfaction Management System.
- Established Innovation Department and launched Idea Unit Portal.



2018

- Increased Corporate Governance Score to 9.48.
- Signed a global cooperation pact with Fenerbahçe Sports Club to support the HeForShe movement organized by UN Women.
- Participated in 23rd Climate Change Conference (COP24) and presented a paper.
- Established Tüpraş Solution Center to help improve customer satisfaction.
- Inaugurated London Trading Office.
- Opened Data Analytics Centers at METU and ITU Technocities.
- Launched Open Innovation Studies for entrepreneurship ecosystem.



2019

- Körföz Transport received five new locomotives.
- Körföz Transport signed an agreement for Turkey's first hybrid locomotives.
- Acknowledged as the Most Successful Turkish Industrial Enterprise in Horizon 2020, EU's R&D and Innovation Program. MOF4AIR, MACBETH, FACTLOG, and HYDROPTICS projects awarded support.
- New Power Plant at Kırıkkale Refinery selected project of the year at 8th ICCI Energy Awards.
- Awarded First Place in Innovation Strategy category at InovaLIG.
- Ditaş installed a flue gas purifier (scrubber) on three tankers to comply with 2020 International Maritime Organization rules.
- Twelve thousand students received training on robotics coding and 3D modeling under the "Our Energy for the Future: I Code, I Model, I Produce" project.
- Reached 3,000 students through 260 experiments as part of our "Our Energy for Students" project.



2020

- Signed a long-term cooperation agreement with Emerald Industrial Innovation Fund, an international venture capital fund.
- Increased Corporate Governance Score to 9.58.
- Refineries received Basic Level Zero Waste Certificates.
- Established Tüpraş Trading Ltd., a subsidiary company, at London Trading Office
- Added Modiphal-T Project of Intrapreneurship Program to the product portfolio.
- Horizon 2020 kicked off projects CORALIS, AquaSPICE, EBIO, and ACHIEF.
- Established Tüpraş Academy at Kırıkkale Refinery.
- As part of our "Our Energy for Equality Never Ends" project rolled out in collaboration with the UN Women's HeForShe movement and Fenerbahçe Sports Club, we supported the International 16 Days of Activism campaign.
- Commissioned Customer Notification Management software.



10,000

Face Shields Manufactured for
Healthcare Workers



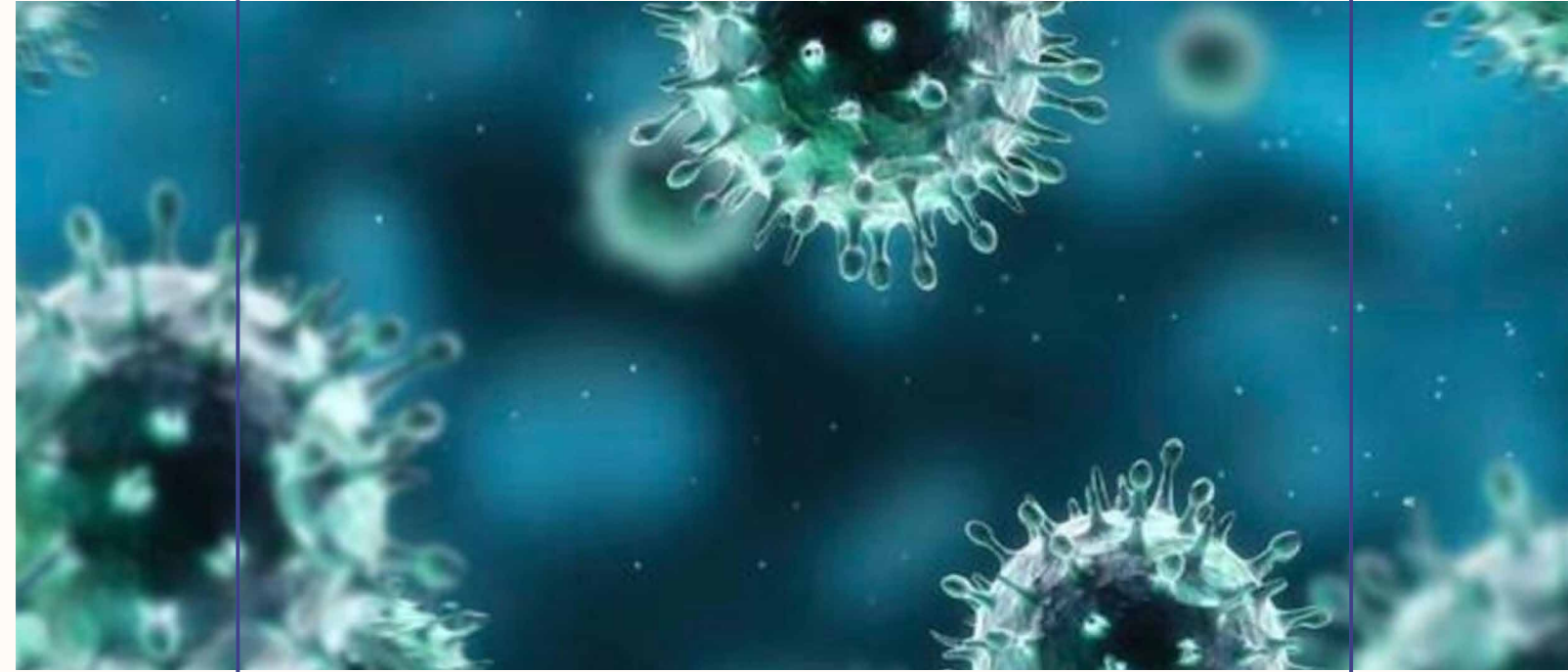
Donation to National
Solidarity Campaign launched by the
Presidency of the Republic of Turkey



"Remote Refinery Field Tour and
Training" with Smart Hard Hat



"Covid-19 Safe
Production Certificate"
in All Refineries



SPECIAL SECTION: COVID-19

Tüpraş is the flagship of the Turkish energy industry and has a strategic importance for our country and economy. During the COVID-19 pandemic that shook the world, the Company navigated through the decision maze, fully aware of this role and responsibility. Today, even in the midst of a raging pandemic, it continues to produce incessantly thanks to its unwavering stance: ***"If you're the flagship of the energy industry in a country, you cannot afford to pause or falter."***

COVID-19 FLEXIBILITY AND RESILIENCE PRACTICES



Tüpraş is the largest industrial enterprise that supplies the bulk of Turkey's fuel needs and is of strategic importance for our country and the economy. Fully aware of its flagship duties and responsibilities, Tüpraş continues to contribute to the economy by supplying the bulk of the country's energy needs. During the COVID-19 pandemic that shook the world, the Company took all its decisions and actions fully aware of this role and responsibility. Today, even in the midst of a raging pandemic, it continues to produce incessantly thanks to its unwavering stance: "If you're the flagship of the energy industry in a country, you cannot afford to pause or falter."

Tüpraş believes that the prerequisite to ensuring continuity in production is creating an environment that protects its employees' health and safety. Accordingly, the company quickly implemented all the measures to make production the most efficient, healthiest, and uninterrupted throughout the pandemic. To keep the production going, we took all the necessary measures, primarily in workplace safety and employee health. We followed not just the Koç Group's practices but all the guidance and instructions of competent authorities, particularly the World Health Organization and the Ministry of Health.

We reviewed the scenarios to ensure continuous production and prepared action plans and

"Tüpraş, fully aware of its flagship duties and responsibilities, continues to contribute to the economy by supplying the bulk of the country's energy needs."

roadmaps depending on possible developments. We created the COVID-19 Crisis Desk to address the uncertainty posed by the outbreak, closely assess the outbreak's effects, the actual situations, and use the resources properly. During this period, we revised and redesigned the document of "Pandemic Response Plan," which identified all the directorates' duties and responsibilities and created a checklist for every possible phase of the pandemic. As Senior Management, we continue to send weekly Technical Safety information memos, and our General Manager organizes digital platform meetings to inform all employees about the process.

We directed our employees with a chronic disorder and those with children between 0 and 14 to work remotely, from home. As of March 19, all employees eligible for remote work—other than those whose job is critical—started working from home following the planning guidelines of the respective management teams. We launched an online survey for all employees to assess their health situation every morning and asked all employees returning from domestic and international travel to quarantine for 14 days.

With union backing and consensus, we switched our shift system to protect the health of our employees and their families while ensuring business continuity. In the new system, two shifts worked for 12 hours for seven days, while the other two shifts rested and isolated at home for the week. We staffed the maintenance and other day-shift units to maintain the minimum on-site operation. We ran a quick assessment of potential

We installed thermal cameras at refinery entrances to measure body temperature. We asked out-of-town employees staying in the lodgings to vacate the premises to make room for social isolation when necessary.

inter-refinery issues (crosslinked/parallel) and developed a contingency deployment/succession plan to sustain uninterrupted production in case of large outbreaks/spreads.

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In addition, we installed Temporary Lodging Cabins to ensure the continuity of production in the event of quarantine in the refineries. Designed to accommodate only one person, these temporary lodging cabins are installed in production areas for employees to quarantine at the facility and live in isolation minimizing the risk of transmission while ensuring the continuity of production. Furthermore, COVID-19 precautions and the quality of implementation in all refineries were inspected by the TUV SUD.

As of June 2020, Tüpraş continued to gradually return to normal, promoting this new work normal as: "Once again, together at the

new normal." In this new normal, except for pregnant employees, breastfeeding mothers, parents who cannot leave their children at home, people with chronic health problems, disabled employees, and employees with a family member working in the healthcare industry, all other employees returned to work and started on-site work on a rotating basis. We reorganized the work place environment in the offices to minimize interpersonal contact as per the guidelines of the Ministry of Health and Koç Group. We rescheduled and staggered the meal breaks and seating arrangements in the cafeteria to prevent interpersonal contact. The current precautions require that all common areas and shared spaces such as lounges, offices, canteen, cafeteria, guest house, and service vehicles are regularly disinfected. Announcements about personal hygiene and raising awareness of the spread of the pandemic are shared on internal display units and panels and via email.

Tüpraş was also among the first companies in the private sector to



use the HES Code to fight outbreaks. We integrated the Ministry of Health's App "Life Fits Into Home" for employees and business partners using our API infrastructure that connects to the Ministry's IT services/system. We moved meetings with larger audiences to online systems and diluted the meeting rooms, ensuring the preservation of social distance. In addition, the use of QR code applications, digital temperature measurements, and camera controls at turnstiles in crowded locations helped create the infrastructure making contact tracing possible in potential outbreak scenarios.

Tüpraş implemented all procedures for preventing and controlling infections as determined by the Turkish Standards Institute (TSI) and received the TSI COVID-19 Safe Production Certificate for all its refineries.

Tüpraş works to fight coronavirus and diligently implements all health-related workplace measures well into the normalization process. We believe that all individuals and organizations need to share the burden and take on responsibility in times of crisis. As part of our corporate citizen approach, we also promote and support social solidarity. Tüpraş provided financial support to the National Solidarity Campaign launched by the Office of the Presidency of the Republic of Turkey and donated PCR equipment to the Kocaeli Provincial Health Directorate for coronavirus tests. In addition, we responded to requests for face masks and hazmat overalls from hospitals in Körfez/Kocaeli, Aliağa/Izmir, Kırıkkale, and Batman, where our facilities are located, and face masks and ethanol requests from other municipalities to the extent we could arrange availability.

Tüpraş transformed the social responsibility project dubbed "Our Energy for the Future: I Code, I Model, I Produce," which was carried out in collaboration with the Ministry of National Education (MoNE), into the "Bridging Hearts in Solidarity" project during the pandemic. Accordingly, we redesigned the Robotic Coding, 3D Modeling, Production Skill Classes opened in 30 middle schools in the four provinces where our refineries are located. To produce protective face shields for healthcare workers in the early days of the pandemic, we quickly coordinated with 60 volunteer teachers. The students produced 10,000

face shields using 3D printers in the robotic coding classes, and we delivered them to the Provincial Health Directorates. Tüpraş received the Shared Tomorrows Are Possible Together Award by the Turkish Confederation of Employer Unions (TISK) in December 2020 with this project aimed to create social benefit.

Tüpraş also took action for street animals whose food and water needs peaked with the restaurants and cafes closed during the coronavirus outbreak. We signed a protocol with Kocaeli's Körfez and Izmir's Aliağa municipalities to support the animal shelters in the area with the food leftover from refinery dining halls.

Activities Targeting Employees

- We developed our new morale-enhancing support service, "Happy and Hopeful Together," as part of Tüpraş Corporate Health activities to reduce stress levels of employees and their families and fight the negative effects of social isolation. Our professional teams provided psychosocial support to employees with different support needs falling under titles ranging from healthy minds to socializing and appreciating each other. We continued to counsel our employees using every communication channel available in the normalization efforts under our banner motto, "Once again, together at the new normal."
- To inspire the employees, we launched a new online talk show series, "Inowhatif Talks," to showcase the leverage effect of innovation on the pandemic. We contrasted it against the technological, environmental, social, and economic effects of the pandemic in the big picture and shared the innovative examples that swarmed the world at lightning speed.
- We moved the orientation and development activities online. We continued our leadership training program, including safety, people focus, and future competencies.
- We developed the Safe Travel and Holiday Guide and disseminated it before the holiday and leave period begins.

- We launched the online internship program.
- The Mother and Child Foundation (AÇEV) Instructor met with the employees on the digital platform with AÇEV's lecture on Parenthood in the Age of Corona.
- Tüpraş normally organizes this event each year to support nongovernmental organizations with the voluntary contribution of its employees. But this year, the event was moved online.

Activities Targeting Suppliers and Contractors

- All precautions implemented across Tüpraş are applicable enterprise-wide, including suppliers and contractors. To mitigate the risk of transmission, we restrict the business operations of suppliers and contractors when necessary and work together to minimize their economic losses.

Activities Targeting Logistics Operations

- We developed the COVID-19 Guide for maritime applications using the International Maritime Organization (IMO), the International Chamber of Commerce (ICC), and the International Association of Independent Tanker Owners (INTERTANKO) guidelines.
- We did not allow any port exits and personnel changes to isolate vessels except in the case of emergencies outside the normalization period. We changed the shift system at the terminals.
- We ask for the PCR test results from persons coming to serve the ships.
- For the continuity of the operations, locomotives are disinfected weekly using potent materials with a lasting effect but harmless to human health. We revised the shifts of locomotive engineers, splitting them into groups to avoid contact.



- The TUV-SUD audited and certified our railway logistics operations as instructed by the COVID-19 Occupational Health and Safety Audit Standards.

Customer Related Targeted Activities

- We provided round-the-clock disinfection in the waiting areas of customers/drivers, thanks to our successful collaboration with the relevant municipalities.
- We aimed to minimize the risk of transmission by revising land filling working hours/shifts, distributing new masks, and rearranging the operational layout. We sent daily SMS to registered drivers for improved awareness.
- The screens/dashboards that drivers follow prior to filling in the refineries are designed to be viewed on the web and smartphones (Driver Tanker Sequence Tracking Screen) and received 2,000 visits per day from the first week.
- Extended the scope of the Tüpraş Customer Portal application and the Tüpraş Solution Center (444 123 0).



DIGITAL SOLUTIONS AND APPLICATIONS

Tüpraş My Safe Place

The application “Tüpraş My Safe Place” aims to prevent the spread of contagion and permit contract tracing in the event of a transmission. It allows Tüpraş employees to report their location by scanning the QR codes in common areas. The system integrates with the QR codes found in the garages, canteen, conference hall, and meeting rooms. Work is underway to ensure the system is used in assembly areas, and the number of employees located inside and outside is determined in security incidents that require emergency assembly.

HES (Life Fits Into Home) Code Automation

Tüpraş is one of the first private sector companies to use the HES code app. The Company integrated its internal IT services/infrastructure into the Ministry of Health's HES Code system to create a safer working environment and monitor its personnel more effectively and properly for contact tracing and quarantine. Thanks to the services provided by the Ministry of Health to Tüpraş, the HES codes of employees are periodically checked online in every shift, and access cards are immediately revoked in the case of a risk. Reporting is made regularly to the authorized persons. Tüpraş makes online HES code inquiries for 15,000 people every day, including personnel (employees of Tüpraş and its contractors). The process is carried out using a special automation system developed by Tüpraş, removing the possibility of any human error. People give Tüpraş consent to share their HES code and process their private data under the Law on the Protection of Personal Data.

Employee Health Screening Application

All employees receive a health screening form daily via SMS and email. In this way, we aim to collect the

current health status data before employees come to work and, when necessary, let the workplace physicians reach the employees to reduce the risk of exposure using contact tracing. The daily usage ratio of the application throughout Tüpraş is 90 percent.

Refinery Visit Request Process

It is an app that allows visitors to communicate their individual or group visit requests digitally. Using security screenings and HES code checks, this app ensures that visitors pose no risk to the refinery. Visitors are required to watch the Site Safety Rules video on the app before entering the Refinery and when they finish watching the video, this information is also stored in the system.

Smart Baret

Provided remote operations training on Smart Baret through online video and audio transfer. Company experts and Tüpraş experts jointly planned and directed remote maintenance and maintenance activities with the help of document sharing. Performed remote refinery field tour and signal checks for the Izmit wireless communications project. Organized Remote Refinery Field Tour and training using Smart Baret as part of the online internship program.

Terminal Automation Systems Project

Virtual Plant Acceptance Remote Tests

Because the pandemic-related travel restrictions constrained us, we conducted for the first time remote tests in a virtual plant acceptance project with the simultaneous participation of business units from the Chinese Office, Honeywell Turkey Office, and Tüpraş Refineries, for the Terminal Automation Systems (TAS) project using digital infrastructure and the necessary technological equipment.

“As we all know, we are fighting our way through pandemic of the century. Our virus, disease, and case management processes are all brand new. This worldwide pandemic has reminded us once again that we are not just a refinery physician but the health officer of an enterprise who cannot afford to take a break. As professional healthcare teams, we put in every effort to protect the health of Tüpraş employees and their families. We formed crisis response teams in our headquarters and refinery, did brainstorming, and mobilized resources for immediate preparations and utmost precautions. As a physician, I want to take this opportunity to thank my executives and colleagues in the team for rapidly evaluating every proposal made regarding COVID-19. I remember the first hours of our first COVID-19 case. We immediately gathered with our executives and quickly planned and implemented. After organizing everything, we went to the facilities together to greet the incoming new shift, and for me, it was the moment when we were ready for the pandemic.”



Ayfer Öz, M.D.,
Chief Medical Officer, Izmit Refinery

“Our responsibility is always the same: protecting human health. COVID-19 has affected us all because it was more than a communicable disease outbreak. It was a worldwide pandemic of catastrophic dimensions. It reminded us, once again, that what lies at the heart of building a well-functioning community and what is important for society is mutual goodwill and people's resolve and determination to put this goodwill into action.”



Nejdet Kılıç, M.D.,
Chief Medical Officer, Kırıkkale Refinery

“The pandemic changed all our priorities everywhere in the world. We had to postpone periodic examinations and regular scans. Our services such as water analysis and hygiene audits, however, did not change. As soon as we began taking precautions to contain the pandemic, we quickly adopted and complied with all the necessary measures at the Izmir Refinery Workplace Health Unit. We replenished our material stocks in no time and immediately started following the crisis center instructions. We also obtained ultraviolet devices and disinfection devices to disinfect our healthcare unit. We sent explanatory messages to update and advise our employees and prepared the lists of people with chronic diseases.”



Murat İplikçi, M.D.,
Chief Medical Officer, Izmir Refinery

“At the Batman Refinery, we established a Pandemic Oversight Board with members joining us from the Workplace Medical Office, Human Resources Department, and Technical Safety and Environment Department. Working in coordination with the Tüpraş Pandemic Crisis Center, we increased our protective measures and developed emergency action plans to prevent the transmission and spread of infectious diseases.”



Veysi Çevik, M.D.,
Chief Medical Officer, Batman Refinery


18%
Female Representation
in the Board of Directors


9.58
Corporate Governance
Rating Score


Ratings in MSCI, FTSE4Good,
Borsa Istanbul
Sustainability Indices



MANAGEMENT APPROACH

Tüpraş cultivates a **fair, transparent, responsible and accountable corporate governance approach**. We manage our Corporate Governance practices following the Capital Markets Law, which contains the Capital Markets Board regulations regarding the Corporate Governance Principles, and the communiqués issued under this law. We continuously develop the **Tüpraş Corporate Governance Model**.

Corporate Governance

Our Company adopted the Corporate Governance Principles announced to the public by the Capital Markets Board of Turkey (CMB) in July 2003, and we largely follow these rules and guidelines. As of 2020, we fully complied with all the mandatory principles and most non-mandatory principles stipulated by the Corporate Governance Communiqué (Series: II-17.1). We earnestly aim full compliance with the non-mandatory Corporate Governance Principles and show the utmost effort in this regard. However, we could not achieve full alignment due to various reasons: (i) implementation difficulties, (ii) ongoing national and international methodology discussions, and (iii) alignment conflicts between certain principles and the current structure of Tüpraş and the market. We are currently working on the principles not yet implemented.

The Sustainability Principles Compliance Framework adopted by the CMB in 2020 elaborates on the main principles concerning the disclosure requirements of publicly-owned corporations regarding their environmental, social and corporate governance activities. Many of the sustainability issues managed by Tüpraş are in line with the principles set out in the Sustainability Principles Compliance Framework. Accordingly, Tüpraş complied with many of the principles set out in the Sustainability Principles Compliance Framework developed by the CMB (using the approach, “Observe or Explain”). The Company shared in the relevant sections of the 2020 Annual Report the work carried out to follow the principles.

The Board of Directors of Tüpraş comprise 11 members, four of whom are independent, elected by the General Assembly to serve for a prescribed period. Tüpraş strongly supports female employees to take part in all levels of business life and has two women serving in the Board of Directors as members. Tüpraş approved the Policy of Diversity in the Board of Directors, which will help the Company increase the female representation in its Board of Directors to 25

percent within five years.

There are no executive members among the Board of Directors. **The Chairman of the Board of Directors and the General Manager are different people.** To increase the Board of Directors’ effectiveness in fulfilling its duties, Tüpraş established committees to serve under the Board of Directors: The **Corporate Governance Committee, Risk Management Committee, Audit Committee, Steering Committee, and Ethical Behavior Board.** As per the provisions of the Corporate Governance Principles, the role of the **Nomination and Remuneration Committee** is performed by the Corporate Governance Committee.

Tüpraş has 28 senior executives who have proven their expertise and professional competencies in diverse fields. The senior management team under the General Manager is responsible for implementing the Board of Directors’ strategic plans and corporate policies.

As part of its efforts to align with corporate governance and sustainability, Tüpraş developed new policies on **Human Rights and Diversity** and updated previous policies on **Anti-Bribery and Anti-Corruption, Donations and Sponsorships** in response to the compliance-related expectations of its local and international stakeholders.

You can access detailed information on the Board of Directors and Senior Management and the Tüpraş Corporate Governance Committee through the [website](#) or the 2020 Annual Report Corporate Governance.

Tüpraş aims for a 25 percent female board member ratio by 2025.



Tüpraş includes its commitments in the Corporate Risk Management Policy in line with its risk management system.

Risk Management

The Corporate Risk Management process developed by Tüpraş to maintain its current values and create new values for its stakeholders is shaped by its existing strategies and business objectives. All factors that may affect the company are assessed in terms of risk and opportunity. A risk inventory is created, and risk managers are identified at the company and business unit levels. The Company designs and carries out actions that help mitigate the risks identified to develop an effective risk management process.

The **Risk Management and Audit Department** reports directly to the General Manager and is responsible for executing the corporate risk management processes and ensuring coordination between the units. Likewise, the **Early Detection of Risk Committee, Risk Monitoring Committee, Information Security Committee, and Operational Technologies Cyber Security Committee** are responsible for carrying out various risk management activities in the company. They all report to the Board of Directors and Senior Management.

Early Detection of Risk Committee: The Committee aims to ensure effective functioning of all committees under the Board of Directors, tasked to identify in advance the risks that may jeopardize the Company’s viability and sustainability, development, and prosperity, to take the necessary precautions regarding identified risks, and to manage the risk.

Risk Monitoring Committee: The committee is responsible for developing the policies and practices necessary to effectively carry out corporate risk management processes



required for the early detection of the risks that may jeopardize the Company's viability and sustainability, taking the necessary measures regarding the identified risks. The Risk Monitoring Committee's responsibility is to periodically monitor the risk trends and any action plans necessary for the risks through key risk indicators.

Information Security Committee: It is responsible for ensuring the Company's information security, raising awareness by underscoring the importance of the subject, and maintaining sound and uncompromized information security. Current risks are reviewed and updated annually with the business units included in the Information Security Management System (ISMS). The risks arising are assessed within the scope of the Information Security Committee and the Management Review Process.

Operational Technologies Cyber Security Committee: It is responsible for managing the increasing cybersecurity risks for field equipment and applications, improving the technological security infrastructure within Tüpraş, effectively implementing them within the operation, maintenance, project, and supplier management processes, and developing the procedures and processes required to ensure uninterrupted process continuity.

To ensure the sustainability of the Company's viability, activities, and business continuity, Tüpraş integrates its commitments into its [Corporate Risk Management Policy](#) in line with its risk management system developed to maintain its reputation and achieve its strategic, operational, and financial objectives.

Within the framework of Corporate Risk Management, the frequency and impact level of existing and potential risks are continuously evaluated with the relevant units. Data entry is made by the responsible persons for the identified risks, thus determining the total risk of the organization on a macro scale. Risks are

monitored using risk management software thanks to the identified key risk indicators. **Risk-related results are shared with the Senior Management at specified periods.**

The Risk Management and Audit Department monitor the risks under **seven main headings:** Technical Safety & Environment, Financial, Commercial, Operational, Strategic, Compliance & Legal, and Reputation.

1 – Technical Safety and Environmental Risks: Risks that affect human health and the environment, arising from natural disasters, occupational accidents, or operational activities.

2 – Financial Risks: Risks that arise from the exchange rate, liquidity, and interest rate involving the company's financial position.

3 – Commercial Risks: Risks that arise from the Company's commercial activities involving commodity transactions, fluctuations in product/crack margins, third-party commercial relations, financial losses, inventory impairment, production disruptions or market loss, and non-performing receivables.

4 – Operational Risks: Risks of losses or damages arising from errors and omissions, disruptions in the Company's daily activities and governance systems or its management and employees failing to act promptly under the circumstances.

5 – Strategic Risks: Risks of adverse effects on activities due to changes that prevent a company from meeting its strategic objectives set for the short, medium, or long terms.

6 – Compliance and Legal Risks: Risks of adverse effects on activities due to changes in legal regulations, misinterpretation of regulations, incomplete or late documentation, and undervalued rights and overvalued liabilities.

7 – Reputation Risk: Risk of potentially adverse changes in the institution's reputation and practices. Loss of reputation may lead to the loss of the Company's social reputation, a decrease

in demand for its products and services, and a negative impact on its competitiveness.

The sustainability-related risks are included in the risk inventory and are monitored in the risk management processes.

There are several policy documents on the environmental, social, and governance (ESG) subjects, which contain both the General Manager's and Board of Directors' commitments and are shared with the public via the corporate website.

The Koç Group Environment Committee developed and updated the document, **"Greenhouse Gases Worse- and Best-Case Scenarios,"** based on SWOT analysis to monitor the risks associated with climate change.

2020, the Company identified Talent Retention as the potential human resources risk area. Accordingly, the company began monitoring

the turnover trends in career mobility, unwanted resignations, internal reassignments/promotions, and the use of rotation in personal and career development plans.

Detailed information on risk management and committees is available in the Tüpraş 2020 Annual Report.





The Tüpraş Risk and Action Portal helps to systematically monitor the findings and carry out work to improve the processes.

Internal Audit and Control

The internal control system in Tüpraş consists of the standards, job descriptions, delegation/authorization system, policies, and written procedures included in the workflows. The Risk Management and Audit Department monitors the internal control system following the risk-based audit plans in a proactive manner.

The audit activities at Tüpraş and its subsidiaries aim to provide reasonable assurance under financial, operational, legal, and ethics rules. In addition to routine audit activities, the Audit Department conducts customized process reviews and audits based on audit findings or internal reports.

Audit findings are shared with the Company management and responsible supervisors, and necessary corrective measures are taken. Actionable audit findings are stored in the Tüpraş Risk and Action Portal, and necessary actions are systematically monitored based on the finding's significance.

The Audit Committee comprises the Independent Members of the Board of Directors. The Audit Committee convenes four times or more a year, depending on the need. In 2020, the committee held six meetings. The Audit Committee provides periodic reports about the audits performed.

Business Ethics and Anti-Corruption

Tüpraş adheres to legal regulations and business ethics principles while continuing its activities. To ensure the continuity of the Company's viability and business interests, protect its reputation and manage the compliance risks, Tüpraş uses the **Tüpraş Anti-Corruption Policy** and its addenda **Anti-Corruption Guide** and **Foreign Trade Control Implementation Guide**, which comply with the **Tüpraş Code of Ethics and Business Conduct and its Implementation Principles**.

All employees of Tüpraş and its subsidiaries are required to read and understand the relevant policies and live by these policies. We should, however, stress that these policies apply to all company employees and managers regardless of their position in the corporate hierarchy. Employees are required to read, understand and sign off on the **Tüpraş Code of Ethics and Business Conduct and its Implementation Principles**, made available to employees and the public on the Company's website.

All stakeholders in the Tüpraş supply chain are expected to carry out their activities following certain rules and working principles. These rules and principles are stated in various policy documents, particularly the Tüpraş Supplier Code of Conduct, and the company monitors and updates the applicable procedures if necessary.

All stakeholders in the Company's supply chain are informed about the corporate policies such as the **Tüpraş Supplier Code of Conduct**, **Tüpraş Code of Ethics and Business Conduct and its Implementation Principles**, **Tüpraş Information Security Management System Policy**, **Tüpraş Personal Data Protection and Processing Policy**, and **Personal Data Processing Privacy Statement**. They all undertake to observe these rules and act and conduct their activities accordingly.

The **Tüpraş Ethics Board**, which reports to the Board of Directors, is responsible for enforcing compliance with the Code of Ethics and taking necessary actions for any Code of Ethics violations. In the event of a Code of Ethics violation, the Risk Management and Audit Department is involved and reviews the case.

The Company's anti-bribery and Anti-Corruption activities are regulated by the Tüpraş Code of Ethics and Business Conduct and its Implementation Principles, Tüpraş Anti-Corruption Policy, and Anti-Corruption Guide. If the audit identifies any risks regarding anti-bribery and Anti-Corruption activities, the case is reviewed and referred to the Tüpraş Ethics Board. Necessary sanctions are imposed, and corrective/preventive actions are taken promptly as per the Ethics Board's resolution.

All Tüpraş employees are encouraged and required to come forward and report any violations of the Code of Ethics or suspicion of bribery and corruption. There are various communication channels available for employees and other relevant stakeholders to report any suspected Code of Ethics violations to the Risk Management and Audit Department. All reports are treated confidential. It is possible to report anonymously via the Stakeholder Communication Management System and Tüpraş Call Center, and there is a reporting hotline on the Koç Holding website. Tüpraş employees are not affected in any negative way (sanctioned or retaliated against) for reporting a violation.

Tüpraş is not a party to any religious, political, or ideological opinion/sentiment/belief, affinity/inclination/disposition or organization, nor does it directly or indirectly support the activities or campaigns of political parties, politicians, and candidates. Exploiting the Company's activities or resources for such purposes and/or lobbying

for the Company's commercial/special interests are forbidden. In line with the mutually beneficial and transparent relationship it has formed with the public institutions, Tüpraş reciprocally shares information with them and responds to their information requests about the industry.

Tüpraş contributes to solving problems in the sector by supporting the efforts of industry-specific nongovernmental organizations. When dealing with public institutions as customers or in any procurement tenders via RFP, Tüpraş fully adheres to all applicable legislation following both the spirit and the letter of the law and free competition.

There were no reports of violations of Tüpraş Ethical Values, universal human rights, or anti-bribery and anti-corruption in 2020. Similarly, no litigation suits were filed during the period against the Company for any violations of the laws and regulations on anti-bribery and anti-corruption.

Online software programs are used to identify compliance risks, particularly the counterparties who are subject to international sanctions. If such a software program flags any change in the status of a counterparty suggesting a banned activity, institution, or person, a warning message is sent to the company, allowing it to monitor the counterparty's status vis-a-vis any applicable sanction legislation for the duration of the continuation of the business relationship.

In 2021, we aim to provide ethics training for our employees. The training covers fundamental values and principles, corruption, misuse of assets, conflicts of interest, information security, gifts and entertainment, social media use, and data security.

You can access the Tüpraş Code of Ethics and Business Conduct and its Implementation Principles and Tüpraş Anti-Corruption Policy documents on the corporate [website](#).

Quality Management

Tüpraş follows international quality and management standards and internal product and service standards to ensure standardization in products and services. Embracing the business excellence model, Tüpraş manages all its operations using the **Integrated Quality Management System, which comprises the standards such as the ISO 9001 Quality Management System, ISO 14001 Environmental Management System, ISO 45001 Occupational Health and Safety Management System, and ISO 50001 Energy Management System.**

In 2020, when the COVID-19 pandemic forced businesses to implement a remote work model, the Company conducted its Integrated Management System Internal Audits at Headquarters and refineries via remote access. Furthermore, the external audits of the Integrated Management System found no major issues at the Headquarters, Izmit Refinery and Batman Refinery. In addition, all refineries and the Headquarters received the new certification for ISO 45001:2018 and ISO 50001:2018 standards in 2020.

Also, the Turkish Accreditation Agency certified Tüpraş laboratories in Izmit, Izmir, Kırıkkale, and Batman for international accreditation and acceptance, when they completed their **TS EN IEC/ISO 17025** standard audits.

To ensure information security, Tüpraş uses **ISO 27001 Information Security Management System**, which continuously analyzes and

Tüpraş is the first company in Turkey to implement the new version of the EFQM model, which has been updated, taking into account the UN Sustainable Development Goals.

assesses the risks related to the information assets, determines the controls to implement to manage the risks, and monitors the proper operation of these controls. The external audits carried out in 2020 for the ISO 27001 certification confirmed its validity until December 14, 2021.

In addition to international certifications, the regular internal and external audits conducted at the Headquarters and refineries help ensure the functionality of Tüpraş's quality management systems, which also go through the **Lean Six Sigma** process under the guidance of quality management. In this context, Tüpraş had external audits conducted at its Batman and Izmir refineries in 2020 to confirm the CE certification of its EN 12591 (Coating Grade) and EN 15322 (Cutback) bitumen grades, extending the validity of the certifications for one year. Likewise, Tüpraş had an external audit conducted at its Izmit Refinery in 2020 and obtained the CE certification for its EN 14023 polymer modified bitumen production. In addition, Tüpraş received the ISO 10002: 2018 certification after the audit of its **ISO 10002 Customer Satisfaction Management System.**

Furthermore, all processes at Tüpraş were analyzed on the basis of level 3 processes, taking into account the Petroleum Downstream v7.2.1 version published by the American Productivity & Quality Center (APQC). The input-output, customer-supplier, risk-opportunity and performance indicators were defined for each level 3 process and mapped out on the M-Files Process Map program

Tüpraş also works on the **European Foundation for Quality Management (EFQM)** model, which

is considered an industry benchmarking tool for comparing competitors and other leading organizations by grouping all improvement activities and performance assessment tools and managing them together. At the core of the EFQM Excellence Model approach lies corporate culture, corporate and individual leadership, awareness of the business environment, stakeholder focus, managing change and transformation, superior performance, sustainable value creation, and continuous improvement.

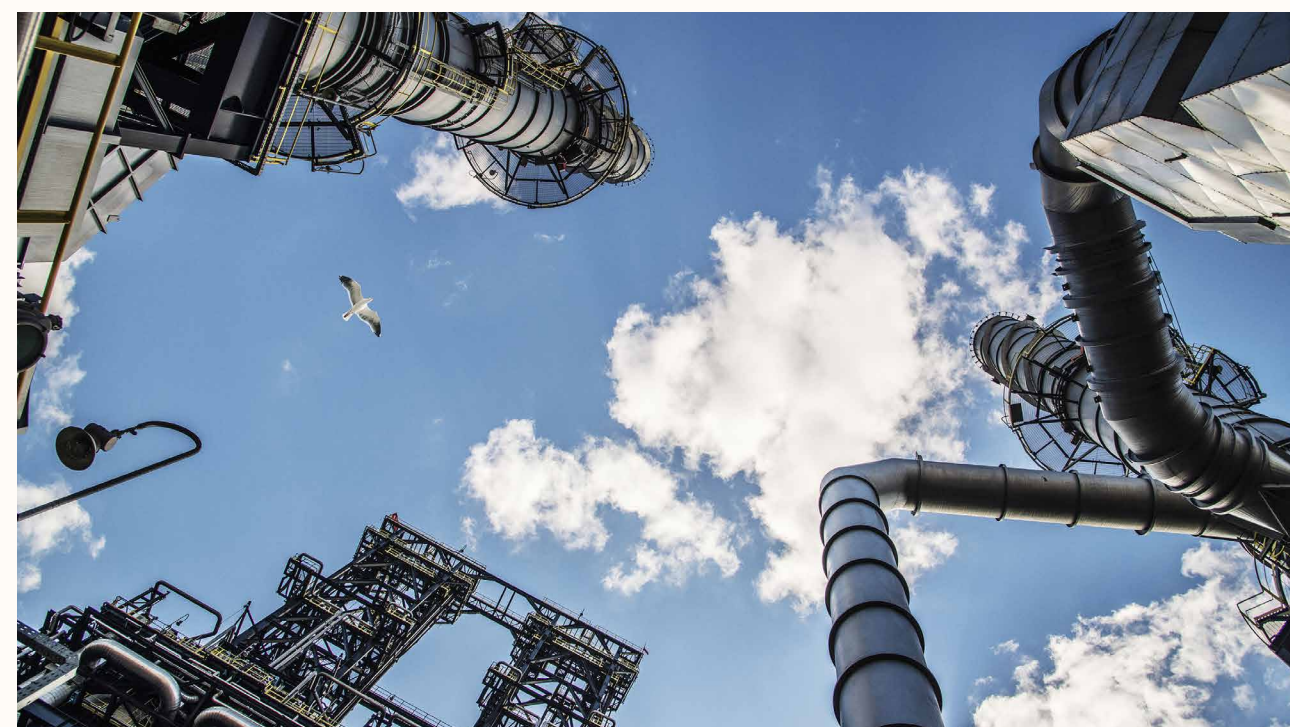
Tüpraş makes the best use of the feedback reports on the EFQM external assessment processes and focuses on the improvement opportunities identified therein, aligning its activities with its continuous improvement approach. In 2020, the Turkish Quality Association (KalDer) assessed Tüpraş Headquarters and refineries in terms of the EFQM Excellence Management Model and increased its excellence competency score.

In 2020, Tüpraş realigned its journey of excellence with the new EFQM model—updated by taking into account the global trends, **UN Sustainable Development Goals**, and ecosystem concept and focusing on transformation. Tüpraş was the first company to implement this **new version** of the EFQM model in Turkey with the following objectives:

Further contributions from the new version of the EFQM to Tüpraş are:

- Reduce the environmental, social and governance (ESG) score by mitigating our environmental, social and corporate risks;
- Measure our progress toward sustainability (Criteria 1, 2, 3, 4);
- Develop a Sustainable Development Model for the Company conforming with the UN SDGs;
- Monitor the progress of our new and ongoing projects to ensure they are properly aligned, integrated, and in step with the Model criteria.

You can access our management systems policies and certificates on our corporate [website](#).



Sustainability Management

Tüpraş is aware of the economic, social, and environmental impact areas it has created in its operating region to establish an effective sustainability management model. It strives to manage all these effects with the principle of “creating value.”

Our 2021 investment program amounts to nearly 1.7 billion Turkish lira. We plan to allocate 40 percent of this amount to investment projects that aim to create energy efficiency, process improvement, environment and occupational health and safety with a sustainability focus.

Tüpraş published its policy documents on the ESG policies and included the commitment of both the **General Manager and the Board of Directors**. There are business procedures to effectively implement these policies announced to the public via the corporate website. The Corporate Governance Committee takes the resolutions to implement the ESG policies and reports them to the Board of Directors for disclosure in the annual reports.

Tüpraş discloses its “**Key Performance Indicators**” on ESG policies in its annual and sustainability reports comparatively for years. Furthermore, Tüpraş continues to work on setting short- and long-term objectives within the scope of the ESG policies and formed a Sustainability Agile Team in cooperation with experts from different departments and appointed

a Sustainability Coordinator under the Corporate Communications Directorate.

When energizing Turkey, Tüpraş follows a sustainability-based production approach with a sense of responsibility toward society and the environment. Accordingly, its **practices are guided by the United Nations 2030 Sustainable Development Goals (SDGs)**. Accordingly, the sustainability report explains the company activities related to the SDGs.

The Company holistically manages its digital transformation, R&D, intrapreneurship, and open innovation strategies, closely follows global trends and industry developments, and focuses on developing new environmentally friendly products and production technologies to make a difference. Following the global energy transformation closely, Tüpraş is part of the **Green Action Task Force for Reconciliation within TUSIAD** within the scope of the **European Union Green Deal**. Borsa Istanbul Includes the company stock in the **BIST Sustainability Index since 2014**, which is also included in international sustainability indices such as **MSCI** and **FTSE4Good**.

Member of the sub-committees of the World Economic Forum (WEF), where Koç Holding is a member, Tüpraş also supports the Business Plastics Initiative (BPI), where Koç Holding is also a signatory.



Material Issues

Material Issues were identified through the prioritization process carried out by the Tüpraş Sustainability Working Group. In determining its priorities, Tüpraş took into account stakeholder expectations, risk areas and opportunities, company strategies, external expert opinions, and international guidance sources such as the United Nations Global Compact (UNGC) and the United Nations Sustainable Development Goals adopted by the company.

After conducting a preliminary assessment with senior executives and management, the company developed a subject universe covering every possible social, economic, and environmental issue. The Sustainability Working Group reassessed all the issues identified in the subject universe and finalized the Company's material issues portfolio. During the reporting period, the Company consulted with external experts on its material issues portfolio and decided to make no changes following a final assessment.

On the other hand, work is underway to conduct a materiality analysis in light of the recent global and sectoral trends. The Company intends to continue to work on its partnership strategy in the coming years in parallel to identifying its material issues.

Having adopted a sustainability-based production approach, Tüpraş uses practices guided by the United Nations 2030 Sustainable Development Goals.



Tüpraş Material Issues	Sustainable Development Goals						
Occupational Health and Safety							
Innovation, R&D and Digitalization							
Gender Equality							
Environment, Climate and Energy							
Corporate Principles							
Customer Satisfaction		Asset Management Availability		Legal Compliance			

Stakeholder Engagement

With its stakeholder engagement-based management approach, Tüpraş encourages its stakeholders to participate in the decision-making and implementation processes in various ways. The Company has created various stakeholder communication mechanisms to communicate the opinions and suggestions of its stakeholders. Its target group-specific communication methods help inform stakeholders about Tüpraş’s activities and their effects while enriching the Company’s decisions and practices with stakeholder views.

Employees	Sustainability Report (annual), Annual Report (annual), Employee Engagement Survey (annual), Internal Communication Meetings (annual), Performance Review Meetings (annual), Occupational Health and Safety Committees (monthly), Technical Safety Bulletins (weekly/monthly), Internal Memos (instant), Social Projects (continuous), Social Activity Clubs (continuous), Refined Suggestions System (continuous), Recognition, Appreciation and Rewarding System (continuous), Tüpraş Code of Ethics (continuous), Collective Labor Agreement (continuous), Employee Training (continuous), Website (continuous), Refinery Knowledge Base (continuous), Stakeholder Communication Management System (continuous), Corporate Portal (continuous), and Corporate Reputation and Perception Surveys (biennial)
Shareholders and Investors	Sustainability Report (annual), Annual Report (annual), General Assembly Meetings (annual), Interim Annual Reports (quarterly), Information and Material Event Disclosures (instant), Roadshow and Investor Presentations (on request), Meetings and Interviews (on request), Analyst Presentations and Teleconferences (quarterly), Tüpraş Code of Ethics (permanent), Website (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Customers	Sustainability Report (annual), Customer Satisfaction Survey (annual), Meetings and Discussions (on request), Customer Portal (continuous), Customer Relations Management System (continuous), Tüpraş Code of Ethics (continuous), Tüpraş Solution Center (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Business Partners and Suppliers	Sustainability Report (annual), Supplier Satisfaction Survey (annual), Technical Safety Bulletins (weekly/monthly), Meetings and Discussions (on request), Tüpraş Code of Ethics (continuous), Business Partner HSE-S System (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Indirect Personnel	Technical Safety Bulletins (weekly/monthly), Meetings and Discussions (on request), Tüpraş Code of Ethics (continuous), Business Partner HSE-S System (continuous), Employee Training (continuous), Website (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Unions	Sustainability Report (annual), Annual Report (annual), Occupational Health and Safety Committees (monthly), Meetings and Discussions (continuous), Collective Labor Agreement (continuous), Website (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Public Institutions and Organizations	Sustainability Report (annual), Annual Report (annual), Audits (periodic/instant), Meetings and Discussions (continuous), Joint Projects (on request), Incentives (on request), Website (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Educational Institutions	Sustainability Report (annual), Annual Report (annual), Meetings and Discussions (on request), Joint Projects (on request), Donations and Sponsorships (on request), Memberships (continuous), Website (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Media	R&D Partnerships (project-based), Donations and Sponsorships (on request), Infrastructure and Instructor Support (on request), Master’s Degree and Sectoral Specialization Programs (permanent), Website (permanent), Stakeholder Communication Management System (permanent), and Corporate Reputation and Perception Surveys (biennial)
Local Community	Sustainability Report (annual), Annual Report (annual), Meetings and Discussions (on request), Press Meetings and Releases (instant), Website (continuous), Stakeholder Communication Management System (continuous), and Corporate Reputation and Perception Surveys (biennial)
Community	Corporate Reputation and Perception Surveys (biennial), Meetings and Discussions (on request), Announcements (instant), Social Projects and Infrastructure Supports (continuous), Website (continuous), and Stakeholder Communication Management System (continuous)
	Corporate Reputation and Perception Surveys (biennial), Social Projects and Infrastructure Supports (continuous), Website (continuous), and Stakeholder Communication Management System (continuous)

All stakeholders can send their wishes and complaints to Tüpraş through various communication channels. Proper feedback is provided on the requests assessed by Tüpraş.

Memberships and Supported Enterprises

Corporate Memberships

ORGANIZATION	REPRESENTATION LEVEL
SPIRE SUSTAINABLE PROCESS INDUSTRIES	Member
MEDITERRANEAN EXPORTER ASSOCIATIONS (AKIB)	Member
BATMAN CHAMBER OF INDUSTRY	Member
CEN/TC/ 019/WG 21, 23, 24	Country Delegation
Decarbonization Leaders Network (DLN)	Member
RAILWAY TRANSPORTERS ASSOCIATION	Board Member
WORLD ENERGY COUNCIL TURKISH NATIONAL COMMITTEE (WEC-TNC)	Board Member/Member
AEGEAN CHAMBER OF INDUSTRY (EBSO)	Committee/Member of the Assembly
ENERGY EFFICIENCY ASSOCIATION (ENVER)	Member
TURKISH ETHICS AND REPUTATION ASSOCIATION (TEID)	Member
EUROPEAN ASPHALT PAVEMENT ASSOCIATION (EAPA)	Member
MARITIME CHAMBER OF COMMERCE/ALIAĞA BRANCH	Board Member
KIRIKKALE CHAMBER OF COMMERCE AND INDUSTRY	Board Member/Member of the Assembly and Committee/Member of the High Consul-tative Council
KOCAELİ CHAMBER OF INDUSTRY (KSO)	Board Member/Member of the Assembly and Committee
KOÇ HOLDING PENSION AND SUPPORT FUND FOUNDATION	Member
CORPORATE COMMUNICATORS ASSOCIATION (KID)	Member
INFORMATION SYSTEMS AUDIT AND CONTROL ASSOCIATION (ISACA – ISTANBUL CHAPTER)	Member
TSI, MTC 1: OIL PRODUCTS, GAS/LIQUID FUEL, OILS AND RELATED PRODUCTS MIRROR COMMITTEE	Committee Member/Member
TURKISH–BRITISH CHAMBER OF COMMERCE AND INDUSTRY (TBCCI)	Member
BATTERY IMPORTERS AND MANUFACTURERS ASSOCIATION	Member
TURKISH INDUSTRY AND BUSINESS ASSOCIATION (TUSIAD)	Member
TURKEY DISASTER RISK REDUCTION PLATFORM	Member
FOREIGN TRADE ASSOCIATION OF TURKEY (TURKTRADE)	Member
TURKISH ENTREPRENEURS PLATFORM	Member
TURKISH SOCIETY FOR QUALITY (KalDer)	Member
TURKISH SOCIETY OF COGENERATION AND CLEAN ENERGY TECHNOLOGIES (TURKOTED)	Member
CORPORATE GOVERNANCE ASSOCIATION OF TURKEY (TKYD)	Member
THE UNION OF CHAMBERS AND COMMODITY EXCHANGES OF TURKEY (TOBB)	Committee Member/Member
TURKISH INVESTOR RELATIONS SOCIETY (TÜYİD)	Member

Supported Enterprises

United Nations Women’s Empowerment Principles (UN WEPs)
UN Women – HeForShe



24%

Female Representation in
All Management Levels



100%

Union Membership Ratio
of Hourly-Paid Employees



194,671

Person-hour OHS Training



17

Average Training
Hour per Person

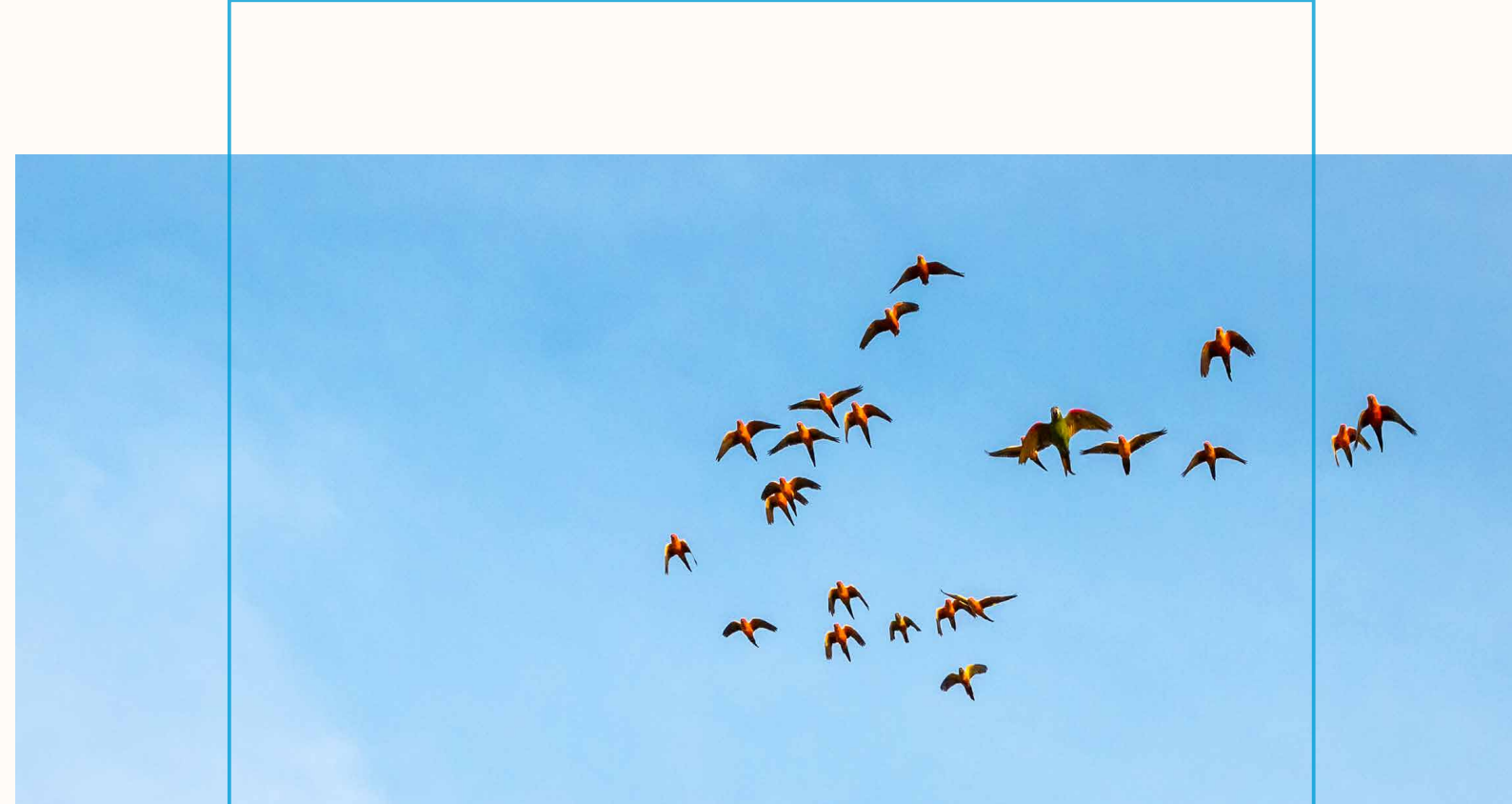


10%

Number of Female
Employees

TALENT MANAGEMENT

Building the essence of its Human Resources Policy on its philosophy, “**Our most valuable capital asset is our human resources,**” Tüpraş offers an egalitarian, fair, inclusive, respectful, and safe work environment that focuses on its employees. Incessantly investing in the development of its employees, Tüpraş continues to cultivate the skilled workforce of the future as it continues to grow its business.





EMPLOYEE RIGHTS

In nurturing and developing its employee rights practices, Tüpraş complies with the international norms and legal regulations in addition to the UN Global Compact and International Labor Organization (ILO) Conventions it has adopted. Boasting an ambitious policy of never committing a human rights violation, Tüpraş is resolute on nurturing and supporting the development of human rights within its sphere of influence. The company expects its employees and suppliers, and business partners to adopt the same principles as Tüpraş and considers sharing a common set of values as a fundamental criterion in establishing and maintaining business relationships. As part of its efforts to align with corporate governance and sustainability, Tüpraş developed a Human Rights Policy and a Board of Directors Diversity Policy.

Tüpraş adopts an objective approach to all its human resources processes, starting from recruitment. All employees are provided with equal opportunities, regardless of age, sex, belief, religion, ethnicity, or any other personal trait, and practices that lead to or evoke discrimination are not allowed. All related articles are included in the Personnel Regulation, which is shared with employees at the recruitment time. Tüpraş does not allow child labor, forced and mandatory labor, abuse of employee rights, or association of such practices with or as part of its activities and requires its suppliers and business partners to do the same and adopt the same principles. Tüpraş adopts the principle of “equal pay for equal work” in employee remuneration. The wage differences between employees consist only of differences based on seniority or performance. The principles to be followed in the remuneration are clearly regulated in the procurement agreements signed with the suppliers and audited during visits done under the same scope.

Tüpraş respects the rights of its employees to unionize and allows them to exercise these rights freely. Employees are encouraged to join trade unions and nongovernmental organizations incorporated under the law. The Collective Labor Agreement covers recruitment processes, working conditions, rotation opportunities, compensation and benefits, social benefits, leave uses, occupational health and safety practices, training

and research activities, awareness for employee rights, and environmental protection. Employee opinions received through one-on-one interviews, surveys, and workshops are shared in the agenda of the collective labor agreements. The collective labor agreement process with Petrol-İş Union is renewed every three years. The applicable collective labor agreement is delivered to all trade union-member employees in booklet form, and its current text is also available on the Company’s intranet portal. Business processes are managed under the provisions of the article. As of 2020, 76 percent of all employees and 100 percent of all hourly workers of Tüpraş were covered under a collective labor agreement.

As of 2020, 32 Tüpraş employees are also part of the management of the trade unions they are a member of. Furthermore, 1,302 salaried staff members also work as employer representatives.

Tüpraş expects its rigorous approach to protecting trade union rights to be adopted by its suppliers and business partners. The supplier and its business partners are monitored for full implementation of trade union rights.

The Company strives to become an inclusive, egalitarian, and diversified workplace on every platform, a philosophy encapsulated in its motto, “Our Energy for Equality Never Ends.”

Diversity and Equal Opportunity

The increasing participation of women in the workforce is driving the economic development and advancement of countries. This perspective allows Tüpraş to break off with industry habits and paradigms, making its ambition of leading the industry as an inclusive and egalitarian employer a top priority on its sustainability strategy.

During the reporting period, the Company continued its operations to become an inclusive, egalitarian, and diversified workplace on every platform, a philosophy encapsulated in its motto, “**Our Energy for Equality Never Ends.**” We constantly outperformed our targets in increasing the number of women in our organization by frustrating all types of workplace discrimination, nurturing women’s employment at every level, providing more development opportunities for women, and improving their professional life.

As a result of these concerted efforts, we increased the number of female employees to 10 percent of the total workforce by 2020, **up 78.2 percent since 2008.** The **overall ratio of female employees in all management levels reached 24 percent, while the ratio of female executives in middle and senior management was 17.5 percent.**

The company attaches great importance to hiring more women at management levels and supports their promotion through development programs. **Two female employees enrolled in the coaching program in 2020, under the priorities set forth for the development and leadership programs. The total**

number of hours of leadership training given to female employees amounted to 948 person hours.

In 2020, 22.9 percent of the employees who received a promotion were female employees.

In 2017, Tüpraş signed the **United Nations Women’s Empowerment Principles (WEPs)** and informed its stakeholders about its goal of becoming an inclusive and egalitarian employer in the energy industry. Tüpraş continued developing internal practices in this area and carried out pioneering projects to raise public awareness and trigger a transformation. **With this approach, the company also aims to contribute to the “Gender Equality,”** which is United Nations Sustainable Development Goal 5.

Tüpraş hired female field employees at the refinery sites under the project titled **Women Field Operators and Technicians**, which started in 2019 at the Batman, Kırıkkale, and Izmit refineries. **Tüpraş aims to make a difference in the male-dominated refining industry, where female employment is low. With the hiring of female field operators and technicians, Tüpraş became a role model in the sector in Turkey.** As part of the emphasis put on the project, Tüpraş continued to beef up women’s ranks in the field.

Tüpraş started offering daycare services to women under the new **Daycare Center Benefits Package** to support women’s work–life balance and career development. During the period, 64 female employees started using the daycare services offered. Female employees in Tüpraş are encouraged to continue working after having children to establish gender equality in business. Accordingly, Tüpraş launched the Refinery Mothers Mentoring Program in 2019. This project aims to help women adapt to work after giving birth and support them in maintaining their career and motherhood balance. **The percentage of female employees who returned to work in Tüpraş after a child care leave in 2020 was 68.8 percent.**

In support of

WOMEN’S EMPOWERMENT PRINCIPLES

Established by UN Women and the UN Global Compact Office

[You can access a video of our project here.](#)

“I have this vivid memory of an incident that happened years ago at my former workplace. As I was climbing a tank 12 meters high, I noticed a foreperson watching me closely downstairs. His eyes were locked on me, not nudging an inch. He waited until I came down and then said, “I’ll tell my daughters about you. You must be feeling cold. Let me fill you up with a cup of tea.” Looking at me with eyes full of tears, he ordered me a cup of tea. It’s hard to say that it was easy, but when I look at it now, I see how far we’ve come.”

– **Ezgi Özdamar, Occupational Safety Inspector, Izmit Refinery Technical Safety and Environment Department**



“I don’t think there is anything women can’t do once she’s determined to see succeed at it. Every woman is strong, and she grows stronger when she earns her living and stands on her feet. We need to work hard and be strong for a brighter and more robust future, both individually and socially.”

– **Gülşen Dal, Operator, Izmir Refinery Production Department**



“A woman who believes in herself and trusts her strength succeeds in every business. I think we’ve broken off with some of the old stereotypes and paradigms. The joy of this success is priceless.”

– **Rabia Hatun Kacar, Operator, Kırıkkale Refinery Production Department**



“It is important to take the first step. Once you take that first step, if you believe that you will succeed in the profession you love, all your fears and anxieties will disappear.”

– **Büşra Demir, Operator, Batman Refinery Production Department**



Employee Benefits

A **satisfactory work environment that supports Tüpraş's employee engagement and happiness** offers various opportunities to employees and their families, improving their living standards and increasing their welfare. Employee benefits are determined considering the mutual benefits of both sides, Tüpraş, and its employees.

Under the Koç Family Program, Tüpraş employees continue to benefit from the products and services offered by the Koç Group companies throughout retirement life. Furthermore, Tüpraş employees and their families have the option of benefiting from the **Koç Holding Pension and Support Fund Foundation Health Insurance**. All Tüpraş employees are covered by supplemental health insurance under the Extended Health Insurance Program. Within the program's scope, employees and their families can access the services of private health institutions at very affordable rates.

The Employee Support Program offers professional support services suited to the lifestyles and individual needs of Tüpraş employees and their families. The program offers quick solutions for special needs in daily life with financial, legal, and psychological consulting from subject matter experts.

The program assigns a research assistant and provides round-the-clock service.

Likewise, our **Flextra Package** allows employees to choose from an auxiliary benefit pool beside their existing benefits. Flextra is a flexible auxiliary benefits package that includes optional benefit services such as life insurance, gift/discount checks, and individual pension programs. Within the program's scope, employees can modify their benefits packages based on their lifestyles and different needs.

Additionally, the **Guidance and Support Program** ensures the rapid adaptation of new employees to the corporate culture and the job during the first three months of the orientation process.

Likewise, the **Workplace Support Program** ensures that industrial psychologists conduct screenings and training programs in all refineries and provide individual psychological support to employees. The work carried out under the program is expanded and diversified every year. With the **Flexitime** system, salaried staff can now modify (within approved limits) the start and end times of their daily and weekly work hours depending on their personal needs and preferences with management's concurrence.



EMPLOYEE DEVELOPMENT

Tüpraş aims to cultivate talent most efficiently by attracting a skilled workforce. Accordingly, we developed new training and development plans to educate employees further and improve their professional and personal skills and behavioral competencies. Custom designed exclusively for Tüpraş, these employee development programs aim to support employees in the most beneficial way possible during their career journey. In this context, the Company designed its education and development activities, project work, on-the-job learning, and rotation processes in collaboration with the leading business schools and universities catering to the industry. Development programs aimed at improving employee leadership competencies include effective communication, coaching and development, cooperation development, and future-oriented development. **In 2020, 175 employees were given 15,132 hours of leadership training.**

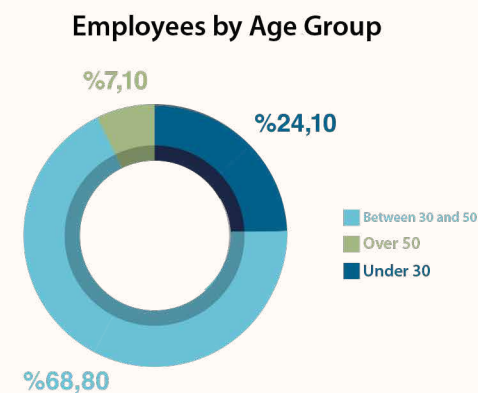
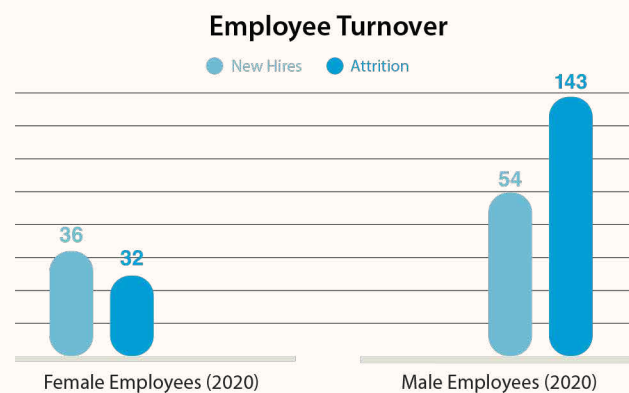
Tüpraş uses a fair evaluation process designed with internal announcement systems and encourages rotation to enrich employee experiences. Tüpraş uses the internal announcement system, **"Energize your career,"** commissioned in 2020 to inform all its salaried staff about the vacant positions in the organization, allowing them to apply. At the same time, Tüpraş allows all its employees to apply to vacant positions at the Koç Group companies. They inform the Human Resources department

and manager through the platform named "My Koç Career."

The Human Resources Business Partnership framework allows the Company to monitor any individual's career planning and development process. The career advancement model developed for hourly workers, the career management systems developed for salaried staff are elements of the overall employee career planning process.

Tüpraş runs a **Refinery Training Program to ensure field employees can perform their work safely**. The program is continually reviewed and revised to provide ease of use with an innovative approach. The Company completed the construction of the Tüpraş Academy, which was established to give the Tüpraş field employees in-house technical and professional training. Built at the Kırıkkale Refinery, the Academy includes workshops, classrooms, a conference hall, and a library. Still, it was impossible to offer any classroom training due to the pandemic—accordingly, only online training took place in 2020. The Tüpraş Academy will be officially inaugurated in 2021. It will become the academic center that will help develop solutions to all issues related to Tüpraş employees' development, monitoring, and development in technical and professional matters.

The Company launched the **Idea Unit's intrapreneurship program** in 2017.



In 2019, Tüpraş included in the training and development program mentors, identified and selected from among the intrapreneurs. At the same time, we organize training programs that explain the foundations of innovation, open innovation, and corporate entrepreneurship to make innovative thinking a part of the corporate culture and expand the entrepreneurship perspective.

Tüpraş Development Dialog

In 2020, the Company commissioned the tool dubbed “**Tüpraş Development Dialog**” to establish an open dialog between manager and employee to align the employee’s career development with the Human Resources objectives.

Behavioral competencies, career development plans, and individual development needs of salaried staff are evaluated in an environment where the employee and manager come together through the “Tüpraş Development Dialog” to establish a dialog. The process dubbed “**I Work With a Safe and Agile Mindset**” is a program developed for the first time together with the employees. The “I Work With a Safe and Agile Mindset” process consists of three parts that aim to evaluate and develop employees’ competencies, help them gain perspective on

career development, plan their rotation preferences, mobility status, possible career paths within Tüpraş, and finally identify individual development needs in both behavioral and occupational fields.

The focus of the Tüpraş Development Dialog is to develop a perspective that will enable a different perspective on **dialog, feedback, rotation, development, and the future** within the company. This way, 86 percent of office employees had the chance to use the Tüpraş Development Dialog in 2020. Employees who used the Tüpraş Development Dialog created their training and development plans to support their behavioral skills and career development. At the same time, they used the qualification matrix to create their professional/technical development plans specifically targeting the technical and professional development positions available. **During the year, they checked both their Tüpraş Development Dialog application forms and the selected training programs on the digital Human Resources portal dubbed ”Energetic.”**

In line with the planning done on typical development areas, Tüpraş organized **27 different behavioral competency training sessions for 405 employees and 20 vocational/technical sessions for 759 employees in 2020.**

EMPLOYEE TRAINING		2020
Total Training (person-hour)		93 244
By Gender		
	Female	19,017
	Male	74,227
By Category		
	Male	54,171
	Hourly-Paid Employees	39,073
Average Training per Employee		17
By Gender		
	Female	36
	Male	15
By Category		
	Salaried Employees	42
	Hourly-Paid Employees	10

¹Due to the pandemic, Tüpraş moved training programs to online whenever possible and postponed others that require classroom instruction to stop degrading the effectiveness of the training.

Performance Management

A well-structured performance evaluation and career management system constitutes a cornerstone of employee development. Tüpraş uses a scorecard system to review the performance of office employees. Employees receive individual feedback on their performance at annual performance review meetings. On the other hand, field employees receive feedback from senior management on the period results and target expectations.

The total remuneration package for all salaried staff members consists of a basic salary, variable pay (bonuses), and employee benefits. Tüpraş updates its remuneration plans annually based on the country’s economic indicators, market trends/ practices, and company performance.

Performance management for salaried staff members will be done through the “**Koç Dialog**” system, whose integration began in 2020 and is expected to be commissioned in 2021. Updated anytime during the year, Koç Dialog is a transparent and dynamic performance system that helps determine inspiring goals and success criteria using the Objectives and Key Results (OKR) method,

the design of which involves multi-dimensional structuring and instant exchange mechanisms that allow messaging among managers and employees.

Talent Management

The talent management process aims to discover different levels of talents that will support Tüpraş in achieving its future strategy and goals, provide solutions that meet the expectations and needs of different talent profiles, and ensure institutional and individual sustainability development through interdisciplinary learning opportunities. With its integrated Human Resources systems, Tüpraş provides talented individuals with a focused and unique employee experience to showcase their potential.

The talent management process distinguishes between two different talent levels: “Leaders of the Future” and “Architects of the Future.” We prepare the architects group for entry-level management positions and the leaders group one notch higher for mid-management responsibilities.

At Tüpraş,
Development Is
Our Passion!



Employees involved in the Talent Management process participate in a two-year development program. In the program, our Human Resources teams and managers administer Individual Development Plans. They oversee the development of prospective talents throughout their leadership journey and interview each talent individually. As development coaches, they nurture each prospective talent in their specific improvement areas. Based on the improvement areas discovered in these interviews, each prospective talent is assigned a mentor from senior management. During the program, they enroll in an 11-month development program that covers self-, team- and future-oriented leadership topics designed to develop leadership competencies and prepare them within the framework of Tüpraş's cultural progress and future aims. During the program, they receive online courses from global business schools based on their future goals. Prospective talents also receive on-the-job training by taking part in joint work efforts that involve Tüpraş at large. Here they take on the role of deployment coaches on agile work, innovation, employee experience design, and strategic issues. Career movements and rotations of the prospective talents are monitored during the program to ensure they are aligned with the strategic succession plans.

The data obtained during the talent management process are reviewed at the annual Strategic Human Resources Meetings. Within the scope of these meetings, salaried staff members are evaluated for their potential and performance

to be included in the talent management process in line with the standards determined objectively and succession plans are created for management positions. Within the scope of the succession planning, prospective talents are directed to different development programs by measuring their leadership competencies using Tüpraş's Leadership Competency Sets.

Acquisition of New Talent Prospects

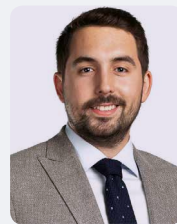
Tüpraş contributes to creating profound vocational education by conducting projects for its business partner employees, high school and university students. Tüpraş provided internship opportunities to 479 students at its refineries in 2019. During the pandemic, Tüpraş continued to provide university students with online access to its development programs. **During the one-month internship period, interns developed project ideas specific to Tüpraş's Sustainable Development Goals.** Project ideas that stood out focused on education and development, occupational safety, efficient use of energy resources, sustainability, social responsibility, and social benefits, while many other project ideas featured digital solutions.

Tüpraş mentors and guides comprising voluntary employees and interns closely monitored their development and needs in the program, helping enrich their industry experience through regular communication.

According to the experience surveys, 97 percent of interns were highly satisfied with the program.

With the team I mentored, we developed project ideas through the Online Internship Program to support sustainability in the digital age. While this exercise helped me support interns' professional development, it also allowed me to tackle complex issues, listen, and develop the team with a coaching approach.

– Yiğit Yeldan, Online Internship Mentor, Data Analysis Supervisor, Data Analytics Department



Nextremers Program

Tüpraş launched the **Nextremers Young Talent Program** in 2019 as a long-term project. The program aimed at contributing to the professional and personal development of university students. Tüpraş continued to reach young talents in 2020, and 48 project students selected from a total of 8,710 applications in 2019 and 2020 were enrolled in the Nextremers program.

By guiding university students who produced projects that would support sustainable development goals within the scope of the 2020 Online Internship Program, the Nextremers Project Students benefited both their own and students' development.



EMPLOYEE PARTICIPATION

Employees' participation in decision-making processes is paramount for strengthening employee loyalty and engagement. With this in mind, there are various mechanisms established at Tüpraş to ensure employees take an active role in the Company's operations.

Employees' opinions are collected through target-setting meetings, OHS board meetings, suggestion systems, surveys, collective labor agreements, and social event clubs and evaluated in the process improvement efforts. Tüpraş rewards the behavior and efforts of employees contributing to the Company's success through the **Recognition, Appreciation, and Rewarding System.**

A crucial employee participation tool, the "Refined Suggestions" system supports employees' creativity and productivity skills because we seek input from employees on improvements. Tüpraş employees submitted 387 suggestions in 2020 under the Refined Suggestions system, 106 were approved for implementation, and work is ongoing on other proposals.

Tüpraş rewards the behavior and efforts of employees contributing to the Company's success through the Recognition, Appreciation, and Rewarding System.

As part of its employee engagement practices, Tüpraş encourages its employees to participate voluntarily in social responsibility projects. Employees can also organize events that foster social benefits through social event clubs in the refineries.

Employee Engagement

The Employee Engagement Survey at Tüpraş is conducted annually with the participation of all employees. An independent international survey company conducts these surveys as an arm's length service. The Company adopts new practices if necessary to improve employee satisfaction and engagement in response to the feedback provided by employees within the scope of the survey.

According to the 2020 Employee Engagement Survey, Tüpraş's General Engagement Score increased by 25 percentage points to 61 percent (2019: 36 percent). The salaried staff member engagement score of 70 percent was the highest in the last 10 years. In the case of hourly workers, the engagement score rose to 57 percent, up by 28 percent year-over-year.

The 2020 Employee Engagement Survey results will be assessed using the Employee Experience (EX) approach launched by Koç Holding in 2021. Tüpraş developed a unique experience model to be improved and realigned with further employee participation, better integrating this approach into the processes. In addition, employee experience is planned to be among the company targets for 2021.

The Employee Experience teams formed by Tüpraş for these activities are widely popular. They aim to encourage more employee participation. The Company commits to listening to the experiences and life lessons learned, taking note of the expectations, and developing and implementing solutions that align with expectations.

Tüpraş Corporate Well-Being

Tüpraş adopted the practice to help employees reduce stress levels during the pandemic, contribute to work and private life balance, and eliminate the negative effects of social isolation.

The practice relies on our philosophy of "Achieving our goal of being happy and hopeful together through Healthy Mind, Socializing and Appreciating Each Other," the three main headings of the "Happy and Hopeful Together" approach. The actual needs of stakeholders help shape the practices of this approach and their implementation.



OCCUPATIONAL HEALTH AND SAFETY



Tüpraş established its HSE Policy and Strategy to ensure an accident-free safe workplace for all employees and stakeholders in its operation areas.

The main objective of Tüpraş's Occupational Health and Safety (OHS) approach is to prevent health and risks or to eliminate risks in the first phase according to the standards and to reduce them to an acceptable level when not possible.

Tüpraş established an **HSE (Health, Safety, Environment) Policy and Strategy following the vision of Koç Holding and Tüpraş senior management** to ensure an accident-free and safe workplace for all employees and stakeholders in the Tüpraş operations area. When developing this policy and strategy, Tüpraş ensured the participation of all stakeholders, including employees, and included them in decision-making. Tüpraş expects its employees and solution partners to fully comply with this policy and the standards and rules that support the policy without compromise or exception.

The Chief Technical Safety Officer, who is the top authority in charge of OHS, reports directly to the Tüpraş General Manager.

The Company assigned a 10-percent weight to the HSE score in the Company's Scorecard to support, encourage and follow a safe business culture at Tüpraş. Employees' Scorecard results are used as a direct input in calculating their "Variable Pay (Bonuses)," which is part of their total remuneration package.

Tüpraş manages OHS following the ISO 45001 Standard and legal requirements, monitors the OHS performance monthly and annually, and reviews the OHS data at Technical Safety Assessment Meetings. Also, Tüpraş includes the OHS data among the key performance indicators of senior management. Likewise, the Company evaluates the OHS performance of all its refineries twice a year in OHS Coordination meetings.

In this context, 35 members, including 10 employees, serve in the five OHS Boards at the Headquarters and refineries. Nearly 100 people participate in the Board meetings. Participants include permanent members and OHS experts, unit managers, and representatives from units in refineries.

We provide occupational health and safety training to all personnel (employees of Tüpraş and its contractors) to improve their competence and education on the subject, enabling them to act with a sense of responsibility in the field. **In 2020, employees of Tüpraş and its contractors received 125,855 person hours and 68,816 person hours of OHS training, respectively.**

A name of top repute that enjoys a reliable and leading position in the energy industry, Tüpraş shares with great pride and honor at key industry-specific conferences and symposiums, its pivotal takeaways, experiences, and best practices accumulated over the years in its trove of intellectual capital on occupational health and safety, process safety, and emergency response.

OHS Practices

Although heavily overburdened and overwhelmed by the global pandemic that emerged in early 2020, Tüpraş did not hesitate even for a moment and took every precaution and measure to protect the health of its employees and the integrity of the business environment remaining true and committed to its incessant improvement and development agenda even under the circumstances. In this context, Tüpraş:

- Began implementing its Business Continuity and COVID-19 Eradication Plans to combat the pandemic;
- Reduced employee exposure through its dilution policy built on remote work and staggered shifts;
- Prevented risky, exposed or compromised persons from accessing the workplace by checking the QR code for the individual's HES status, performing a spot health check through the use of thermal cameras, and conducting daily health surveys, all firsts for the industry;
- Broadened its employees' knowledge and experience base and boosted their morale by providing healthy information flow and guidance.

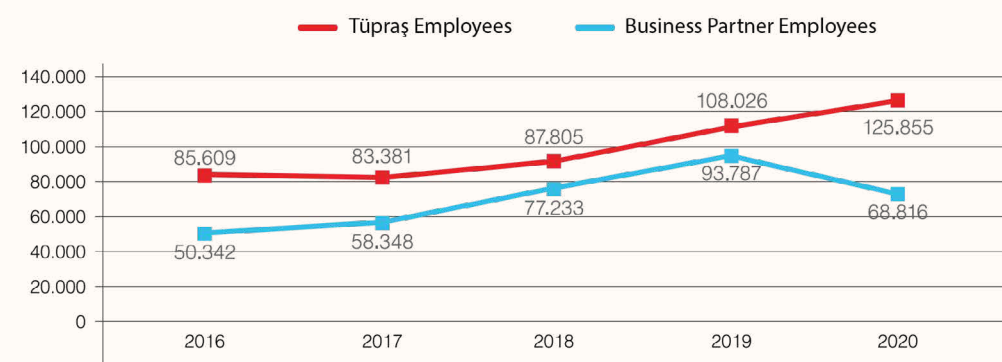
Tüpraş will continue to reinforce these measures until the end of the pandemic. Detailed information on the steps taken to combat the pandemic is provided in the Special Section of the Report on "COVID-19."

- Tüpraş formed a team with employees loaned

from all relevant departments to undertake an "agile" project to make the existing flexitime system lean across the enterprise and adopt the international best practices.

- Using the project's output and other current practices, the Company simplified the relevant forms and certificates within the safety limits allowed by the workflows.
- Management ran a pilot Electronic Flexitime process at the Izmit Refinery and determined the necessary actions. Another pilot is planned for comparison using a different product in 2021.
- The Company deployed at the Kırıkkale and Izmir refineries the "Single JHSU" (Joint Health Security Unit) system that provides contractors' employees with a wider safety umbrella, including the legal OHS requirements. At the Izmit Refinery, implementation is awaiting the completion of the final touches.
- Tüpraş established the OHS criteria for classifying the project contractors and put together the documentation and systematics needed.
- In addition to the compulsory training programs, Tüpraş continued to provide online internal and external OHS training programs (with/without certification) to broaden its employees' knowledge and experience base.

Occupational Health and Safety (Person-Hour)



Occupational Safety

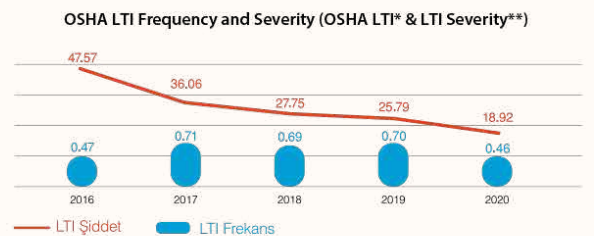
The fundamental rules and principles of occupational safety that apply to **Tüpraş operating sites are defined by the Tüpraş Safety Principles and the "10 Musts" of Tüpraş Basic Code of Conduct.**

The Company held meetings on **Weekly Accident Reports, Safety Speech, and "Couldn't we prevent these accidents?" meetings** to cultivate the occupational safety culture and ensure continuous communication. We continued to rely on the **"Visible Leadership"** system to build a productive and sustainable safety culture, reinforce positive safety behaviors, increase the OHS awareness, and monitor the field practices of safety standards.

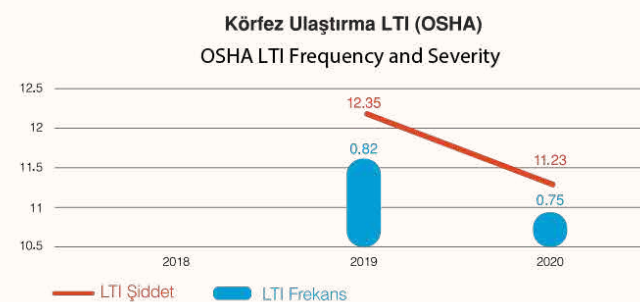
Tüpraş manages its OHS processes with a risk assessment and continuous learning approach by adopting a philosophy that aims to minimize risks in occupational safety and increase the level of prevention against potential risks. Accordingly, safety risks are eliminated by following numerous internal and international standards, risk assessment systems, and working procedures such as the Risk Assessment Chart (RAC), Hazard and Effect Management Process (HEMP), Case Classification, Research and Reporting (CCRP), Contractor HSE Management System, Tüpraş Tracking System (TTS). In 2020, the Company prioritized recognizing, identifying, and managing risks, conducting health risk assessment studies, and transferring resources to critical jobs as part of the risk analysis preparation.

	2016	2017	2018	2019	2020
LTI*	14	15	16	17	9
LTI Frequency**	0.47	0.71	0.69	0.70	0.46
LTI Report	996	764	646	625	367
LTI Severity**	47.57	36.06	27.75	25.79	18.92
Person-hour	20.939.650	21.186.894	23.276.864	24.236.448	19.393.932

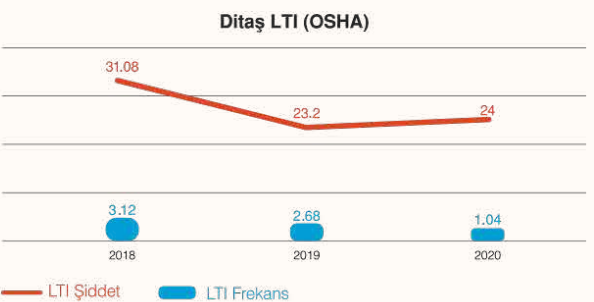
*LTI = Lost Time Injury
**LTI = (#LTI*1M)/(Çalışma saati)



* LTI Frekans = Loss time injury per 1 million person-hour = LTI*1M/ph
* LTI Şiddet = Days of LTI per 1 million person-hour = Days*1M/ph



* LTI Frekans = Loss time injury per 200,000 person-hour = LTI*200000/ph
**LTI Şiddet = Days of LTI per 200,000 person-hour = Days*200000/ph



* LTI Frekans = Loss time injury per 1 million person-hour = LTI*1M/ph
**LTI Şiddet = Days of LTI per 1 million person-hour = Days*1M/ph

Occupational Health

The protection of the health and safety of its employees have the same priority for Tüpraş. We take various measures to protect our employees against both occupational and general health problems. All Tüpraş employees undergo periodic health checks during their employment. Employees receive various health services and preventive measures such as vaccination. In addition, all refineries carry out a **Health Risk Assessment (HRA)** study. These efforts aim to identify the health hazards that may arise from the environment populated by employees and assess the risks associated with these hazards. In the HRA studies, field-specific chemical, physical, biological, ergonomic, and psychological factors are examined.

We also conducted Psychosocial Risk Assessment to identify and eliminate the mental risks that employees may face due to their work environment and work. Tüpraş prioritizes improving the physical health and well-being of its employees and their emotional health.

The Company aims to ensure a healthy life for all Tüpraş-affiliated employees and their families, including those of its contractors. Accordingly, the Company encourages all personnel (employees of Tüpraş and its contractors) to sign up their families in the training programs designed on healthy living and preventive measures.

Thanks to Tüpraş's rigorous approach to employee health, Tüpraş or its contractors had no incidents of any occupational diseases among their employees during the reporting period.

In addition to reviewing and developing existing measures to prevent contractors, suppliers, customers, visitors, and interns who share the same work environment from being psychologically and physically affected by Tüpraş's activities, efforts to introduce reasonable and possible new systematics continues. **Tüpraş improves its practices by comparing them with International Best Practices. The Company shares its OHS practices to inspire and advise the industry.**

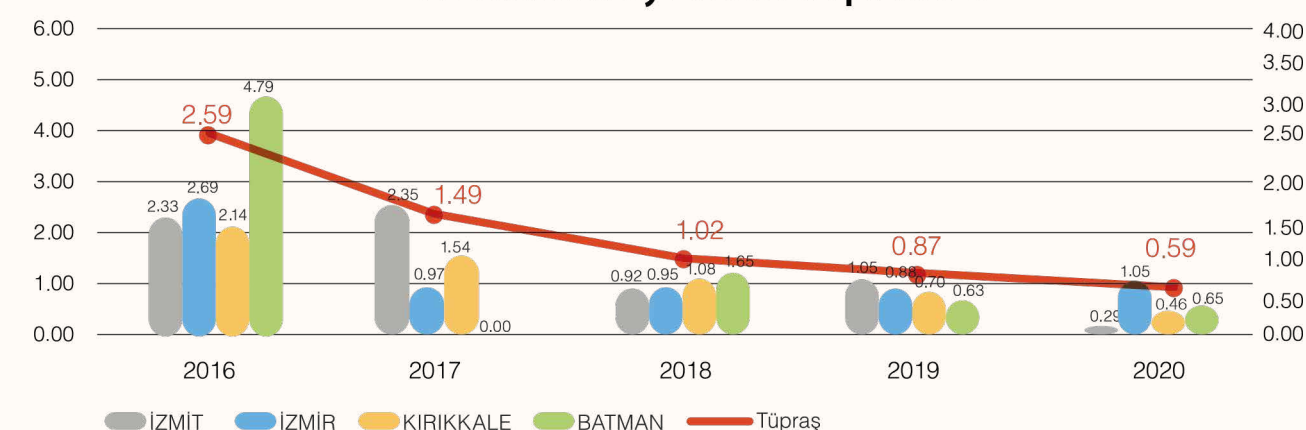
Tüpraş strives to nurture cultural development creating a safe climate to help ensure all employees act as natural OHS representatives, establishing a role model for exemplary behavior in the workplace and social life, and raising awareness among their counterparts. Tüpraş continues to gather employees' opinions and answer them, helping increase the exchange of ideas every passing year. The Company used every technological means to prevent the suspension of the flow of information during the pandemic, which constrained face-to-face communication.

Process Safety

All Tüpraş refineries are equipped with a Center for Chemical Process Safety (CCPS)-based Process Safety Management System. The system targets **Organizational Excellence Through Operational Discipline** is based on the principle of leadership and ownership of management. **The system monitors 16 Process Safety leading and lagging Key Performance Indicators (KPIs) monthly based on international standards and practices such as CCPS, OSHA, and API754.**

The goal is to take precautions before accidents occur and to learn from accidents and not to repeat them. The Process Safety Management System evaluates all areas together within the scope of Tüpraş safety requirements. These areas include maintenance and control activities, operating procedures, change management, process hazard analysis, training and competence, and contractor management that can lead to process safety accidents. The Process Safety Incident Frequency Rate was 0.59 throughout Tüpraş in 2020.

Process Safety Event Frequencies





Disaster and Emergency Management

The key to disaster and emergency management is the proper use of contemporary security management practices and national and international security norms, primarily the Emergency Management Center Standard when employed within the framework of Tüpraş Security Policy, Security Management Standard, National Marker Technical Safety, Environmental and Security Measures Standard, Search and Rescue Standard, and the Electronic Security Systems Standard. The Technical Safety Directorate is responsible for the disaster and emergency management at Headquarters and the Technical Safety and Environment Departments at refineries. **Preparations for teams and equipment are made according to these scenarios by determining the practices and plans to be implemented under extraordinary circumstances and disasters such as fire, energy, water failure, occupational accident, earthquake, flood, terror, and sabotage.**

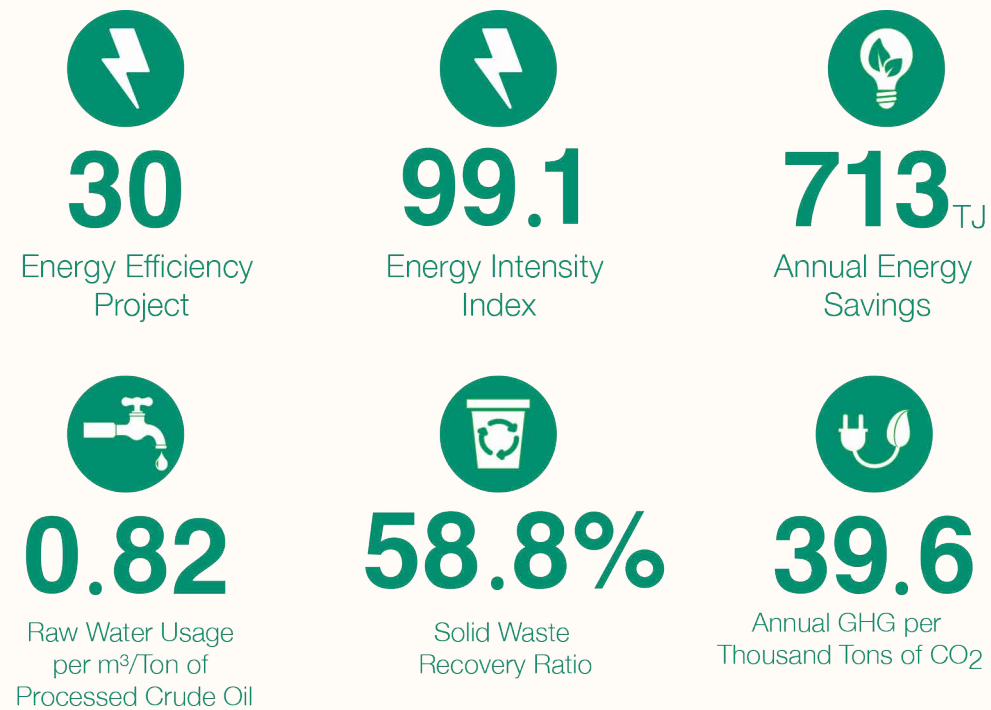
Tüpraş responds to emergencies with state-of-the-art modern equipment and professional competence. The training programs are based on national and international standards to modernize and improve emergency protection and response systems and improve team competencies.

Tüpraş performs more drills than required by applicable laws to help strengthen its disaster and emergency preparedness.

The Company performs frequent drills in all refineries to minimize the risks in emergencies and prepare for proper deployment and response in a disaster. The drills include fire, disaster planning, hydrocarbon cloud/toxic gas dispersion, response to railway accidents, environmental spillage, and chemical fallout. During the COVID-19 pandemic, Tüpraş conducted the drills by taking the necessary precautions and minimum personnel participation.

Other stakeholders such as neighboring facilities, public institutions, and organizations also partake in the joint drills with their own teams and equipment. Drill performances are evaluated, and actions determined at post-drill meetings are followed up.

Tüpraş takes rigorous precautions against possible emergency risks in its supply operations and constantly reviews these measures. The Company requests suppliers use petrol tankers that meet certain transportation standards to ensure supply security. **In particular, in crude oil imports, suppliers should use ISO 9001 and class-certified sea tankers accepted by ports and comply with the International Ship and Port Facility Security (ISPS) Code requirements.** Thus, the risks that may arise during transportation are greatly reduced. In the unlikely event of any accidents or leaks occurring despite all these measures, necessary equipment is provided at each refinery and any tank farm located on the railway route for rapid deployment and quick response.



RESPONSIBLE PRODUCTION

In meeting Turkey's oil products needs, Tüpraş prioritizes using products with reduced environmental impact and minimizing environmental impact in its production processes. Accordingly, it closely follows national, international and industrial developments and incorporates only the best current products and production technologies. Tüpraş's efforts to protect the environment with a sense of responsibility toward environment and society create a significant added value both for the industry and Turkey.

ENVIRONMENTAL MANAGEMENT

Tüpraş completed 238 million Turkish lira worth of environmental investments during the year.

The Company considers the management of environmental impact a priority area in its risk management activities. These studies identify the potential risks the company’s activities may impose on nature and living organisms, helping establish preventive mechanisms.

In line with these decisions, Tüpraş supports different specialist units to operate across the Company. In this context, the Environmental Department is responsible for managing and providing guidance on the environmental issues across Tüpraş operations. The Company follows internal and international standards in the management of these issues. **Accordingly, Tüpraş complies with the ISO 14001 Environmental Management System Standard in all its activities.** We assess the management of environmental, climate, and energy issues under a much broader perspective because our primary concern is to achieve a full compliance with the relevant legislation and regulations.

The main areas of environmental management include climate change, water efficiency, waste reduction, monitoring and reducing GHG/flue gas emissions, improving air quality, minimizing all other environmental impacts and increasing environmental awareness among employees and society, protecting and improving wildlife.

Increasing the environmental awareness of the society and all employees of Tüpraş and its business partners is another important aspect of environmental management. Accordingly, Tüpraş continues its training efforts without interruption. **In 2020, we provided 2,502 person hours and 4,518 person hours of environmental training to 1,251 Tüpraş employees and 6,503 contractor employees. We also provided 200 person hours of environmental training to children on the environment day. Additionally, Tüpraş completed 238-million-Turkish-lira worth of environmental investments during the year.**

Tüpraş refinery facilities are located in areas solely dedicated to industrial activities. Therefore, their physical impact areas contain no protected zones (grade 1 natural site area, environmental protection area, wetlands of high biodiversity value such as RAMSAR or alike). **In deciding on the physical sites of our production facilities, one of the key criteria is the site’s physical distance from such special status areas.**

The Company audits its environmental management activities across Tüpraş operations and continuously monitors performance. In addition to internal audits, environmental performance is also subject to the Koç Group Environmental Audit practices and the external audits conducted by the Ministry of Environment and Urbanization, authorized independent institutions. In 2020, there were no litigations pursued against or significant fines imposed against the company for non-compliance with environmental laws and regulations.

During the reporting period, efforts continued to manage the environmental impacts of operations and planned investments in line with the Life Cycle Analysis (LCA) based on the UN Sustainable Development Goals. In this context, the Company used the LCA approach to report the environmental impact of emissions generated under different fuel scenarios used in production after considering the operational conditions.

The impact of all inputs and outputs on climate change was calculated and reported from a life cycle perspective by modeling the products based on the amount of energy, steam, cooling water, and catalyst plus the auxiliary plants to be used in the field to implement the innovative catalyst, which was developed under the R&D project, “CO₂-to-fuels” for methanol and dimethyl ether (DME) production from carbon dioxide.

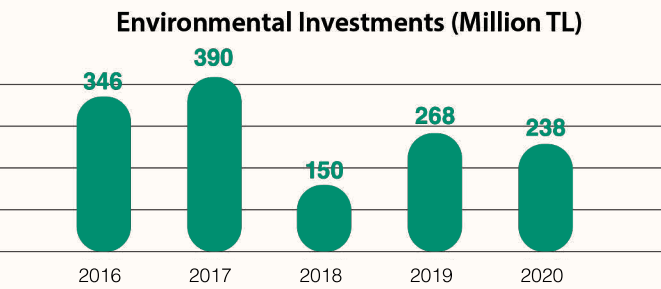
In addition, the Company created a road map to assess the LCA results of significant projects in the investment program together with the



economic indicators produced by the feasibility studies. The **Environmental Sustainable Investment Support Mechanism** study aimed to use various environmental impact measurement methods (LCA, input/output analysis, and so on) for the projects included in the investment program, identify the environmental impacts to arise, and integrate them with economic indicators. **This project is the basis of the impact valuation approach and will help highlight Tüpraş’s investment scenarios that will stand out as sustainable.** Likewise, since it will be possible to identify the investment-related environmental impacts through a proactive approach, all feasible technical and economic measures will be taken.

To identify the environmental impacts of the Izmit Refinery processes, Tüpraş formed a working group, and they began working on the project from a life cycle perspective. The study identifies current environmental impacts and categories and determines the areas that need improvement.

During the reporting period, the Company performed due diligence within the scope of the “Best Available Techniques reference document on Mineral Oil and Gas Refineries” and “BAT Conclusions” documents published by the EU Commission and identified the points for improvement.



TÜPRAŞ CLIMATE VISION

Tüpraş closely follows the national and international agenda regarding climate change. In this context, Tüpraş supports the combat against climate change by participating in the working groups, meetings, and seminars organized by the relevant domestic and offshore institutions and nongovernmental organizations, particularly the Ministry of Environment and Urbanization.

An active participant in the **UN Conference of Parties on Climate Change** since 2015, Tüpraş also supports the **Partnership for Market Readiness (PMR) Project** run by the Ministry of Environment and Urbanization. Phases 1 and 2 of the project are completed. In the second phase of the project, Tüpraş supported the development of the legal and institutional framework and infrastructure, determination of the upper emission limit, establishment of the allocation plans and Emissions Trading System (ETS) registration system, development of the ETS simulation application, and the work done on its components.

Tüpraş organizes information meetings with senior management on national and global developments at regular intervals. Reducing the energy density index is one of the objectives of priority investments that include energy efficiency projects. **There are plans to include renewable energy among the energy sources used.**

Tüpraş uses **internal carbon pricing** as a parameter in feasibility studies when evaluating investment projects. The Company prefers the shadow price approach in carbon-priced and carbon-free evaluation of investment projects. We revise the carbon price periodically after reviewing the carbon price outlook forecasted by research companies, international carbon prices, and country expectations.

On the other hand, Tüpraş contributes to the work of the **European Green Deal** task force within the Turkish Industry and Business Association (TUSIAD) and its efforts to combat climate change. We thoroughly examine and monitor the “**Carbon Border Adjustment Mechanism**” (CBAM)—thought to have a commercial effect on industries in the first phase of the European Green Deal. Additionally, we closely follow the developments taking place within the context of the Task Force on Climate-Related Financial Disclosures (TFCD) formed by the G20.

Emissions Management

To combat climate change and control air quality, the Company regularly monitors and reduces GHG/flue gas emissions from Tüpraş operations.

For years, Tüpraş meticulously monitored the GHG emissions from its operations following the principles recommended by international standards. Since 2015, the Company prepared and verified the annual GHG emissions reports of all its refineries and forwarded them to the Ministry of Environment and Urbanization under the “Regulation on Monitoring Greenhouse Gas Emissions.” Furthermore, since 2018, the Company has certified under ISO 14064-2 the GHG reduction achieved through the selected energy efficiency projects in its refineries. **In 2020, the GHG rates of its refineries for 2019 were calculated under ISO 14064-1 and verified by an independent verification organization.**

All incineration plants with over 50 MW nominal thermal power in Tüpraş refineries are equipped with **Continuous Emission Monitoring Systems (CEMS)** as per the Communiqué on Continuous Emission Monitoring Systems. Accordingly, the relevant parameters in 31 chimneys in refineries are monitored online by the Ministry of Environment and Urbanization. **Alignment with national legislation on flue gas emissions monitoring is fully achieved as per EU legislation.** Furthermore, the emission verification and air quality measurements in all Tüpraş refineries are performed and reported by certified institutions licensed by the Ministry of Environment and Urbanization, subject to legal liability. Energy efficiency studies are the basic tools Tüpraş uses for more efficient production and reduction of greenhouse gas emissions.

Tüpraş has been an active participant in the UN Conference of Parties on Climate Change since 2015. The Company acknowledges its responsibilities in combating climate change and implements new practices, mostly remedial and a paragon of best practices.

ENERGY MANAGEMENT

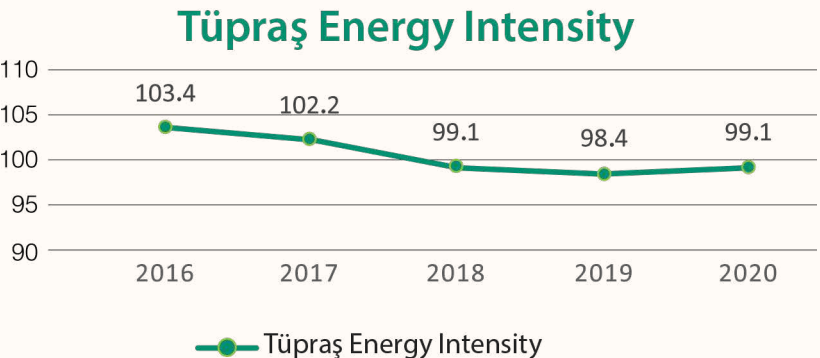
The Energy Department is responsible for managing all energy-related aspects of Tüpraş operations under the coordination of refineries. The Company follows internal and international standards in the management of these issues.

Accordingly, Tüpraş undertakes all its activities using processes that comply with the ISO 50001 Environmental Management System Standard. Tüpraş plans and implements all its efficiency projects by analyzing spot energy measurements monitored in all refineries using common calculation criteria determined under international standards.

Accordingly, Tüpraş implemented **30 energy efficiency projects** at its refineries in 2020. These projects saved **713 TJ of energy** in

2020 while achieving **39,607 tons of CO₂e greenhouse gas reduction.**

One of the main indicators Tüpraş uses in monitoring its energy performance is the methodology used in the calculation of the Energy Intensity, which helps us assess the energy consumption performance of companies operating in the refining industry worldwide. Tüpraş’s energy efficiency and modernization efforts have significantly contributed to its energy intensity reduction over the years (down from 107.6 in 2014 to 98.4 in 2019). **In 2020, the Company was able to keep its Energy Intensity at 99.1**, despite low feed, variable operating conditions, and intermittent shutdowns in the pandemic environment.



The energy intensity was 99.1 in 2020.

Year	Number of Energy Efficiency Projects	Resulting Energy Savings (TJ)	Resulting Emission Savings (Ton CO ₂ e)
2016	18	1,054	77,666
2017	15	830	45,945
2018	21	3,620	243,666
2019	24	473	26,292
2020	30	713	39,607

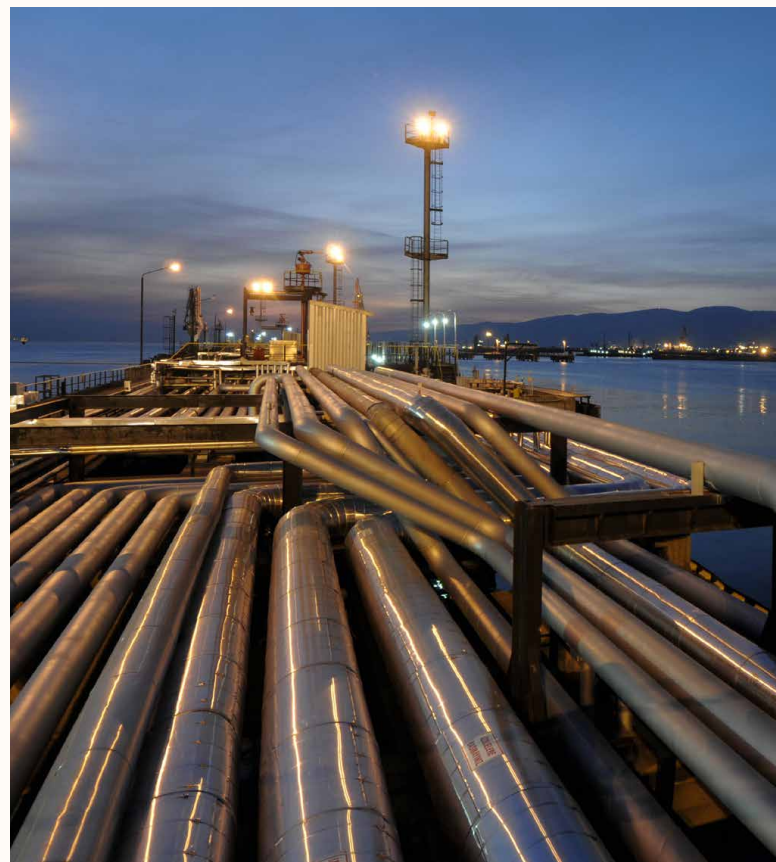
Energy Efficiency Projects

- Reducing Boiler Feed Water Inlet Temperature in Izmit Refinery Platforming Units:** Steam is produced from waste heat in the convection section of the heaters in Platforming Units Plt-36 and Plt-63. Refinery gas is burnt in these heaters. After calculating the dew point, we gradually reduced the temperature of Boiler Feed Water (BFW) entering the economizer zone of the heater and instead utilized the flue gas waste heat. These efficiency modifications provided a total energy gain of 13.7 TJ in 2020.
- Planned Maintenance of U-100 Unit at Izmir Refinery:** In the planned shutdown of U-100 in 2020, we cleaned heat exchangers, replaced heater burners, and used state-of-the-art insulation material. This maintenance work provided a total of 57.8 TJ energy savings in 2020.
- Installation of “Evaporative Cooler” on Izmir Refinery Gas Turbine:** We installed an evaporative cooler system on Gas Turbine-1 to increase the inlet air density decreasing the combustion air temperature entering the gas turbine. Thus, with more air entering the system, the power output of the gas turbine electricity generation increased. With the increase in the gas turbine electricity generation, the amount of electricity produced from the condenser steam turbine decreased. This modification provided a total of 28.78 TJ energy savings in 2020.
- Cleaning Heat Exchanger at Kırıkkale Refinery Crude Oil Unit:** The heat transfer efficiency declined due to contamination in heat exchangers in crude preheat system increasing heater fuel consumption. The make-shift solution was to shut down and restart the unit in short intervals to disengage heat exchangers on an intermittent basis reducing fuel consumption. As a result, the Company saved a total of 313.4 TJ energy in 2020. In the meantime, Tüpraş conducted a study to clean the heat exchanger without shutting down the unit and developed a solution from scratch to clean the exchanger at the next scheduled unit shutdown.

WATER MANAGEMENT

Tüpraş’s main approach is to use water, a precious limited source, with maximum efficiency, reduce freshwater consumption and waste water discharge through recovery, and discharge effluent without compromising the biodiversity of the natural receiving environment and complying with the legal limits and permitted pollution load levels.

The total amount of water consumed in Tüpraş operations was 23.8 million cubic meters in 2020. Thus, the net water consumption in processing crude oil was 0.82 cubic meter/ton .



Tüpraş refineries use two types of water recovery methods. In the first one, Tüpraş recovers waste water from operations and returns it to production. The Company pre-treats the effluent generated during refinery processes and sends it to the main treatment units. After improving its quantity and quality through reuse in pre-treatment units and recovery at the main treatment unit discharge points, we recycle waste water back into industrial processes.

In the other method, we treat urban effluent in advanced recovery facilities (like we do in Izmit Refinery) and then charge it back to the production units once cleared for use in production. In this method, the recovered water returns to production, helping meet Tüpraş’s water needs and preventing urban effluent discharge into the environment.

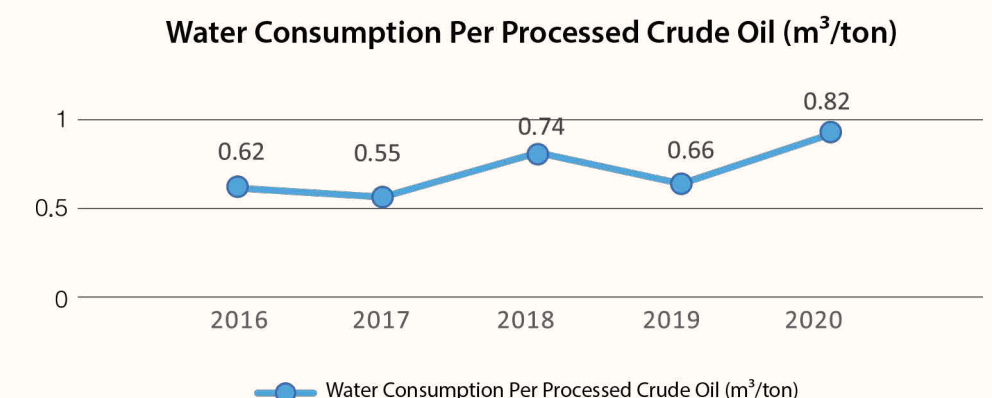
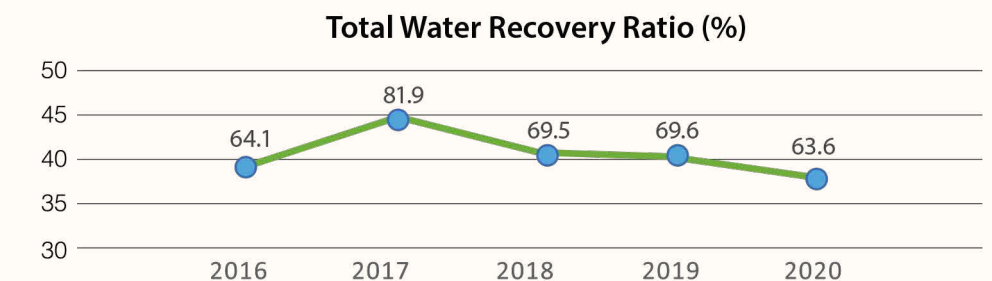
In 2020, the Municipal Effluent Recovery Project at Izmit Refinery helped recover 5.2 million cubic meters of urban waste water. In 2020, Tüpraş recovered its refinery effluent streams and reused them in production, meeting 97 percent of Izmit Refinery’s water needs, excluding utility water.

With the New Waste water Recovery/Water Treatment Unit commissioned in 2016 at the Izmir Refinery, the recovery ratio of refinery waste water reached 73 percent in 2020. Thanks to these efforts, Tüpraş recovered 15.1 million meters of wastewater in its operations in 2020.

Tüpraş prioritizes waste water recovery and does not tap into natural water supplies to meet refinery needs. This is done to preserve natural resources and ensure sustainability. However, because not all water used in operation is recovered, waste water is produced. Tüpraş discharges its waste water output to the natural receiving environment by reducing its pollution loads well below the limit values specified in legal permits and relevant legislation. This way, Tüpraş ensures that its operations do not adversely affect the biodiversity of water sources and the natural receiving environment. In 2020, Tüpraş refineries discharged 11 million cubic meters of waste water to the natural receiving environment complying with the limit values stated in legal permits.

As part of the “Determination of Water Risks” study, we examined current risk assessment tools used in the industry, determined the methods we can use in our refineries, and conducted basin-based risk assessment studies.

Tüpraş recovered 15.1 million cubic meters of wastewater in its operations in 2020.



WASTE MANAGEMENT

The main principle Tüpraş follows in the management of waste from its operations involves the following: primarily minimize the amount of waste, separate and recover waste at the source and dispose of unrecovered waste using appropriate methods. Tüpraş developed its **Waste Management Standard** to oversee its waste management processes under the law and establish its principles and methods. The Company monitors its waste management processes, controls its regulatory compliance status, and undertakes necessary reporting activities using the Waste Management Program.

In all refineries, we organized our waste management activities using the Zero Waste Management System, provided new recovery boxes, and gave extensive waste training. All Tüpraş refineries received their Basic Level Zero Waste Certificates. Once the Ministry establishes and publishes the qualification criteria for Advanced Level Certification, applications will be made to receive Advanced Level Certificates.

As a result of its operations, Tüpraş produced 20,372 tons of waste in 2020, including 17,224 tons of

hazardous and 3,148 tons of non-hazardous waste. **Nearly 60 percent of this waste was recycled.**

Tüpraş has undertaken industrial symbiosis projects to create circular economies, which would enable other companies to use some of the waste as raw materials. Unrecoverable waste was disposed of by licensed companies as per the rules and methods stipulated by the legislation.

Tüpraş Waste Management Process Map

Waste management in Tüpraş starts with minimizing waste in the production units and offices. We strive to prevent producing waste in the processes, and separate the waste at the source and temporarily store them using appropriate storage methods. Wastes are then sent to licensed recovery and disposal facilities, where they are recovered for the best possible reuse available in the economy. Having committed itself to the success of the circular economy model, the Company developed numerous industrial symbiosis alternatives accordingly. The Company provides waste management training to all personnel involved in waste minimization, separation, and recovery methods.



Examples of Industrial Symbiosis Projects Developed Using the Circular Economy Approach

Sludge Dewatering

- The sludge extracted from ducts and utility/maintenance holes, those that sit at the tank bottoms, and the mechanical sludge found in treatment plants all contain water and oil. The Company uses decanters to help recover some of the oil in the sludge (approximately 20 percent) and store it in the tanks. The water is pumped to the waste water treatment plant, where it is treated and properly discharged. This reduces the volume of sludge sent to disposal by approximately 90 percent, cuts down on the cost of disposal and also helps contribute to resource efficiency by recovering and refining the oils separated in the decanter system.

Sandblasting Waste

- Tüpraş developed a new project to reuse sandblasting waste (previously discarded as rubble) as raw material in concrete production. A perfect example of industrial symbiosis. This way, we reused around 250 tons of recovered sandblasting waste, generating resource savings and economic gains.

Refractory Waste

- We studied ways to reuse the catalyst and refractory waste previously sent to sanitary landfill, feeding them back into the economy rather than disposing of them as waste and reducing their environmental impact. Another example of our industrial symbiosis efforts, manufacturers now recover this waste for reuse in producing refractory brick.

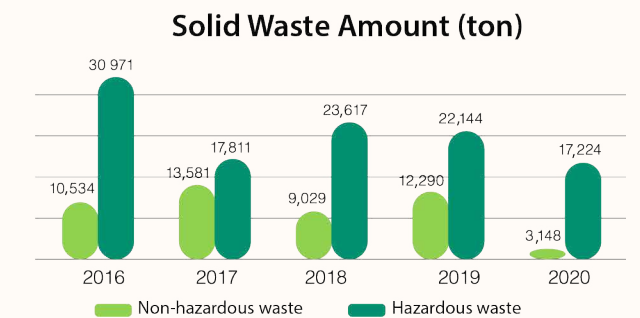
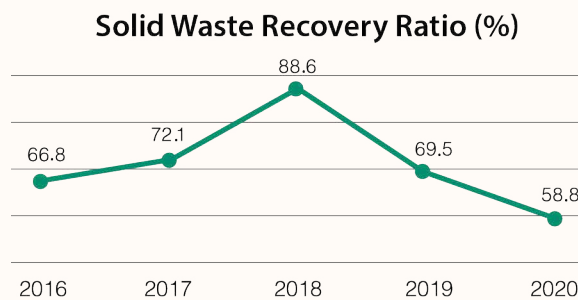
Oil Waste

- Heavy hydrocarbon waste previously burned in cement plants is now reused by waste oil companies as raw material in producing insulation materials and bitumen-like products.

Activated Carbon

- We sent activated carbon waste that completed its life cycle to a regeneration plant abroad for reactivation and reuses in water reclamation and recovery units in refineries. This way, expired activated carbons are fed back to the economy.

We recycled nearly 60 percent of this waste.



WE ADOPT ZERO WASTE AS A GUIDING PRINCIPLE TO

achieve a sustainable world!
We use our resources more efficiently, minimize waste and help the circular economy through sorting them at the source. Energize this movement!

Separate single-use plastic waste correctly at the source. Make cautious use of paper. Stop wasting water, never throw away an unfinished bottle.



43.4

million TL R&D
Investment



37

International and National
Scientific Publications



6

National Patent
Applications



650

million lines of data
processed daily thanks
to the Big Data
Platform project



Engaging more than

150

start-ups and PoC process
with more than 12 of them



More than

110

Intrapreneurs



R&D, INNOVATION, AND DIGITAL TRANSFORMATION

Tüpraş is one of Turkey's leading companies in technology and R&D investments, managing its intrapreneurship, digital transformation, R&D, and open innovation strategies in an integrated manner. Marking its difference by producing its own technology, Tüpraş continues to make history by adding value with its innovative solutions and projects.

TÜPRAŞ R&D JOURNEY



2010

Tüpraş R&D Center officially established.



2011

EU-backed project CitInES launched and first patent application made.



2012

Registered HExMon, the first international Tüpraş brand.



2016

Membership in SPIRE platform (Sustainable Process Industry through Resource and Energy Efficiency).



2017

Test road paved using high-quality modified bitumen developed at R&D Center.



2018

BAMBOO project awarded the largest grant for a single project in EU Horizon 2020 program. The first Turkish industrial enterprise to receive this incentive with only one project.



2013

First projects Asphaltgen and Heroes launched as part of EUREKA International R&D support program.



2014

Inaugurated the new R&D Center Campus comprising Design, Laboratory, and Pilot Facility buildings.



2015

Kicked off the first projects SafeAST and Indus3Es, in the EU Horizon 2020 Program.



2019

Acknowledged as Number One among the most successful Turkish industrial enterprises in the Horizon 2020 program.



2020

Successfully commercialized two new products developed at R&D Center.

[You can access our R&D journey video here.](#)

PIONEERING AND INNOVATIVE R&D EFFORTS IN THE INDUSTRY



Enjoying broader global recognition thanks to projects that helped prove its level of competence, the R&D Center identified the basic sustainability issues that would help carry Tüpraş to the future.

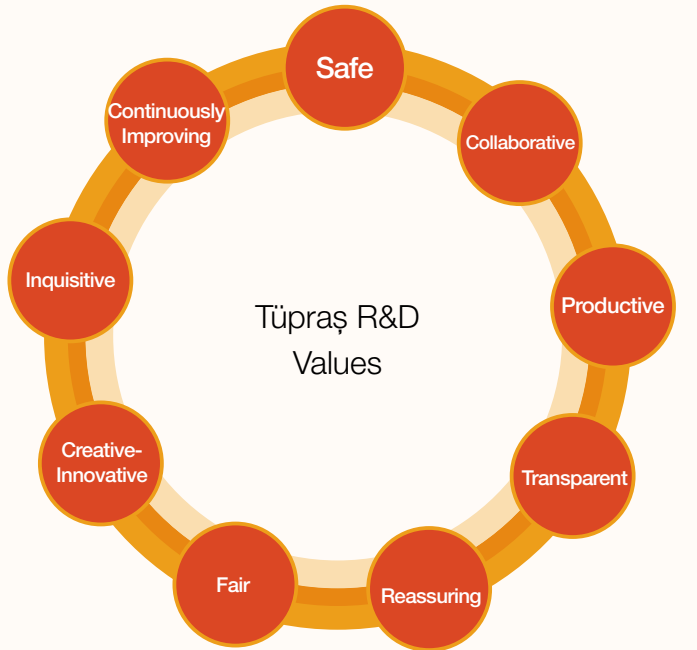
Tüpraş R&D Center has been developing technology roadmaps and projects, risk maps, and technological action plans since its foundation, in line with its values that lie at the heart of its efforts. Each project contributes to both the business processes and the Turkish energy industry. In 2020, the Company allocated **43.4 million Turkish lira** to R&D efforts in line with these objectives.

Tüpraş R&D Center undertakes new product development projects to improve refinery processes and meet technical needs, plus expand the Company's product portfolio. This blends the Company's extensive know-how in the industry with its high-grade R&D activities directly contributing to its bottom-line. At the same time, new technology development projects are underway to take Tüpraş to the future.

Accordingly, Tüpraş R&D Center undertakes, with its qualified personnel and extensive technical infrastructure, numerous research and development projects across a broad portfolio that ranges from carbon dioxide capture and transformation and green hydrogen projects to renewable resources and energy efficiency, from digital transformation solutions to the sensor and robotic technologies, from materials and catalyst technologies to advanced analysis methods.

Since 2010, the research infrastructure of the Tüpraş R&D Center has grown to be a mature organization, the driving force behind this

development think-tank and know-how repository boasting a team of qualified researchers who have developed significant competencies in their fields. Since its foundation, the R&D Center has shaped its project portfolio by reimagining and blending the future of the industry with experience and foresight gained from strong ties with universities, research centers, and companies on a national and international scale. The great support provided by international R&D incentive funds is a testament to the effectiveness of its work. Enjoying broader global recognition thanks to projects that helped prove its level of competence, the R&D Center identified the basic sustainability issues that would help carry Tüpraş to the future.



In 2020, a total of **67 employees** comprising **23 postgraduate** and **12 PhD fellows** and **12 doctorate researchers** worked at the R&D Center in Tüpraş, which operates with **more than 150 devices** installed in three buildings, including design, laboratory, and pilot facility, covering a total area of **12,950** square meters.

The most successful company in Horizon 2020 Turkish Industrial Enterprise

BAMBOO

In 2018, with its BAMBOO project, Tüpraş became the first Turkish industrial enterprise to receive the largest grant awarded as an incentive under the EU Horizon 2020 program. Tüpraş allocated an R&D budget of €2.25 million, 50 percent of which is committed by the European Union, for the BAMBOO project that aims to install new technologies to assess waste heat in four energy-intensive industries (steel, refining, paper, and mineral). Under the project, Tüpraş will install an Organic Rankine Cycle (ORC) technology-based electrical production system in the Izmir Refinery U-100 Crude Oil Unit with a minimum power output of 1.5 MW from waste heat. Work continued in 2020 to commission the system as soon as possible.

In 2019, Tüpraş received €5.86 million in grants for its 11 projects enrolled in Horizon 2020, the most important research and innovation program in Europe, also earning the Company the number one spot on the list of “Most Successful Turkish Industrial Enterprises in Horizon 2020,” published by the Scientific and Technological Research Council of Turkey (TUBITAK). **In 2020, the total number of Tüpraş projects enrolled in Horizon 2020 reached 16, increasing the total grant amount given to Tüpraş to €7.38 million. The Company ranked for the second time at the top of the Most Successful Turkish Industrial Enterprises in Horizon 2020 list.** As of 2020, Tüpraş completed seven Horizon 2020 projects, and work on nine continues.

In 2020, five project applications were accepted under Horizon 2020.

- **ACHIEF** (Innovative high-performance Alloys and Coatings for Highly Efficient intensive energy processes),
- **AquaSpice** (Advancing Sustainability of Process Industries through Digital and Circular Water Use Innovations),
- **EBIO** (Biofuels through Electrochemical transformation of intermediate BIO-liquids),
- **CORALIS** (Creation of new value chain Relations through novel Approaches facilitating Long-term Industrial Symbiosis)
- **EPC-EqTech** (an innovative low-cost turnkey solution that meets wastewater regulations to process the “spent caustic” produced in the Oil&Gas industry)

Our R&D Projects Eligible for TUBITAK Support

In 2020, Tüpraş applied to TUBITAK incentive programs with four projects. **Applications for two projects were accepted to the TUBITAK 2244 Industrial PhD, Program**, which aims to develop specialized human resources with a PhD degree with the help of university and industry collaboration.

Intellectual Property Rights

Tüpraş R&D places great importance on protecting the technologies it develops with patents. Tüpraş **applied for six national patents in 2020 to protect the intellectual property rights of its work.** The total number of patent applications made since the R&D Center opened **reached 98, 70 of which are national and 28 of which are international.**

At the center, 205 projects were implemented, while the number of patent applications reached 98.

New Product Development Projects

Custom Spec Fuel Development

The R&D project titled “Evaluation of Custom Spec Diesel Test-Fuels Production,” undertaken in 2017 to evaluate intermediate refinery products and develop reference and emission formulas for test-fuels contributed significantly to the accumulation of fuel development expertise and R&D laboratory management capacity in terms of both human resources and infrastructure. **Tüpraş named the project “Spectraf” and incorporated it in its intrapreneurship program** with continued interest and a specific R&D focus on formulation development.

Polymer Modified Bitumen Development (Modiphal-T)

Tüpraş completed six different modified bitumen projects launched at the R&D Department in 2012. The project work initially started as a pilot on innovative business models. It took off with a focus on asphalt products as part of the intrapreneurship program. Later it evolved into the commercialization of modified bitumen products leading to a market rollout through customer and stakeholder interviews, competitor and market research, and takeaways from entrepreneurship methods. **The knowledge gained from our R&D operations since 2012 and the creation of one of Turkey’s most qualified bitumen analysis infrastructure at the R&D laboratory played a key role in the project’s success.** The expertise cultivated at the R&D Center helped put together product formulations and production parameters of Polymer Modified Bitumen (PMB) products recently introduced to the market and acquire the CE certificate, a critical step in product sales.

Detailed information about the project is available in the Innovation section.

Shift Scheduling Optimization

Within the scope of the “Shift Scheduling Optimization” project, Tüpraş started to use custom-developed software for shift planning done manually before. **With the software, shift**

planning was done quickly and to the point, increasing employee and employer satisfaction. In addition, the **project provides significant savings in operational costs.**

Real-Time Monitoring and Optimization of Heat Exchanger Networks

Tüpraş developed an optimal control system to increase the heat exchange rate in the heat exchanger networks at the refinery, reducing heater loads, fuel consumption, and carbon emissions. The Company installed the system in the vacuum distillation unit at İzmit refinery. Thanks to the new system, Tüpraş achieved **significant fuel savings** in the vacuum distillation unit, using live feedback from the field to ensure optimum heat transfer in the heat exchanger networks. The project is expanded to all refineries.

Work Conducted On Operational Reliability



Kicked off in 2020 under the EU Horizon 2020 Program, the “**ACHIEF**” project, in which Tüpraş is a partner, aims to develop innovative pipe lining materials that are corrosion- and erosion-resistant. The field tests of the **innovative materials to be developed under the project will be conducted at the Tüpraş refinery, measuring the performance of the developed materials in the industrial environment.**

Work Conducted on Renewable Fuel Technologies

Research and development activities on renewable fuels are an important part of the R&D work done at Tüpraş. These efforts aim to reduce dependency on fossil raw materials, expand the product range, and reduce the carbon dioxide emissions generated in the supply chain and production.



In 2019, Tüpraş participated in the project titled “**MIKRO-JET**” supported by **TUBITAK ARDEB 1003 Program and worked with major organizations such as Boğaziçi University, Koç University, Turkish Airlines, THY Technic, and THY Opet.** The project aims to obtain sustainable and economical bio-jet fuel with highly efficient fuel synthesis catalysts using microalgae biomass native to Turkey’s geographical production conditions. Furthermore, Tüpraş R&D Center has been involved in many projects under the Horizon 2020 program in renewable production technologies. **To be launched by nine organizations from seven different countries with funding provided under the Horizon 2020 Program in 2020, the “EBIO” project aims to improve the technical characteristics of fuels to be produced from biomass.** Tüpraş will evaluate the use of this fuel, which will be developed as an intermediate in the refinery. The EBIO project will help closely follow advanced biofuel production technologies and improve the related expertise.

Hydrogen Production From Alternative Sources

In refineries, hydrogen obtained from fossil sources (natural gas) is used to remove the sulfur content of the fuels, causing carbon dioxide emissions. Therefore, it is paramount that we obtain hydrogen from alternative sources using alternative processes.

For this purpose, Tüpraş R&D Center continues to work in close cooperation with Koç University on the project titled “Separation of Hydrogen Sulfide Gas in Hydrogen Gas and Elementary Sulfur by Electrochemical and Photo-Electrochemical Methods.” We achieved promising results in the laboratory within the project’s scope and obtained a patent for the method developed. Work is underway to bring up the method to a commercially viable scale.

Projects For Capturing and Storing Carbon Dioxide and Converting It to Value-Added Products

Carbon Capture, Utilization, and Storage (CCUS) processes are key to slow down the effects of climate change on a global scale. Accordingly, Tüpraş launched its first CCUS initiatives in 2017 to broaden the Company’s knowledge and experience base and develop technical competence. As of 2020, Tüpraş added the carbon transport and storage subjects to its R&D portfolio and started to pursue national and international projects in this area. By undertaking innovative CCUS projects that fall in line with Tüpraş’s sustainability strategies, the R&D Center aims to play an active role in the development of new technologies in this area and to introduce these technologies to Tüpraş.

COZMOS



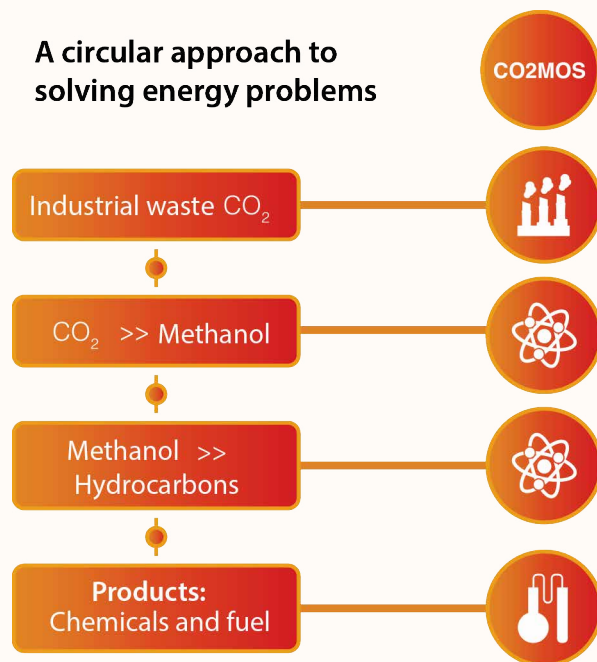
The COZMOS project (Efficient CO₂ Conversion Over Multisite Zeolite-Metal Nanocatalysts to Fuels and Olefins), in which Tüpraş partnered in response to the Call For Projects titled “Converting Captured Carbon Dioxide,” aims to develop innovative catalyst and process technologies to efficiently convert carbon dioxide from industrial processes into propane and propylene. The Company will install a pilot-scale system in the Tüpraş R&D Center Pilot Facilities Building to run a project demo. **With the implementation of the catalyst technology to be developed in the project, Tüpraş aims to reduce carbon dioxide by at least 1.9 tons per ton of product and achieve carbon dioxide conversion volumes of a minimum of 0.4 million tons/year by 2030 and by 2.2 million tons/year by 2034.**

MOF4AIR



The “MOF4AIR” project (Metal-Organic Frameworks for Carbon Dioxide Adsorption Processes in Power Production and Energy Intensive Industries), in which Tüpraş partnered in response to the Call For Projects titled “Advanced

Carbon Dioxide Capture Technologies,” aims to develop innovative adsorbent materials that will effectively capture carbon dioxide emissions from industrial processes and reduce carbon dioxide emissions. Within the project’s scope, Tüpraş will conduct the validation tests of the technology to be developed. **The Company expects the demo-scale carbon dioxide capture facility, which will be installed at Tüpraş refineries in addition to other industrial zones in three different countries, to be delivered to Izmit Refinery by 2022.**



Energy plants and carbon-intensive industries (e.g., cement, steel, and petrochemical) are responsible for most carbon dioxide emissions in the world. The carbon capture, utilization, and storage (CCUS) technology has significant potential to reduce carbon dioxide emissions in these sectors through storage or reuse. Moving to a low-carbon economy requires the development, testing, and expansion of cost-effective carbon capture solutions. The only mature technology in this field involves using amine-based solvents to scrub carbon dioxide. This process, however, consumes too much energy, and amine-based solvents have an environmental impact. As such, we are a long way from delivering satisfactory performance. Carbon capture operations based on adsorption (surface grip) are promising alternatives for capturing carbon dioxide emissions from power plants and other energy-intensive industries.



Metal-Organic Frameworks (MOFs) are porous adsorbent class, which offers great potential in this area thanks to their high carbon dioxide capture capacity. However, the performance of MOF-based carbon capture technologies is not fully evaluated. The Horizon 2020 MOF4AIR project brings together 14 key organizations from eight countries to enable MOF-based carbon dioxide capture technologies to measure field performance in power plants and energy-intensive industries and develop technology in the right direction.

Prof. Guy De Weireld, Ph.D.,
Coordinator, MOF4AIR, University of Mons, Belgium

Robotics Studies

Tüpraş aims to pioneer and guide the development of robotic applications in its refineries with the help of digitalization and automation technologies from the end-users’ perspective. Hazardous and arduous inspection and maintenance work in refineries can be carried out more securely, quickly, and in detail using robotic technologies. **Robots help reduce inspection and maintenance costs, extend the life of assets and prevent dangerous accidents.** Robotic solutions provide rich data for situation and risk assessment, making it possible to estimate the remaining life and possible equipment malfunction. Tüpraş regularly performs routine risk-based inspections and maintenance of refinery assets.

Tüpraş is a member of **SPRINT Robotics**, a non-profit organization that encourages the development, availability, and implementation of robotic technology to inspect and maintain capital-intensive facilities such as refineries globally. **The Company initiates joint industrial projects for market innovation and R&D, closely follows innovations in robotic technologies, creates a strategic roadmap, joins a network formed by all relevant companies and organizations, and accesses the online knowledge base and network.**

Tüpraş applied to **TUBITAK’s** Call For Projects titled “**SME Support To Procure R&D Projects on Order,**” which allows large-scale companies to outsource R&D projects for which they cannot allocate time or human resources, with its “**RUVI Oil Diver**” project on September 17, 2020. A multidisciplinary work group including the Operational Reliability and Innovation teams at Tüpraş will **produce a remote-controlled robotic technology for the first time in Turkey to perform inspections of storage tank bottoms while in operation.**

Within the scope of the Horizon 2020 program, Tüpraş applied to the Call For Projects titled “**Fast Track to Innovation**” with its **ASCENT (smArt Solution for Corrosion undEr iNsulaTion)** project, which aims to develop and integrate robotic technology for under-insulation corrosion monitoring and prediction.

Data Analysis and Digitalization Projects

One of the key objectives of Tüpraş’s sustainability strategy to integrate Industry 4.0 into operational processes by adapting to the digital transformation era brought about by Industry 4.0. One of the key focus areas of the R&D Center is the implementation of digital solutions and the introduction of innovative sensors and robotic technologies to Tüpraş refineries. The data-rich refinery infrastructure allows the Company to stay abreast of new methods and technologies.

Some of our R&D projects are summarized below:



- **The FUDIPO** project aims to develop a decision-making support system that runs on digital twinning technology, which helps create a digital twin of an operationally important refinery unit to test and ensure optimum production. **This way, the digital platform designed and developed for the most efficient process maintenance ensures product quality while leading to several comparable projects in the refinery.**
- In the project titled “**Real-time monitoring and optimization of heat exchanger networks,**” Tüpraş applied a control methodology found in the literature to the refinery heat exchanger networks. **Its integration into the current control system resulted in significant energy and fuel savings.**
- **Work on the PIANiSM project labeled ITEA3 continues.** It aims to develop and implement data-based predictive maintenance software in refinery critical equipment.



- **The HYDROPTICS** project aims to develop sensor technologies to conduct oil/hydrocarbon analysis in water, determine the corrosion inhibitor amount and perform measurements on suspended solids in water using oil droplets. The tracking and decision-making systems that would integrate with the sensors to be tested in the refinery **aim to detect leaks or faults in the unit while ensuring process sustainability under optimal conditions.**

Circular Economy Projects

Indus3Es



Horizon 2020 aims to develop an innovative system to recover energy from low-temperature waste heat (e.g., waste steam) generated in industrial processes. As part of the project, Tüpraş installed and commissioned the system at its Izmit Refinery steam production unit, meeting all its requirements and conditions. **Kicked off in 2020, the project helped recycle the waste steam previously released to the atmosphere, recovering 150 kW of waste output power.**

Water and Waste Management



Recently, Tüpraş R&D Center has quite a workload with projects involving water and waste management, a crucial subject for sustainability. In this area, extensive project development efforts produced positive results, and **two Tüpraş-partner projects, AquaSPICE and CORALIS, received Horizon 2020 support.** Kicked off in 2020, these projects will help **advance the technology in effluent recovery in refineries carrying out matching digitalization work.**



With the help of these projects, Tüpraş will **reap significant environmental gains from technologies if put to use.**



University Collaborations

One of the key advantages of the Tüpraş R&D Center is its ability to work closely with internal and external stakeholders. In this context, **Tüpraş Energy Research Center (KUTEM)—the first Center for Scientific Research on Energy to born out of a collaboration between the private sector and academia in Turkey—opened its doors at Koç University with the support of Tüpraş and continued its operations in 2020.**

Using its own resources, Tüpraş launched the first scientific research project to reduce refinery carbon dioxide emissions in 2017 in cooperation with **Koç University.** In this context, the first phase of the project, which aims to design, synthesize and conduct laboratory-scale performance tests on catalysts that will help transform pure carbon dioxide into value-added fuels or chemicals, is currently completed. As part of the second phase studies, researchers continue developing and testing catalysts to convert carbon dioxide-rich and multi-gas-containing refinery process streams into value-added fuels or chemicals. At the same time, the Company closely follows the new approaches and projects on global carbon dioxide emissions.

Tüpraş and Izmir Institute of High Technology (IIHT) jointly undertake the “Modeling Physical Characteristics of Refinery Products Using Chemometric Methods” project. Thanks to this project, Tüpraş uses data analysis methods to determine in 3 minutes the physical characteristics of naphtha products produced in crude oil units using fewer samples, which otherwise would take approximately 2 hours using the conventional laboratory methods. Project work will continue with refinery expansion and kerosene/diesel product studies.

The “Recycling of Ceramic-Based Materials Used in Refineries” project undertaken in cooperation with Anadolu University allows the classification of ceramic materials such as ceramic balls and refractory materials used in refinery processes by content and purity levels. This way, the refractory brick industry can now reuse such waste items as recycled raw material.

The implementation of the project put a stop to the practice of sending the ceramic-based materials produced as refinery waste to sanitary landfills, reduced the cost of disposal and transportation, and generated revenue through sales. Likewise, the reuse of materials helped contribute to the sustainable environment and circular economy.

There is an outstanding Electron Microscope (SEM/TEM) Service Purchase Agreement signed with Seramik Araştırma Merkezi A.Ş., an affiliate of Eskişehir Technical University. **The University’s and Center’s needs for detailed imaging and analysis of refinery materials and critical devices used to determine the mechanical properties of the infrastructure inventory (SEM/TEM plus equipment) are met through this agreement.**

Tüpraş used the Density Functional Theory’s DFT method in the development of kinetic modeling project jointly conducted with Boğaziçi University for the estimation of coking unit products and the calculation of decomposition reactions of paraffin, naphthene, and aromatic class series. This project aims to understand the reactions in the coking unit and increase the conversion of value-added products in the unit.

Tüpraş collaborated and shared practical knowledge with the Gebze Technical University **on a project undertaken to develop simulation software on molecular modeling and decomposition reaction of heavy oils using high-performance calculation techniques.** The software would simulate heavy oils in a computer environment using statistical methods, test the development of models at the molecular level, and simulate their expected reactions.

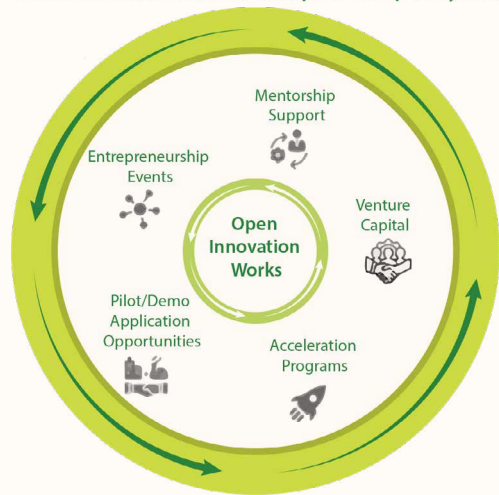


INNOVATION

Entrepreneurship and innovation are two of the pillars on which Tüpraş builds its sustainability strategy. Work on these areas is carried out to support sustainable growth and continuity to benefit both current and future issues. While the emphasis placed on entrepreneurship and innovation spurs dynamism and works to unlock the inherent potential within the organization, it also drives the latent motivation to collaborate with external entrepreneurs.

The process started with the determination of innovation strategy in Tüpraş, which voluntarily joined the Koç Innovation Program in 2017. As if perfectly timed with the Company's announcement of its strategies and processes, Tüpraş launched a campaign to improve internal and external communication and provide training to support cultural transformation and increase competence. Also hosted online on a namesake portal, the intrapreneurship platform dubbed **"Idea Unit"** kicked off in 2017 with the slogan **"Platform Where Fresh Ideas Are Turned Into Value,"** is a tool for employees with innovative ideas to share their ideas spreading the culture of innovation across the Company.

Domestic and International Entrepreneurship Ecosystem



While we strive to commercialize employees' creative and innovative ideas using startup methodologies within the scope of our intrapreneurship program, we continue to actively pursue open innovation initiatives to add value to our Company and entrepreneurs by integrating these projects into the entrepreneurship ecosystem.

Intrapreneurship Projects

Using an entrepreneurship-based approach, Tüpraş promotes and supports the development of in-house projects to create new growth areas and new markets. The Company undertakes intrapreneurship initiatives and projects to help employees develop new business ideas on strategic focus areas putting Tüpraş competencies and infrastructure into use in exploiting the opportunities brought by current trends and changes.

Entrepreneurship teams create business models and value propositions using the innovative business development tools studied during the program and the generic working methods of the startups. The program, which adopts the **Lean Enterprise** methodology, teaches about the culture of measuring, learning, and pivoting (redoing the business plan if necessary to reflect reality) through the **Build-Measure-Learn** feedback loop. They validate their value propositions through customer interviews and improve them by conducting basic financial analyses and market and competitive research. In the process, teams that validate their ideas through customer interviews run demos, seal deals, conclude sales, and shape business models according to customer feedback.

In this context, teams tested different ideas and used their experience to expand the corporate memory using the **"Think big, start small, test fast"** method. **The program ran four times in 2020, with more than 110 intrapreneurs and 32 new ideas testing the methods used**

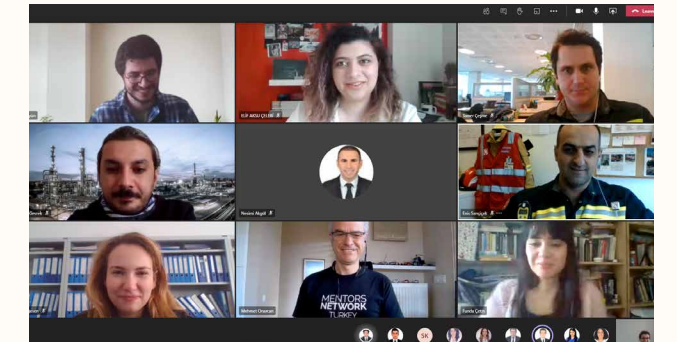
by startups. Tüpraş provides extensive training and support on entrepreneurship and mentorship methodologies to intrapreneurs that attend the program. The Company closely follows the projects, and senior/middle management provides guidance/sponsorship support during the maturity phase of entrepreneurship projects. Entrepreneurs who participated in the program adopt the agile program approach in their current work, indirectly contributing to the Company's overall efficiency. When teams come together for the intrapreneurship program, they hold a "Lessons Learned" session with real-life entrepreneurs and those from previous years.

With the intrapreneurship program, Tüpraş aims to create a sustainable and scalable area of growth utilizing its basic competencies, resources, and infrastructure. Acquiring new competencies and developing new business models are among the benefits of the process. As part of the development of innovative solutions for issues directly related to needs and problems, the Company continues to work on innovative products, services, and business models supported by collaborations, the provision of innovative business models, and consultancy services in the respective fields of expertise, and the commercialization of digital solutions (hardware, software, and programs) developed by Tüpraş,

In April 2020, Tüpraş launched a new intrapreneurship program for employees to develop new business ideas to turn the Company's competencies and infrastructure into opportunities brought by the current COVID-19 trends and changes. The program incorporates the innovative employee ideas on Tüpraş competence and infrastructure related to new or under-met needs specific to this period.



The intrapreneurship program was aptly named "New Business Models In Post-Pandemic Period," given the nature of the global and national agenda. Following the Specialized Inowhatif Talks event, Tüpraş launched an idea collection campaign. During the campaign period, the Company held online ideas gathering workshops and collected ideas via the Idea Unit. We treated new trends and changes brought by COVID-19 as opportunities we can turn into business ideas using our Tüpraş competencies and infrastructure. In the accelerator program, the teams received online entrepreneurship training and executive mentorship on innovation, lean initiatives, and business models from senior management, who took on the role of mentors. The entire process was conducted online. Within the scope of the program, the teams presented their work to the Innovation Committee at the online "Accelerator Program Demo Day" event.



Commercialized Intrapreneurship Projects

In 2020, two projects (Modiphal-T and Spectraf) reached the commercialization stage and made their first sales. Both projects aim to expand into foreign markets after the domestic rollout.

– Modiphal-T

The Modified Bitumen (Modiphal-T) Project aims to add new products to Tüpraş's product range. The Company plans to position them in the modified bitumen market, experimenting with the flexible production model. **Tüpraş added Polymer Modified Bitumen to its product portfolio and made the first sales. This is a bitumen product with improved properties and provides high performance with**

polymeric additives, which helps fight decays in road pavement. Intrapreneurship studies that started on innovative business models on asphalt helped Tüpraş introduce modified bitumen products to the market, coming down on the learning curve. During the project, the Modiphal-T Team developed a business model using Tüpraş competencies and infrastructure to understand the problems contractors, public institutions, customers and all other stakeholders face. **Inspectable and sustainable quality CE Documented modified bitumen products are now available with reliable laboratory analysis services.** The project not only contributed to Tüpraş's entrepreneurship transformation, but also helped it expand its product range and position it in a new market.

– Spectraf

The R&D Center undertook the SpecTraf project to develop formulations for reference fuels with custom specs, ensuring a sustainable supply of niche fuels (i.e., not sold at the pump or produced domestically). In the Intrapreneurship Program, Tüpraş studies all aspects of niche fuels needed for the business model treating each specific fuel separately on its own merits. Pilot sales started in several types of niche fuels.

– Secure Logistics

Secure Logistics, one of the service projects that is in the commercialization stage, aims to develop solutions that provide security at every stage, from filling to discharge and share live location information to logistics companies that transport value-added fluids. The aim is to commercialize

the service project, eliminating transportation problems related to unwanted losses, leaks, and location tracking. Although it contributes to the digitalization process of companies that transport value-added fluids in the logistics industry, the project is important because it will be the first digital solution Tüpraş will commercialize. The project kicked off in 2018 as part of the Tüpraş Intrapreneurship Program, and by 2020, patent applications were made. Currently, it is in the “Commercialization Phase.”

Internal Mentoring Program

In 2019, Tüpraş included employees identified from among intrapreneurs in the special training and development program to support projects as internal mentors. In 2020, the internal mentor team expanded and actively took part in the intrapreneurship projects. Entrepreneurs included in the program also participated in other internal events, idea production workshops, ecosystem events, often as panelists and speakers, besides tackling all intrapreneurship program processes from all angles.

Innovation Volunteers Team

Our teams of “Innovation Volunteers” comprised of employees from different levels of the organization came together to make innovative thinking a part of the corporate culture and expand our intrapreneurship horizons. Tüpraş organizes custom training programs for these teams on innovation, open innovation, and fundamentals of corporate entrepreneurship and

designs custom work programs in this context. Employees who wish to support open innovation efforts and join the intrapreneurship project teams are welcome to review and apply for Innovation Volunteer tasks through the Idea Unit Portal.



We organize many activities to keep the intrapreneurship climate alive. Tüpraş organizes one of its trendy events, the “Inowhatif Talks” series, with speakers joining from the Company to discuss inspiring content about innovation, technology, and new business models. Speakers can also share personal experience and knowledge on the topics discussed at the event, regardless of their expertise.

During the pandemic, the series continued online. The first online event took place on the theme of “Creative Thinking in Light of Coronavirus and Later Trends and the Leverage Effect of Innovation.” Other events that followed involved Coronavirus and Digital Transformation, Industry 4.0, IoT Solutions and Digital Transformation Trends, work carried out during the COVID-19 period and expected aftermath developments.

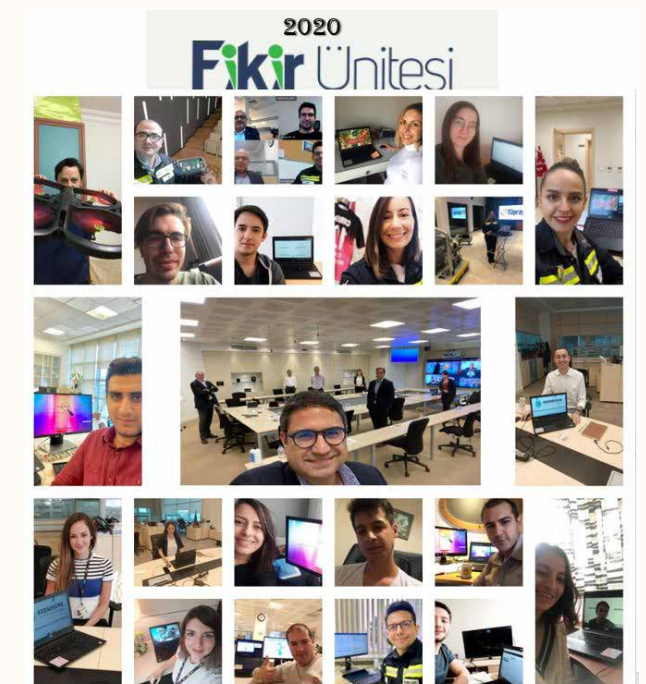
relevant unit of the Company. The goal is to minimize environmental impact while maximizing efficiency and operational safety to achieve operational excellence limits. Accordingly, our focus areas include digital technologies that improve business processes and field operations, energy efficiency/storage and management solutions, and waste and effluent solutions. Collaborations are maintained by reaching across the organization (going beyond production and field operations) and sustaining enterprises that help digitalize performance-improving processes and enhanced remote work in various areas, including human resources, financing, and sales. Efficient and innovative technologies in waste water management, and solutions that reduce emissions and provide energy efficiency in waste heat recovery are included in our open innovation efforts. Our focus areas include technical control, asset management, robotic technologies in maintenance processes, and solutions aimed at occupational safety and health. Tüpraş adopts solutions to check the physical condition of processes and equipment and predict/suggest maintenance times using digital technologies.

Open Innovation

Tüpraş actively pursues its open innovation agenda to help integrate its operations into the entrepreneurship ecosystem and raise awareness of entrepreneurs' role and value. As part of our open innovation strategy determined by workshops, we aim to pursue innovative solutions to meet our company's needs and find new growth areas by studying game-changing technologies.

Open Innovation for Today's Business

Within the scope of work done on today's business, our Innovation Department gathers the organization's overall needs by contacting each business unit separately and delivering the matching solutions found worldwide within the startup ecosystem in Turkey and abroad to each



Open Innovation for Tomorrow's Business

Within the scope of work done for tomorrow's business; Tüpraş tracks new technologies and business models that may be an opportunity for or pose a threat to the Company through startups via all channels in Turkey and abroad. This business intelligence is presented to the Company as a strategic input supporting strategic plans. In this context, Tüpraş conducts searches for new technologies in Carbon Capture, Utilization, and Storage (CCUS) and blue-green hydrogen and closely follows innovative technologies, enterprises, and enterprise-related investment and implementation activities.

As part of its integration efforts with the entrepreneurship ecosystem, Tüpraş participates in various events that appeal to early and advanced startups and aspiring entrepreneurs, organizes programs, and provides mentoring support to entrepreneurs. We reached more than 1,000 students and entrepreneurs by sharing our entrepreneurship, innovation, and Tüpraş innovation efforts at university or student club events as a panelist or speaker. The company actively participates in accelerator programs, competitions, and other entrepreneurship activities by providing mentoring support or serving as a jury. These efforts continue during the pandemic.

Tüpraş continues to actively communicate with more than 150 domestic and foreign startups as per its open innovation strategy. Likewise, the Company actively pursues PoC/demo organizations and collaborations to support the development of enterprises besides patronizing their products and services. During the pandemic, Tüpraş continued with its collaboration work without slowing down and produced 12 enterprises in 2020 that

reached the stage of signing a memorandum of understanding (MoU) or producing a proof of concept (PoC).

Robotics and SPRINT Robotics

Robotic technologies are an important milestone in achieving operational excellence in innovation focus areas. Accordingly, we participate in the work done on the industry-oriented SPRINT ROBOTICS platform, which supports the development, availability, and implementation of robotic techniques in technical control and maintenance. We work to establish a strategic roadmap and a collaboration network and initiate projects. We prioritize robotics as the focus area of international startup programs involved. Emerald Technology Ventures, a globally recognized investment firm and strategic innovation partner, is positioned as a channel for collaborations in this area. We aim collaborations with domestic and international enterprises.

VivekaGrowth

The VivekaGrowth accelerator program supports collaborative initiatives and provides orientation training to the mentors selected from among Tüpraş specialists, providing mentoring and guidance to jointly selected enterprises. The company adopts a startup-private company collaboration model designed to reach new distribution channels and new customers for high-tech initiatives and expand into the international market. The program offers access to startups for innovation focus areas and includes in-house mentors from Tüpraş.



At Emerald, we are happy to cooperate in open innovation activities with Tüpraş, Europe's seventh largest refinery and one of the Mediterranean's most complex refineries, and are pleased to know about their partnerships with innovative startups. Emerald has been collaborating on innovation with international energy companies for a long time. We will continue to strengthen our efforts in the field of industrial technologies in the energy industry with the participation of Tüpraş."

Since its foundation in 2000, Emerald has brought together well-established industrial companies and entrepreneurs to build an open cooperation ecosystem, created long-term strategic added value for all parties. According to Domanig, "Change has become a constant for every industry. Disruptive technologies and business models are reshaping existing models, unleashing new potentials, and forcing established industries to revisit their business models.

To succeed, tomorrow's companies will have to cross traditional corporate boundaries, reinvent business models, adopt new technologies and operate in new ways. Open innovation is not just about connections and agreements; it also creates and strengthens the ecosystem that includes the stakeholders contributing to the transformation. Given the number of players in the industry and the fast-moving nature of change, it is not at all surprising that we have so many initiatives and creative activities to follow and assess. In such an environment, one must establish connections, align stakeholders' long-term goals, and support more complex relationships as they develop. Because it provides efficiency and effectiveness, working with a partner in this process increases the chance of success in open innovation."

Gina Domanig, Managing Partner, Emerald Technology Ventures



Emerald Technology Ventures

Signed a long-term cooperation agreement with the **Emerald Industrial Innovation Fund**, an international venture capital fund to invest in the new technology companies in the U.S. and Europe. As a company that is actively engaged in open innovation development in Turkey, Tüpraş aims to reach new technology companies operating abroad with the help of this collaboration. By joining the Emerald Industrial Innovation Fund as an investor, the Company aims to collaborate with new technology startup companies in the U.S. and Europe to contribute to energy transformation, increase competitiveness in its current operations and closely monitor the future business.



DIGITAL TRANSFORMATION

Tüpraş closely follows global developments in digitalization and conducts pioneering research in digital technologies and data analytics. In its digital transformation journey, Tüpraş aims to expand its digital mindset to include corporate culture, preparing itself for Industry 4.0. **The Internet of Things (IoT), big data infrastructure and data analysis systems, artificial intelligence (AI), virtual reality (VR), and 3D printers are all subjects Tüpraş closely follows for its digital transformation efforts.** Tüpraş strives to develop projects in these areas and increase its expertise and knowledge. Within the scope of digitalization efforts, Tüpraş ran more than 50 processes using software robots under the RPA (Robotic Process Automation) project, which started in 2018. This way, the Company generated significant savings in labor and time, avoiding human errors and mistakes.

Big Data System Project

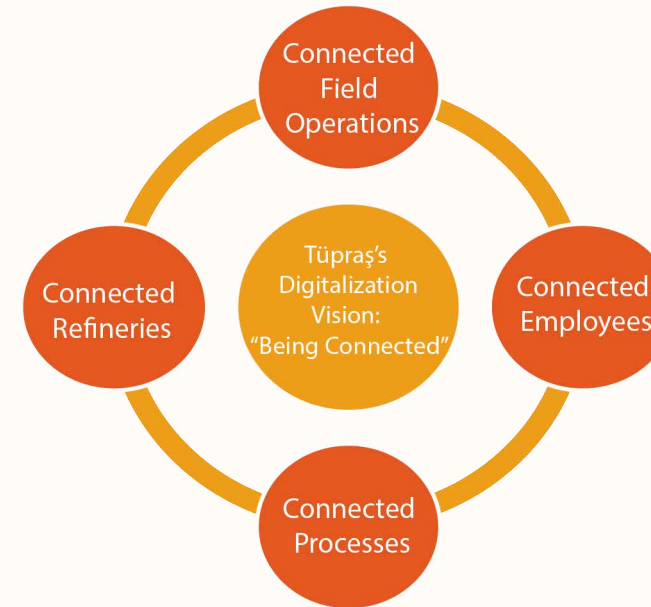
Refineries are large-scale industrial facilities that convert tons of crude oil into value-added end products such as gasoline, diesel, and jet fuel, by going through different physical and chemical processes each day. Large quantities and varieties of field and process data are produced in such large facilities to help monitor product quality and process safety at all stages of crude oil processing from its first input to the end products. At this point, the “**Big Data**” technology grows even more significant globally, enabling more efficient management and analysis of rapidly growing and diversifying data. The modern-day design of industrial systems with ever greater data generation capacity makes the need for secure and proper data storage paramount for easier analysis.

Tüpraş made major improvements in its “Big Data System” to make better, adaptive, and predictable logical decisions using the data produced by the technology employed in the projects undertaken and to make the information generated available to all processes. Accordingly, we completed the necessary infrastructure development work needed to transfer the process, laboratory and other related data to the system, monitor the data used in the system, and do analytical work on the system. **We built and commissioned an end-to-end analysis infrastructure providing analysts at different locations with: (i) access to data, (ii) ability to perform code versioning and checks over the common platform, and (iii) means to develop analytics/analytical tools on a robust hardware infrastructure.**

As part of digitalization efforts, the RPA (Robotic Process Automation) project helped generate significant savings in labor and time, avoiding human errors and mistakes

Data Analytics and Analytical Tüpraş

In 2019, Tüpraş updated its digital transformation strategies and reshaped its culture of “**data-driven decision-making and action**” in line with its understanding of internalization.



To work closely with technology companies and the academic world and reach qualified and trained professionals who want to build a career in data analytics, we opened in 2018

Data Analytics Centers at ITU (Istanbul Technical University) and METU (Middle East Technical University) Technocities in line with our philosophy of becoming an “analytical company.” In 2019, we established a **comprehensive training program called Analytical Tüpraş** to train analysts in business units, change the way they do business, and integrate analytical methods into our routine business models. **In 2020, we completed the pilot training module, and participants developed value-added data analytics exercises and practices for their units. In 2021, we plan to offer this program with a more extensive team.**

In data analytics, we implemented projects that ensure efficiency and profitability using artificial intelligence projects developed in maintenance, production, and planning processes with machine learning. These projects created an efficiency increase of more than 100 million Turkish lira in 2020.

Aware of the importance and costs of energy efficiency, Tüpraş launched a comprehensive analytical study in the energy field. **With the study to be commissioned at all its refineries, the Company targets a significant increase in energy efficiency in 2021.**



Mobile Digital Field Control Platform

As part of our field mobilization efforts, we launched a pilot program at Izmir Refinery with field operators performing routine equipment checks in all three shifts using mobile devices. In addition to the mobile app developed, QR codes were created for every equipment checked in the field, making data entry for the equipment much easier and minimizing human errors.

In addition to digitalization, the process provided new advantages, such as improved efficiency of business processes, easier and faster interpretation of all digitally recorded field data (excluding the data monitored in the DCS), and the creation of critical alerts. With the new infrastructure developed, most paper-based field processes, including the infrastructure and maintenance processes, will be quickly transformed.



Digital Transformation Best Practices

Application Name	Project Duration	Stakeholders	Outputs and Contribution to Sustainability	Target
Wireless Communication Infrastructure	A wireless network infrastructure was established to cover refinery process and tank areas for communication and data transfer of mobile, IoT devices, sensors and instruments.	IT teams, Production, Maintenance and Project Units and Vendor Company	The wireless communication infrastructure, in particular, helped accelerate business unit processes in line with Tüpraş's digital refinery goal, generating cost savings in field infrastructure works.	The Company will promptly undertake new digital transformation projects that can integrate into the wireless infrastructure.
Smart Baret	Tüpraş developed the Smart Baret project to enable remote operational training with online multimedia streaming support, remote maintenance service and work through document sharing, and Remote Refinery Field Tour training.	IT teams, Production, Maintenance, Quality and HR teams	Tüpraş streamlined its processes and improved efficiency with mobile solutions by performing field maintenance, troubleshooting, operations management, training, and other field tasks remotely using online tablets/smart baret.	When the project is rolled out in full, the Company will perform its operations, maintenance work, and processes digitally, stream, record, and rewatch training sessions online or offline, and use them in training and development processes.
Nitrogen Slip Forecast with Advanced Analytics	Tüpraş created a digital app to forecast the nitrogen slip rates using the Gradient Boosting Machine (GBM) analytical algorithm. The Company utilizes live data from sensors and laboratory data from Big Data, feeding the full history of the unit's process values.	Data Analytics Department and Process Department	The Company achieved efficiency increases in its process conditions by providing people with the flexibility to work in more efficient ways/areas based on automated digital feedback.	Application experience will be enhanced through technical updates depending on the needs.
Digital Ship Planning and Inventory Management	We converted the operation into a centralized web-based system and minimized human errors by adding controls. In addition to digitalization, we also upgraded the process intelligence by adding data analytics and new optimization techniques.	Logistics and Optimization Department, Process Development and Software Directorate, Data Analytics Department, Corporate IT Services Department	Tüpraş created an easy-to-use platform for staff use to effect optimum planning through alternative scenario runs.	The aim is to streamline the product planning process by converting it to an end-to-end automated process.
RPA (Robotic Process Automation) and Robotic Processes	As part of its digitalization efforts, Tüpraş commissioned a new robotic process automation system to streamline most of its operations, including logistics, inventory management, purchasing, online withholding tax payment, e-Portal invoice redirection, daily DR notification, archiving price reports, reporting TPY jobs approved by the Refinery Department, reliability and integrity reports, simple problem solutions, reporting, and notifications.	Koç System Project Team under Corporate IT Solutions Department Team, Contract and Purchasing Directorate, Financial Affairs Directorate, Sales and Marketing Directorate, Operational Reliability and Maintenance Directorate, Project Investments Directorate	We reduced the resource consumption in the processes revised by robotic automation.We eliminated paper consumption by converting to email and pdf use in processes that consumed paper. The ability to instantly share information in a remote work setting ensures quick action/response as it is auditable and easily reprogrammed. In 2020, savings amounted to a monthly average of 400 hours of work and 1,000 hours of labor. The productivity increase in processes amounted to 49 percent. The creation of a round-the-clock workforce resulted in higher business and resource efficiencies. Minimized error rates, effected rapid deployment of process revisions and optimizations to prepared for unforeseen circumstances.	Ensuring RPA solutions reach more business units



RESPONSIBLE VALUE CHAIN MANAGEMENT

Refinery products have a wide area of use, driving the economy. Given the strategic nature of the industry, the continuity of Tüpraş's "value chain operations" is of paramount importance for the Turkish economy. With this awareness, Tüpraş continues to improve the environmental and social impacts of its supply chain and logistics operations.

VALUE CHAIN
MANAGEMENT



In 2020, Tüpraş made over 2-billion-Turkish-lira worth of purchases from 1,920 active suppliers.

Tüpraş uses risk assessment and performance management systems and practices rigorous production planning to ensure production continuity. Production planning also assesses market conditions, product demand, product portfolio efficiency projections, refinery configuration, and raw material procurement. In addition, the Company evaluates short, medium, and long-term production targets under different scenarios and implements targeted investments and practices. Tüpraş also strives to meet customer expectations at the highest level. Ensuring customer satisfaction is one of the key priorities of Tüpraş.

Tüpraş places great emphasis on ensuring the development of the value chain and continuity of its healthy operation by managing the changes in the value chain. End-to-end, the chain covers the entire relationship universe from suppliers to customers. Any problems encountered in the procurement of refining products affect other businesses and supply chains in tandem, beginning with the transportation and logistics sectors. Accordingly, Tüpraş has the final responsibility to maintain national reserves in the amounts stipulated by the regulations to meet the demand for fuel products throughout Turkey in an emergency. And the Company amply fulfills all its responsibilities in such regards.

Working with primarily local suppliers in its purchasing activities, Tüpraş made over 2-billion-Turkish-lira worth of purchases from 1,920 active suppliers in 2020. Tüpraş made 88.9 percent of its purchases during the reporting period from local suppliers.*

* This figure excludes the procurement of crude oil and intermediates/products.

SUPPLY CHAIN MANAGEMENT

Supply management is the first phase of the Tüpraş value chain. It is divided into three main supply processes/categories: crude oil, intermediates/products, indirect products/services. The systems, rules, and principles to be followed in the performance of these processes are regulated by the corporate documents of Tüpraş, such as **Tüpraş Supplier Management Policy**.

The **Crude Oil Supply Department** and **Domestic Crude Oil and Operations Department** are jointly responsible for overseeing Tüpraş’s operations that involve the import and purchase of **crude oil** needed by refineries from local producers. Tüpraş uses an **optimization program to determine the types and quantities of crude oil required by refineries and continuously improves the process with the feedback provided by program outputs**. Tüpraş purchases part of its crude oil supplies under annual contracts with producer countries and the remaining via tenders from companies actively trading in the crude oil market.

The **Foreign Trade Group Department** imports the intermediates/products refineries need. **Tüpraş uses an optimization program to determine the intermediates/products refineries need and continuously improves the process with the feedback provided by program outputs**. Given the global conditions, company strategies, and global and local market factors, Tüpraş supplies part of the traded products under periodic contracts. Alternatively, the Company can supply all or part of its needs through tenders from various companies or one-on-one meetings

arranged by the Trade Office. Prospective traders should have their registration completed and made to the Tüpraş supplier list.

The Contracts and Purchasing **Department performs** all indirect products and services used in Tüpraş operations. **The process is initiated with a purchase request made for the needs through the SAP SRM and ERP systems.**

All product and service groups have a separate unit that follows the customs and freight procedures of import purchases.

All stakeholders in the Tüpraş supply chain are expected to carry out their activities following certain rules and working principles. These rules and principles are stated in various policy documents, **particularly the Tüpraş Supplier Code of Conduct**, and the Company monitors and updates the applicable procedures if necessary. **The functionality of these principles and procedures is checked by audits conducted in the supply chain.**

All stakeholders wishing to become a crude oil or a product/intermediate supplier must apply through the relevant commercial units and register with Tüpraş. They should be listed in the Tüpraş supplier base to engage in any commercial activity. All suppliers who apply for registration must provide company details, trade activities, and financial reports. This information and documents are evaluated for commercial and legal compliance. To ensure legal compliance, Tüpraş regularly checks companies that wish to register or have already registered on different sources, particularly the Thomson Reuters World-Check database. Third-party support is sought

if necessary for legal compliance checks. This process is run for all our suppliers who provide direct/indirect products/services.

Suppliers have to complete a “**Supplier Screening Survey**” when they apply to register with the Tüpraş Supplier Base on the Tüpraş Supplier Portal or when purchasing departments want to reassess existing registrants. The survey asks suppliers to furnish information about their financial, commercial, technical, health, safety, and environmental practices and other processes and quality documents.

All stakeholders in the Company’s supply chain are informed about the corporate policies such as the Tüpraş Supplier Code of Conduct, Tüpraş Code of Ethics and Business Conduct and its Implementation Principles, Tüpraş Information Security Management System Policy, Tüpraş Personal Data Protection and Processing Policy, and Personal Data Processing Privacy Statement. They all undertake to observe these rules and act and conduct their activities accordingly.

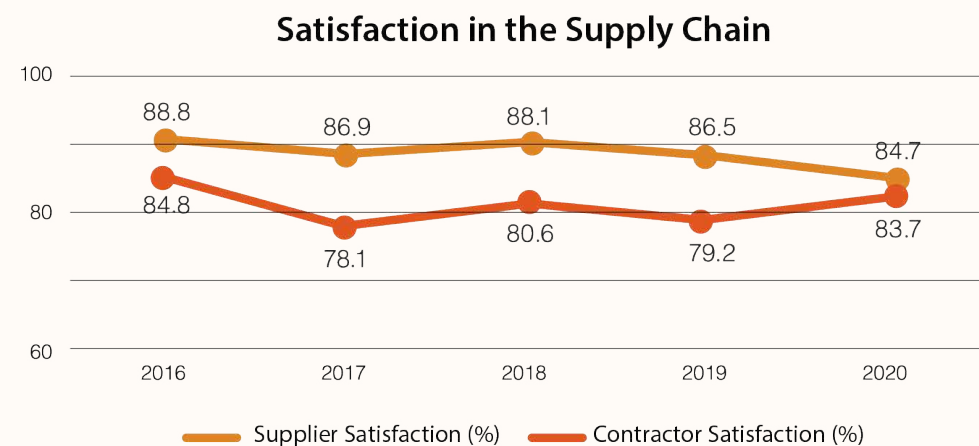
Workplace visits are carried out as part of the annual plan for suppliers with whom purchase contracts are executed. **During these visits, audits are conducted on compliance with supplier behavior principles, production and material adequacy, quality, environment, occupational health and safety standards.** For suppliers that provide services at Tüpraş sites, the Company conducts assessment surveys within the scope of its **Contractor HSE Management System. During the reporting period, Tüpraş checked 738 companies within the scope of all supplier audit practices.**

	2016	2017	2018	2019	2020
Supply Operations (million TL)	1,921	1,692	1,911	2,017	2,024
Domestic	1,200	1,217	1,164	1,608	1,791
Custom Orders	5	4	13	14	9.6
Foreign	716	471	734	395	224
Local Procurement Rate (%)	62.72	72.16	61.6	80.43	88.90
Number of Suppliers	2,266	2,120	2,164	2,060	1,920
Supplier Satisfaction (%)	88.8	86.9	88.1	86.5	84.7
Contractor Satisfaction (%)	84.8	78.1	80.6	79.2	83.7

Suppliers are expected to comply with the relevant articles in the **ILO Contracts and the UN Global Compact** because they are binding for Tüpraş and its parent company Koç Holding, which is a signatory to these agreements. These principles in the Supplier Code of Conduct are also included in the procurement contracts.

A “**Supplier Satisfaction Survey**” is conducted

annually to increase cooperation with suppliers and make the cooperation process more efficient. Tüpraş manages this project as an institutional effort to improve processes, efficiency, and learning from experience mutually.



RAILWAY TRANSPORTATION

Tüpraş prefers safe and environmentally friendly solutions in its logistics operations. This is why the Company became Turkey’s first private railway operator following the establishment of Körfez Ulaştırma A.Ş. in 2017.

In 2018, the company leased five locomotives from TCDD (Turkish State Railways) and hauled fuel between Kırıkkale and İzmit Refineries running one train daily. In 2019, the company purchased five new diesel engines and continued to transport fuel on the same line running two trains daily. The company runs trains in both directions on İzmit–Kırıkkale, Kırıkkale–Batman and Kırıkkale–Mersin lines, and one direction on the Mersin–Batman line. As of April 2019, the company began hauling terminal-delivery shipments to Tüpraş’s fuel customers between İzmit and Güvercinlik (Marşandız). **In 2020,**

Körfez Transport carried 1.5 million tons of products/intermediaries, 77 percent with its own trains. The company aims to increase its non-Tüpraş shipments in the near future and become the largest fuel carrier by hauling 10 percent of the Turkish railway freight by itself. **With 105 tank wagons ordered in 2020 for this purpose, its investments in locomotives and railroad cars since its establishment exceeded \$100 million.** The leader in fuel transport, the company hauled 182,000 tons of iron ore on the Sivas Divriği–İskenderun line in 2020 to enter the non-fuel freight market.

Eco-Friendly Transportation*

In Turkey, 92 percent of greenhouse gas emissions originate from road transport and only 0.5 percent from rail transport. Rail transport consumes up to 60 percent less fuel than highway transport, hauling a 1-ton product for 1 kilometer, thus producing fewer emissions. **The goal is to reduce the CO₂ emissions from Tüpraş shipments by approximately 8,300 tons per year on the private railway tracks.**

Accordingly, the company signed a contract with Swiss rolling stock manufacturer Stadler for seven diesel/electric hybrid locomotives. The locomotives manufactured at Stadler’s Spanish plant are expected to be delivered in 2021. As part of the gradual transition plan, Tüpraş returned two diesel locomotives leased from the TCDD in January 2021. The objective behind putting these diesel/electric hybrid Stadler Euro Dual locomotives into service is to achieve zero carbon emissions in transportation.

Safer Transportation**

Railway transportation is a much safer model than highways.

In 2020, the Company provided more than 1,500 hours of training to improve its safety conventions and culture. To sustain its safe management practices, Tüpraş performed nearly 300 inspections and operational checks during the pandemic and took actions to remedy identified deficiencies. In 2021, the Company aims to increase the effectiveness of reporting and analyses by identifying shortcomings in auditing and offering emergency broadcasting online.

In 2020, Tüpraş eliminated more than 18,000 truck rounds and removed approximately 460,000 tons of products from traffic, moving the volumes over to the rail transport. This reduced the total transport distance on the roads by 8 million kilometers. On the other hand, since hazardous substance transportation is done on routes away from residential areas and other vehicles, Tüpraş increased the social value-added by significantly reducing potential risks and hazards. **As of 2020, Tüpraş reduced the ratio of road transport in domestic hazardous goods transportation to 2.5 percent and is expected to reduce this ratio in the coming years.**

The most comprehensive railroad car maintenance and repair shop operating under the Entity in Charge of Maintenance (ECM) standards is located at Kırıkkale refinery. Its top performance ratings ensure that railroad cars operate with maximum efficiency in Turkey.

* You can access the greenhouse gas effects of the transportation operations in Turkey on the website of the Ministry of Environment and Urbanization. A truck with an average load of 25 tons consumes 35 liters of fuel per 100 km.

** Land and railway accident statistics by year are available on the TurkStat website.



In addition, a technical maintenance team has been established in the Kırıkkale Refinery to carry out maintenance activities for the locomotives. The construction of the locomotive maintenance workshop, which will be completed in 2021, continues to invest in this area.

More Cost-Effective Transportation

Rail transport costs less than road transport. In 2020, Tüpraş increased its logistics efficiency by generating great savings through rail transport.



Tüpraş is working on a project called “**Bottom Loading**,” which involves transferring liquid products to the vessel by filling from the bottom. This eliminates the release of volatile hydrocarbon compounds into the atmosphere and reduces the risk of exposure of field employees to hydrocarbon emissions, creating positive environmental and health impacts. **In this context, the Company completed the Heavy Straight Run Naphtha (HSRN) Bottom Loading Projects at its Izmit and Batman Refineries.**

The Company decided to install overfill sensors on the railroad cars and integrate this step with the bottom loading project. This aims to ensure safe loading operations and eliminate the risk of overfilling product overfilling. **The Company installed overfill sensors to a total of 208 white product vessels of Körfez Ulaşım A.Ş.** The sensors stop the filling when the car tank is filled 96 percent, ensuring safe filling up to this level. Completing the bottom loading project at Kırıkkale Refinery will ensure the safe filling of railroad cars with oil and naphtha products, preventing the spreading of volatile hydrocarbon compounds from the top to the atmosphere.

RESPONSIBLE MARITIME TRANSPORTATION

Transportation of crude oil and oil products by sea has an important place in Tüpraş logistics operations. Ditaş Deniz İşletmeciliği ve Tankerciliği A.Ş. accounts for 79.98 percent of the Company’s maritime transportation.

Ditaş continuously follows national and international legislation that regulates its operations for high-quality, safe, and environmentally friendly services and completes the necessary harmonization efforts on time. Accordingly, Ditaş offices, vessels, and terminals are accredited under **ISO 9001:2015 Quality Management System and ISO 14001:2015 Environmental Management System certifications**. As per the rule that went into effect in 2020, the Company keeps the sulfide rates of fuels used outside of the designated Emission Control Areas (ECA) of the IMO (International Maritime Organization) under 0.5 percent. In this context, the Company completed installing a scrubber system (Exhaust Gas Cleaning System) to use high sulfur fuel in four tankers in 2020.

As part of the EU SRR (Ship Recycling Regulation), vessels going to European Ports were requested to produce an itemized bill of lading on their hazardous materials cargo and obtain a compliance certificate. All vessels have so far completed the necessary work and properly declared their cargo inventory. The Company completed the certification process on December 31, 2020, the effective date of the rule.

Mandatory trainings were received for ships and terminals pursuant to Occupational Health and Safety Law No. 6331 and related regulations. In addition, the Company completed the work required by legislation such as risk assessment, emergency action plans, periodic health checks with the help of occupational safety specialists and on-site physicians.

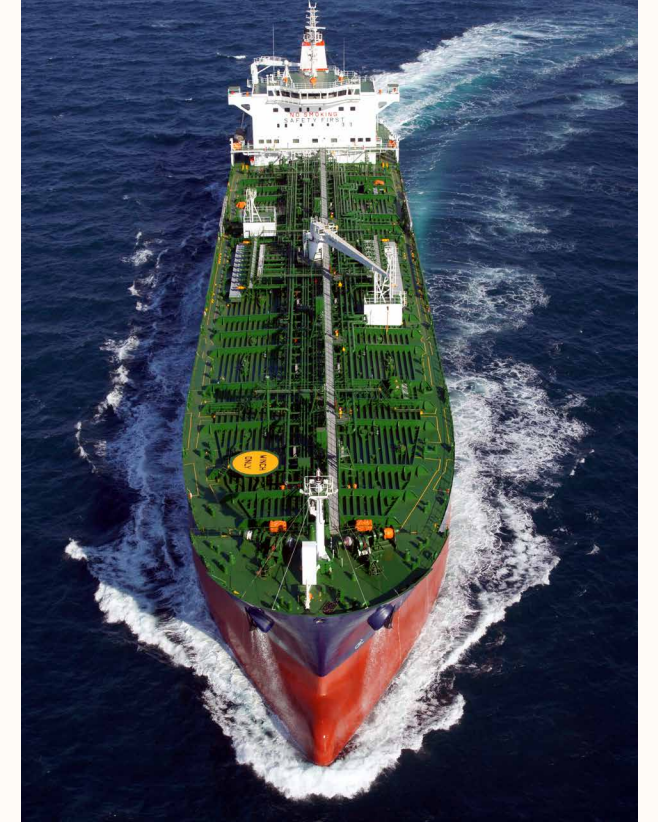
Because maritime activities are critical to cybersecurity, the Company established the **Corporate Cyber Incident Response Team**

(SOME) to address the issue. Ditaş has been accredited with **ISM (International Safety Management)** and **ISPS (International Ship and Port Safety Rules)** codes and voluntary **MLC (Maritime Labor Convention)** certificate of compliance for its ships. **Ditaş is the first company in Turkey and the 11th in the world to receive the International Standard for Maritime Pilot Organizations (ISPO) Certificate for its piloting, towage, and mooring services provided at Izmir Terminal.**

The Company continues with its studies on implementing the TMSA 3, an important reference in tanker operations requested by oil companies. Vessels used in Ditaş operations are inspected and approved for operation by the member organizations of the OCIMF Sire system.

The Company moved all its publication business to the electronic medium, except for the work that involves digitalization, the mandated use of paper on ships under its own environmental policies. Document tracking is done online. We work with an industry-leading international company in marine-related digital training to improve crew members’ occupational competence and safety culture.

In 2009, the Company started providing loading master services to improve safety during the operations of crude and chemical vessels arriving at Tüpraş sea terminals. Since 2010, we have been checking and reporting vessels for compliance with national, international, and Tüpraş standards. In this context, **we inspected 71 ships for compliance with the relevant standards and provided loading master services to 230 vessels in Izmit and Izmir terminals in 2020.**



We formed an agile project team with the participation of technical and commercial departments to reduce service times and minimize staff contact at Tüpraş ports achieving operational excellence and work simplification. We put in a total of 35 weeks of work in an agile and digital environment, analyzing 17 port operations in 43 steps for each trip of 441 white-black, 80 crude oil, 212 import/export ships. We identified the focus areas and presented their savings potential. The outcome of these studies was the “**Paperless Departure Procedure**,” we developed. We ran a pilot project, port departure trials on DITAŞ ships transporting black products between refineries. Under the procedure, the system automatically generates a freight report after the vessel is loaded and the quantities are reconciled, and shares it with the ship captain and agent via email instead of hand delivery. The shipping agency then prepares a cabotage declaration using the amounts notified in the email, and the ship leaves the port without any undue delay. **In 2020, the Company achieved 40 hours worth of fuel and wharfage savings in this way.** Toward the end of the year, we also tested the process for export shipments in refineries. In 2021, we **plan to expand the process and implement it on DITAŞ ships carrying domestic white product shipments.**

CUSTOMER SATISFACTION

Tüpraş is committed to providing quality services and products in the energy industry, where the business dynamics change instantly. The Company is committed to establishing transparent and bi-directional communication with customers, treating them equally and fairly, and continuously improving product and service processes. In this context, we continuously evaluate customer demands, requests, and suggestions with the help of our customer-focused sales approach.

According to the Customer Satisfaction Survey conducted every year in this context, 87 percent of customers were happy to work with Tüpraş in 2020 (2018: 88.8 percent, 2019: 88 percent). On the other hand, online surveys conducted by an independent research company promoted us to form agile project groups to focus on the improvement areas identified. In 2020, we commissioned the new customer complaint management software, specifically designed to address customer needs, to ensure customer notifications from all platforms, including website, Client Portal and Tüpraş Solution Center, were collected and managed under the **ISO 10002 Customer Satisfaction Management Standard**. In addition, we audit the relevant processes within the framework stipulated by the standard.

The Tüpraş Solution Center offers a wide range of services, including the Energy Market Regulatory Authority (EMRA) notification processes and supplier log information searches. We continuously expand the Center's capabilities and add to the subject areas it addresses with

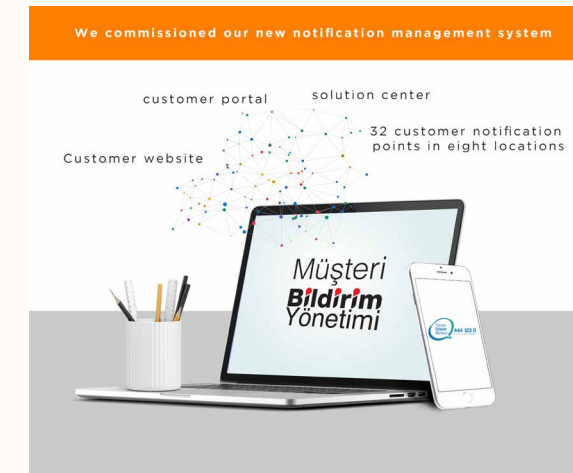
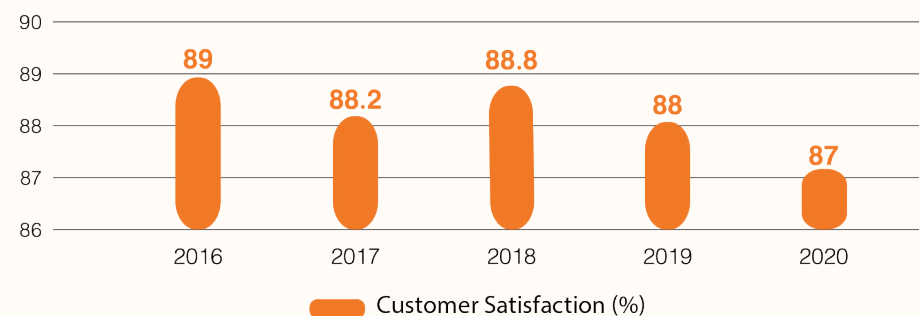
the help of customer requests and suggestions received. Customer Satisfaction Surveys showed that customers were happy with the Tüpraş Solution Center, which increased the number of its services in 2020 and began answering the incoming calls at Tüpraş switchboards as well in September.

Tüpraş offers its customer a new customer portal and customer website taking its customer experience to new heights, to a management paragon. Providing online access to its prospective customers for process-related services, Tüpraş wants to make sure its customers can place orders on the web and mobile, accessing any relevant information instantly. Immediate announcement of operational or service issues regarding customers on the portal also scored high points with customers on Tüpraş's communications skills.

The Company added new applications to the portal, expanding its scope in line with customer requests. Furthermore, the Company added to its customer website the Modiphal-T modified bitumen products and niche fuels developed as part of the innovation project and a special section on Spectraf products.

We also shared detailed information on our website and portal with our customers about the COVID-19-related measures taken during the pandemic. We regularly sent SMS alerts to land-bound petrol tanker drivers to prep them on vital pandemic-related points. Detailed information on the steps taken to combat the pandemic in terms of ensuring customer satisfaction and other areas is provided in the Special Section of the Report on "COVID-19."

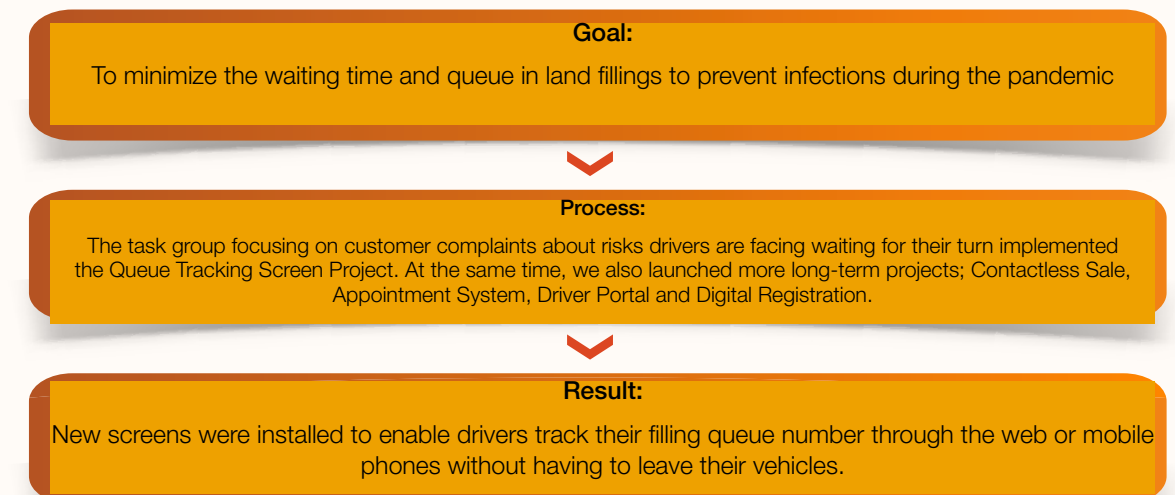
Customer Satisfaction (%)




New Customer Notification Management System




Land Filling Sequence Tracking Screen




10,000
Face Shields
Manufactured for
Healthcare Workers


12,000
Number of students reached
through robotics programming
course of the “Our Energy for
the Future: I Code, I Model,
I Produce” project.


25 million
Number of people reached
through the UN Women –
HeForShe – Fenerbahçe
Sports Club collaboration

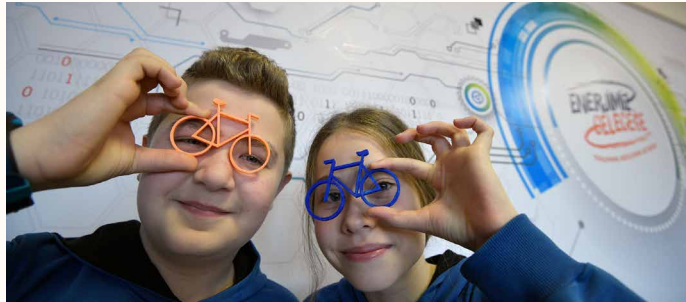

3,000
Number of students reached
through the science
experiments in “Our Energy
for Students” project



SOCIAL DEVELOPMENT

Tüpraş uses the United Nations Sustainable Development Goals as a guidebook for projecting its industry strength, leadership, and energy to initiatives that promote and support social development. Embracing the cooperation model that brings the business world, public and civil society together, the Company aims to create lasting value in society with projects supported and realized through a sustainable development approach.

OUR SOCIAL RESPONSIBILITY APPROACH



In addition to creating economic value and carrying the responsibility to meet the energy needs of Turkey, Tüpraş is committed to contributing to social development as a conscientious and responsible corporate citizen. Tüpraş undertakes social responsibility projects primarily in the regions it operates in line with its business approach, strategies, and contribution to sustainable development. Acting as a responsible global corporate citizen, the Company prioritizes education, environment, culture, and arts. Tüpraş projects its industry strength, leadership, and energy to initiatives that promote and support social development. With the leverage effect of its technological know-how in R&D, innovation, and digitalization, Tüpraş injects added value in its projects.

Committed to the principles of inclusivity, equality, and diversity in its activities, Tüpraş works hard to raise public awareness on gender equality and develop collaborations.

With this understanding, the Company uses the United Nations Sustainable Development Goals as a guidebook to develop projects that contribute to the objectives and create environments that offer humanity a better future.

Tüpraş believes in the principle of private and public sectors and nongovernmental organizations coming together and cooperating in corporate social responsibility projects. In planning social projects, the Company utilizes corporate reputation and perception surveys conducted every two years with different stakeholder groups. **Tüpraş donated 22.7 million Turkish lira to various causes and organizations as part of its social responsibility efforts and sponsorships in 2020.**

Tüpraş believes in the principle of private and public sectors and nongovernmental organizations coming together and cooperating in corporate social responsibility projects in education, environment, culture, arts, and gender equality.

Corporate Citizenship and Volunteerism at Tüpraş

Striving to become a responsible manufacturer, Tüpraş encourages its employees to volunteer support in corporate social responsibility projects that align with its corporate culture and values. Employees/families volunteer to participate in projects undertaken by local and national nongovernmental organizations, contributing experience and know-how.

The company completed numerous social responsibility projects in 2020 with the voluntary participation of its employees.

EDUCATION

As the world digitalizes rapidly with the proliferation of internet use and new technological developments, the Industry 4.0 revolution is replacing human labor with artificial intelligence, automation and digital innovations. Nonetheless, the need for new business areas grows, and tech-savvy individuals come in handy.

Within this scope, the **United Nations Sustainable Development Goal “Quality Education”** (UN SDG 4) aims to provide and increase access to qualified education by 2030 and equip children with science, technology, engineering, and mathematics competencies.



Committed to contributing to sustainable development, Tüpraş undertakes projects to raise new generations that produce technology in Turkey.

“Our Energy for the Future: I Code, I Model, I Produce” Project

Training programs on robotic coding introduce children to digital technologies, helping them develop problem-solving, cause and effect, critical thinking, questioning, self-expression skills, and psychomotor behavior. **These training programs help children build their sense of power in understanding, interpreting, and navigating the technological world.**

Tüpraş considers the United Nations Sustainable Development Goals an important guide to developing creative solutions to global problems. Accordingly, Tüpraş developed the social responsibility project “**Our Energy for the Future: I Code, I Model, I Produce**” to contribute to the goal of “**Quality Education**,” in collaboration with the Ministry of National Education and the General Directorate of Primary Education.

The presser for the project “Our Energy for the Future: I Code, I Model, I Produce” went out, and the trailers hit social media in February 2020. **The Company organized robotic coding, 3D modeling, and manufacturing skills courses for the seventh and eighth graders in 30 grammar schools in Batman, Kırıkkale, Izmir, and Izmit, where the refineries are located.**

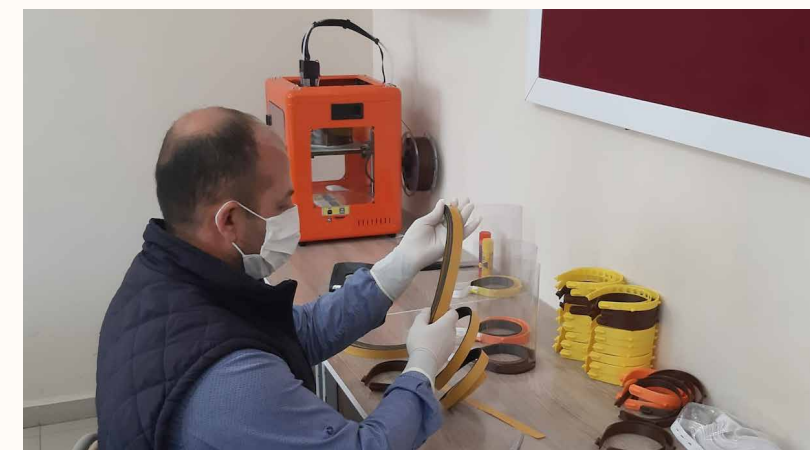
[You can access a video of our project here.](#)

The project aims to introduce children to technology at an early age, increase their access to digital education, and raise new generations who know how to research a subject, think innovatively, and have problem-solving and production skills. **The Boğaziçi University Faculty of Education produced the measurement report of the project.**

Our Energy for the Future: I Code, I Model, I Produce – COVID-19: Bridging Hearts in Solidarity

Tüpraş quickly transformed the “Our Energy for the Future: I Code, I Model, I Produce” project into the special study “Bridging Hearts in Solidarity” in March 2020, as the pandemic was about to begin raging the world.

During the early days of the pandemic, the Company quickly arranged for 60 volunteer teachers to produce 10,000 face shields for healthcare professionals using 3D printers in robotic coding classes. In December 2020, the project received the Shared Tomorrows Are Possible Together Award by the Turkish Confederation of Employer Unions.



I have had the opportunity to join Tüpraş in contributing to the education world since November 2018. In 2019, we monitored and evaluated work done under “Our Energy for the Future: I Code, I Model, I Produce” and “Our Energy for Students” projects, which have been ongoing since the beginning of 2019. We have produced reports demonstrating projects’ impacts and taken steps to improve their effectiveness by making necessary changes and innovations based on feedback and observations. Our “Our Energy for the Future: I Code, I Model, I Produce” project began with the vocational development training given to our teachers, our gateway to improving the education quality. For the project, we have chosen primarily the schools in provinces where Tüpraş refineries are located. We have provided Robotic Coding, 3D Modeling, Production and Skills Building Courses, and infrastructure support to the selected schools. We have used the data and feedback obtained during installation and implementation to identify new schools, allowing us to effectively form and instruct the training groups. We have visited all the schools participating in the project and held focus group meetings to assess the impact of training programs and training group formation on the quality of education. Similarly, we have obtained new data for use in program updates and new workshops planned. We have reviewed our project and taken new steps to reach wider audiences despite the pandemic that affected the entire world. We will further improve on our projects in 2021 to produce sustainable projects.



Assoc. Prof. Serkan Özel, Ph.D.
Department of Mathematics and
Science Education, Boğaziçi
University

“Our Energy for Students” Project

Tüpraş believes that sustainable development is possible with greater access to quality education. Fully aware of its responsibility in this regard, Tüpraş undertook the “**Our Energy for Students**” project in cooperation with the Ministry of National Education in primary and grammar schools. The project’s objective is to encourage students in the fifth, sixth, seventh and eighth grades to love science, aiming to become future scientists.

The project includes a voluntary group of 25 Tüpraş R&D Center employees working as instructors and practitioners. In the classrooms equipped as a laboratory, volunteers conduct experiments with students using easy-to-procure materials. The project demonstrates the **importance of working together as men and women in the scientific world** as in all other aspects of life. Students also learn about safe working conditions protecting themselves against the hazards that may happen during experiments. A measurement and assessment model was developed with support from an academic consultant at Boğaziçi University Faculty of Education to measure the project results.

The project has reached 3,000 students to date. To continue with the program during the pandemic, Tüpraş will turn the project into a digital application, helping increase the number of students accessing the project in 2021.

[You can access a video of our project here.](#)

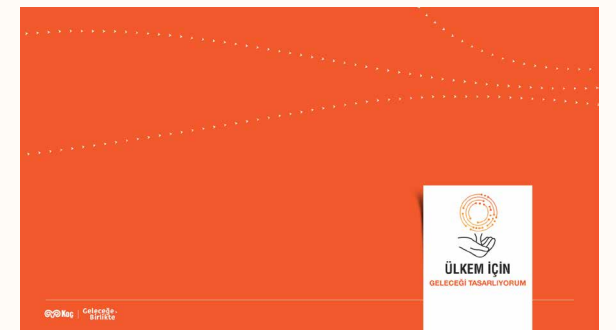


“Designing the Future for My Country”

The Koç Group, Tüpraş’s parent organization, operates with a philosophy that views economic and social development as one and focuses on creating added value in both. Tüpraş continues to contribute to the “**For My Country**” project launched in 2006 to expand this approach to all Group employees, dealers, and supplier networks, leveraging the power of this collective impact and access.

The project “For My Country” focuses on our country’s fundamental issues. Its main theme revolves around “Digital Transformation” firmly pivoted on the underlying idea of guiding change and not falling behind in a rapidly evolving world incessantly reshaped by advancing technologies. Every seed of social investment Tüpraş plants helps the Company build a forest around this theme, aiming to contribute to the empowerment of everyone possible using technology.

In 2020, Tüpraş organized “Designing the Future for My Country” meetings exclusively for COVID-19. Tüpraş held the **first meeting** in this context. It was an online meeting attended by 145 employees from Tüpraş.



TEV “Our Energy for Equality Never Ends” Scholarship Fund

Tüpraş created the “**Our Energy for Equality Never Ends**” scholarship fund under the Turkish Education Foundation (TEV) in 2016 to provide equal opportunities for female students. In the 2019-2020 academic year, **28 female students received the scholarship**.

Koç University Anatolian Scholarship Program

Tüpraş continues to support the **Anatolian Scholarship Program**, which Koç University launched in 2011 to provide **equal educational opportunities** to students with outstanding academic achievement and demonstrated financial need. With two new students receiving the scholarship, the **total number of students awarded the scholarship reached 18**.

INCLUSIVITY, EQUALITY, DIVERSITY

Our Energy for Equality Never Ends

Tüpraş strives to become a truly inclusive workplace, an objective the Company announced on signing the **United Nations Women's Empowerment Principles (UN WEPs)** in 2017. **With this approach, the Company also aims** to contribute to “Gender Equality,” the United Nations Sustainable Development Goal 5.

Tüpraş kicked off global cooperation with **the UN Women's HeForShe movement and Fenerbahçe Sports Club in 2018** to raise public awareness on gender equality. This cooperation is the only large-scale commitment in the field of sports on gender equality to date.

Thanks to this public awareness campaign, which popularly leveraged the slogans **“We Are Equal Together”** and **“Our Energy for Equality Never Ends,”** Fenerbahçe Football Team A has been featuring the HeForShe logo on the right arm of its jersey since 2018. Fenerbahçe Football Team A will start featuring the Tüpraş logo on the left arm of its jersey in the 2020–2021 season.

Tüpraş began mainstreaming the project starting with the Fenerbahçe Sports Club. In 2019, the United Nations Entity for Gender Equality and the Empowerment of Women, also known as UN Women, conducted the “Gender Analysis of Fenerbahçe Sports Club and Affiliated Companies.” The Company organized gender equality awareness training through volunteer trainers trained by the Mother Child Education Foundation (AÇEV) for 1,186 individuals, including athletes and employees. In 2020, three “Athletes Workshop” and one “Leaders of Change” training were held.

Every year, the United Nations organizes the campaign **“16 Days of Activism – End Violence Against Women”** globally, starting **“November 25, International Day for the Elimination of Violence against Women,”** ending December 10 Human Rights Day.

With the participation of its volunteering employees, Tüpraş supported the 16 Days of Activism campaigns organized by the UN Women's Turkey Office since 2012 to prevent the cyber violence committed against women and girls, thanks to the momentum created through the cooperation with the UN Women's HeForShe movement and Fenerbahçe Sports Club.

As part of the Tüpraş project, the United Nations Women's Unit and Fenerbahçe organized the event “Sports for Generation Equality: Empowering Women and Girls Through Sports” on International Women's Day, March 8, 2020. The event brought together important figures who contributed to women and girls' empowerment, inspired people with their stories, and shared their contributions in this field.

Tüpraş organized the seminar **“Parenting Through the Pandemic”** in coordination with **AÇEV** to address the changes in the lives of adults and children in the context of gender equality during the pandemic. During the pandemic, Tüpraş's volunteer employees shared various messages on KoçHub, Koç Group's online communication platform, to raise awareness about **“sharing responsibilities equally in child-raising and at home.”**



In 2020, we celebrated the 25th anniversary of adopting the Beijing Declaration and Platform for Action, the most comprehensive international roadmap for women's rights adopted by the United Nations Member States. Despite the progress we have made over the last 25 years in gender equality and women's empowerment, this progress has not been the same or as fast for everyone. Discriminatory social norms are widespread throughout the world. Women are under-represented at all levels of decision-making, and women's access to work is far more limited than men's. In addition, violence against women and girls continues to be widespread.

The COVID-19 pandemic threatens to further slow and even reverse the gains made in recent years. As in all crises, women and girls are again affected disproportionately by the pandemic due to existing gender inequality in society. We see that the pandemic has significant implications for women's employment outlook and overall standing in the labor market, both globally and in Turkey.

To overcome these challenges, we need bold actions and multi-stakeholder efforts where women's perspectives and leadership are at the center of policy and decision-making. The government, private sector, civil society, and academia should also take a stake in the process.



The UN Women's Unit has been in a long-term productive collaboration with Tüpraş, one of Turkey's leading industrial enterprises and the signatory of the United Nations Women's Empowerment Principles (WEPs). We appreciate Tüpraş' commitment to supporting women's leadership and career development at all levels and to providing a workplace environment free from all forms of discrimination. We will continue to work with Tüpraş to support its collaboration with the UN Women's HeForShe movement and Fenerbahçe Sports Club and promote gender equality and women's empowerment in business life as much as in sports.

Asya Varbanova
Country Director, UN Women Turkey



[You can access a video of our project here.](#)

ARTS AND CULTURE



Tüpraş contributes to many projects that protect and support arts and culture, promoting and sustaining cultural heritage preservation under the **United Nations Sustainable Development Goal 11, Sustainable Cities and Communities**.

“Our Energy for Art”: Arter

Tüpraş has undertaken for five years the corporate sponsorship of Arter, opened as a subsidiary of the Vehbi Koç Foundation in 2010, and moved to its new building in Dolapdere in September 2019.

In this capacity, Tüpraş shall help establish an environment for young people and children to freely experience and enjoy contemporary art, **ensuring young people aged 24 and under visit Arter exhibitions free of charge**.

Adding online guided tours to its program during the pandemic, Arter aspires to become a readily accessible, vibrant, and sustainable culture and art life platform for everyone.

Young Musicians On the World Stage

Since 2013, Tüpraş has supported the “Young Musicians on the World Stage” project launched in 2010 to introduce young generations to the visionary troves and 50 years of experience of the prodigies Güher and Süher Pekinel, our world-renowned pianist sisters. Young talents aged 12–23 receive a scholarship to enroll in and study at the most prestigious music schools in the world, playing the best instruments available under expert instruction. **The “Young Musicians on the World Stage” program has provided great educational opportunities to 23 prodigies to date, with 11 currently enrolled in one of the study programs.**

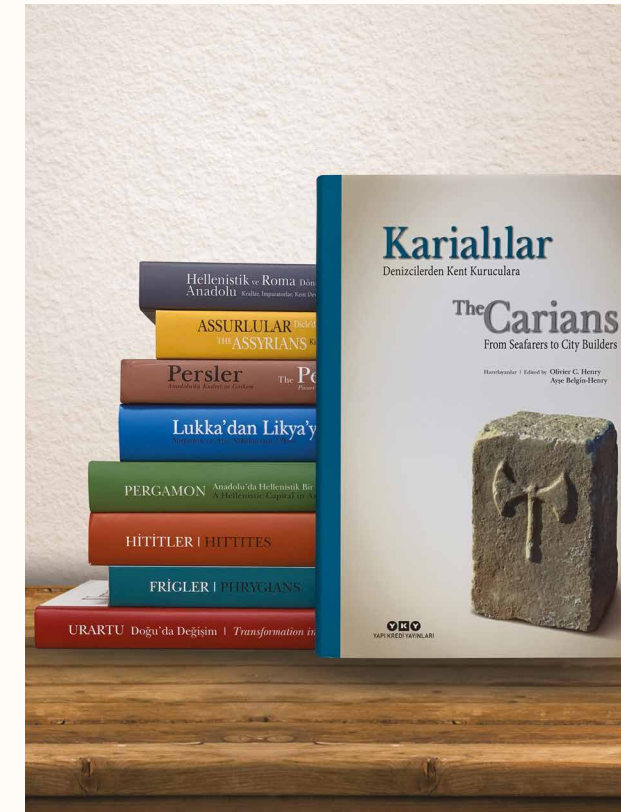
During the pandemic, Tolga Atalay Ün, one of the prodigies enrolled in the “Young Musicians on World Scenes” project, performed live concerts on the digital platform.



Anatolian Civilizations Series

Since 2011, Tüpraş has been striving to introduce the young generations to the **ancient civilizations of Anatolia that left an indelible mark on this historic land in its book series on the Anatolian Civilizations**. In collaboration with Yapı Kredi Culture & Arts Publications, Tüpraş introduced the readers to the book series “Urartu: Transformation in the East,” “The Phrygians: In the Land of Midas, in the Shadow of Monuments,” “The Hittites: An Anatolian Empire,” “Pergamon: A Hellenistic Capital in Anatolia,” “From Lukka to Lycia: Land of Sarpedon and Saint Nicholas,” “The Persians: Power, and Glory in Anatolia,” “The Assyrians: Kingdom of the God Aššur from Tigris to Taurus,” and “Hellenistic and Roman Anatolia: Kings, emperors, city states.”

Published in 2020, the ninth book of the series, **“The Carians: From Seafarers to City Builders,”** tells us the story of the Carians, a legendary seafarer peoples, and the archeological and historical roots of this nation.



24. Istanbul Theater Festival

IKSV has been organizing the Istanbul Theater Festival for **16 years under sponsors Aygaz, Opet, and Tüpraş** of the Koç Holding Energy Group companies.

In 2020, The 24th Istanbul Theater Festival opened its doors to theater lovers from November 14 through December 28. The festival staged 14 physical and 11 online productions. Nearly 2,500 people attended the physical productions of the festival in 2020, and the online productions garnered over 13,000 viewership.

The Anatolian Civilizations Series, launched in 2011 in cooperation with Tüpraş and Yapı Kredi Culture and Arts Publications, is an international publication project, which includes 12 books in Turkish and English. The books included in the series are the collective works of expert scholars, academic articles published in various scientific journals.



We managed to publish the ninth book of the series, “The Carians: From Seafarers to City Builders,” in November 2020, with the help of its authors despite all the negative effects of the pandemic. Of course, the biggest honor for this success goes to Tüpraş for its highly motivating approach and unwavering support from the very beginning, with our first book. Thanks to this support, the Anatolian Civilizations Series has become a lasting publication project, highly regarded by the international scientific community. With each new publication, the scientific significance and value of the series grow. Our books are included in the archives of international universities, institutes, libraries, and museums and are recommended as a source and reference publication by researchers.

We are very proud to contribute to the acclamation of our country and institutions by the international scientific community.

Nihat Tekdemir
Director, Yapı Kredi Museum
Series Editor

ENVIRONMENT

Under its responsible manufacturer hat, Tüpraş focuses on conserving natural resources, improving energy efficiency, reducing waste in production, and **supporting social responsibility projects to combat climate change and protect the environment.**

The DTO Fethiye Waste Collection Boat at the Göcek Bay

The DenizTemiz Association/TURMEPA provides mobile waste cleanup services in the bays frequented by yachts and tourist boats with its waste pickup boats. It contributes to reducing marine tourism's environmental footprint by collecting thousands of tons of waste a year.

Since 2016, Tüpraş has sponsored the DTO Fethiye liquid collection vessel, which **collected 755,971 liters of waste from 1,306 vessels during the summer 2020 season on its rounds in Göcek Bay.** The wastewater collected is equivalent to the effluent produced daily by 4,000 people. Effluents collected helped to keep 6 million liters of sea water clean.



At the DenizTemiz Association/TURMEPA, we have been making history for 26 years, giving our world, seas, and tomorrows a new chance, combating pollution at seas with an army of environmentally conscious volunteers, sea lovers, and supporters of blue, committed to leaving bluer seas for future generations. We regard very highly the sustainability, longevity, and permanency of every project we carry out.

It is exactly with this in mind, in collaboration with Tüpraş, Turkey's largest company and one of the world's largest energy companies, we have been fighting hard to give back to nature what we have been taking for five years. Continuing our precious partnership for many years to protect our country's heavenly bays and coves, we are committed to leaving our blue motherland to future generations. As a leading global energy brand, Tüpraş is a paragon of responsibility with its stance on environment and sustainability and prioritization of social responsibility projects. We are happy and proud that we work together to seek solutions to environmental problems.

Tüpraş has been sponsoring our association for five years to keep Göcek coves clean. They also support DenizTemiz Association/TURMEPA in every activity, from education to awareness, from coastal cleaning

to communication. The Ministry of Environment and Urbanization continued to support the expansion of the Zero Waste Blue Project, a nationwide mobilization launched in 2019.

Our waste collection vessel DTO Fethiye, sponsored by Tüpraş, served thousands of vessels in five years and collected 2.5 million liters of waste. This way, 20 million liters of seawater was kept clean. This service prevents effluents from yachts and touristic boats from polluting the sea, thereby preserving marine life and maintaining biodiversity. As we always say, our seas provide one of the two breaths we take. Scientific research shows that our seas produce 50 to 70 percent of the oxygen we use. Thus, Tüpraş's support for keeping Göcek Bay clean is vital for preserving and nurturing life both at sea and on land.

I want to thank the whole Tüpraş family for their great support for TURMEPA. I believe that our blue journey with Tüpraş will last many years.

Semiha Öztürk
General Manager, DenizTemiz Association/
TURMEPA



LOCAL COMMUNITY DEVELOPMENT

Batman Accessible Sports Club

Since the 2007–2008 season, Tüpraş has continued to support the Batman Accessible Sports Club Association. Batman Accessible Sports Club was promoted to the Turkish Primary League for Wheelchair Basketball in the 2019–2020 season. **The club has 46 athletes and continues to play in the league with 21 athletes. For 13 years, the club has provided hundreds of young people with disabilities a chance to compete in sports.**

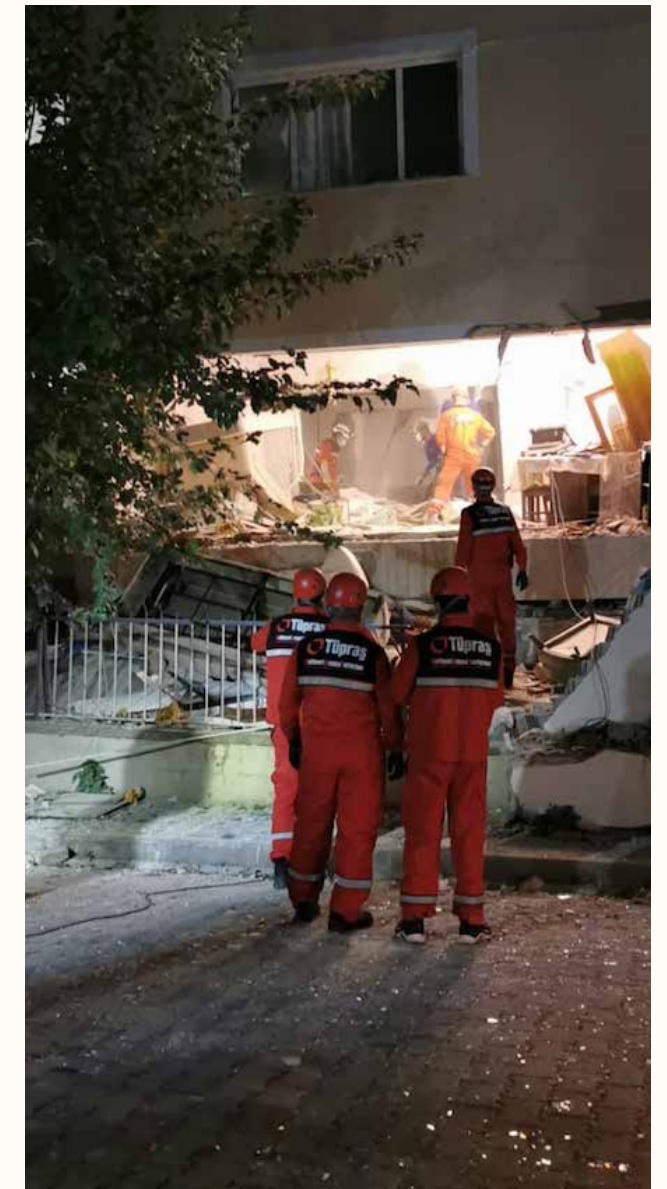
Batman Tüpraşspor Football Club

Established in 1995, the Tüpraşspor Soccer Club offers a platform for talented young people living near the Batman Refinery to improve through sports in a healthy environment.

Managed by Tüpraş volunteers in collaboration with the Provincial Directorate of Youth and Sports, Batman Amateur Sports Clubs Federation, Turkish Football Federation, and other clubs, the **Tüpraşspor Soccer Club has 97 athletes (65 licensed, 32 non-licensed) aged 13–19.**

Tüpraş Search and Rescue Teams

In the wake of the Izmir earthquake in October 2020, the Tüpraş Izmir Refinery Search and Rescue (SAR) Team quickly deployed to the area. Taking charge of the SAR activities in the earthquake zone at Barış Sitesi in the Bayraklı region, the SAR Team continued to work 24 hours in shifts for two days. With their selfless devotion and unyielding rigorous effort, the team became a beacon of hope at the earthquake region in Izmir, the heart of the Turkish disaster emergency response.



PERFORMANCE DATA

OPERATIONAL PERFORMANCE	2008	2016	2017	2018	2019	2020
Processed Crude Oil (thousand tons)	24,208	28,348	28,502	24,540	27,238	22,583
Production (thousand tons)	22,780	27,928	28,883	25,695	28,112	23,389
Sales (thousand tons)	25,957	30,255	31,493	29,830	29,197	24,504
Exports (thousand tons)	6,112	5,491	5,804	4,191	6,807	4,356
Transit Sales (thousand tons)	-	-	-	-	-	316
Imports (thousand tons)	2,931	3,749	4,388	6,252	2,827	2,927
White Products (%)	68.6	76.6	76.3	77.4	79.0	81.5
Crude Oil Capacity Utilization (%)	86.0	100.9	101.4	87.3	90.8	75.3
Semi-Finished Product Capacity Utilization (%)	-	105.3	108.1	95.9	97.8	81.8

ECONOMIC AND ADMINISTRATIVE PERFORMANCE	2008	2016	2017	2018	2019	2020
Net Sales (million USD)	23,353	11,547	14,801	18,349	15,804	9,034
Operating Profit (million USD)	984	781	1,333	1,189	393	-88
Profit Before Tax (million USD)	421	644	1,227	772	-55	-542
Profit After Tax (million USD)	331	594	1,046	769	93	-356
EBITDA (million USD)	1,099	1,125	1,614	1,846	712	78
Net Debt (million USD)	215	1,729	1,657	2,275	1,418	1,283
Return on Equity (RoE) (%)	11.0	21.9	41.3	36.8	4.6	-20.4
Net Debt-to-EBITDA Ratio (%)	0.20	1.8	1.1	1.3	2.1	17.3
Net Working Capital (million USD)	202	405	786	1,336	-253	-81
Investment Expenditures (million USD)	395	213	184	138	157	113
Earnings Per Share (TL)	1.73	7.16	15.22	14.83	2.10	-9.96
Gross Dividend per Share (TL)	2.31	6.22	13.60	15.15	-	-
Net Dividend per Share (TL)	1.97	5.29	11.56	12.88	-	-
Taxes Payable and Other Fiscal Liabilities (million TL)	19,975	37,548	42,430	31,590	31,262	35,673
Corporate Governance Rating Score	8.20	9.42	9.47	9.48	9.50	9.58
Fitch Ratings Foreign-Currency Issuer Default Rating (IDR)	BB	BBB- (negative)	BBB- (stable)	BB+ (negative)	BB- (stable)	B+ (negative)
Moody's Ratings Foreign-Currency Issuer Default Rating (IDR)	-	Ba1 (stable)	Ba1 (positive)	Ba2 (negative)	B1 (negative)	B2 (negative)
Supply Operations (million TL)	164	1,921	1,692	1,911	2,017	2,024
Domestic	64	1,200	1,217	1,164	1,608	1,791
Custom Orders	27	5	4	13	14	10
Foreign	73	716	471	734	395	224
Local Procurement Rate (%)	55.49	62.72	72.16	61.60	80.43	88.90
Total Number of Indirect Products and Service Suppliers	8,758	2,266	2,120	2,164	2,060	1,920
R&D Expenditures (million TL)	-	40.7	33.7	37.8	43.5	43.4

ENVIRONMENTAL PERFORMANCE	2008	2016	2017	2018	2019	2020
Direct Energy Consumption (TJ)	76,432	101,639	104,749	91,752	96,528	86,613
Natural Gas	18,053	39,085	47,306	45,342	51,039	43,842
Fuel Oil	34,138	15,487	8,581	3,481	2,292	3,433
Fuel Gas	21,231	44,265	46,164	40,562	41,028	37,808
Coke	3,010	2,802	2,698	2,367	2,169	1,530
Indirect Energy Consumption – Electricity (TJ)	221	518	315	172	32	-179
Total Energy Consumption (TJ)	76,653	102,156	105,064	91,924	96,560	86,434
Change in Energy Consumption (%)	-	12.51	2.85	-12.51	5.04	-10.49
Energy Consumption Per Processed Crude Oil (GJ/ton)	3.17	3.60	3.69	3.75	3.55	3.83
Energy Intensity	119.10	103.40	102.22	99.10	98.44	99.10
Number of Energy Efficiency Projects	36	18	15	21	24	30
Additional Energy Efficient Annual Savings (TJ)	978	1,054	830	3,620	473	713
Energy Efficiency Savings (million USD)	41.8	9.1	4.9	36.0	3.8	4.3
Reduction in Greenhouse Gas Emissions from Energy Efficiency Projects (Ton CO ₂ e)	106,870	77,666	45,945	243,666	26,292	39,608
Total Raw Water Consumption (million m³)	-	17.5	15.7	18.2	18.0	18.6
Total Water Consumption (million m³)	25	31.2	31.4	29.9	29.6	23.8
Surface Water	-	16.3	14.4	17.2	17.2	17.8
Mains	-	1.2	1.2	1.1	0.8	0.7
Treated Effluents from Körfez Municipality	-	13.8	15.7	11.7	11.6	5.2
Raw Water Usage Ratio Per Processed Crude Oil (m³ /Ton)	1.10	0.62	0.55	0.74	0.66	0.82
Total Water Recovery (million m³)	12	20.0	25.7	20.8	20.6	15.1
Total Water Recovery Ratio (%)	50.1	64.1	81.9	69.5	69.6	63.6
Total Waste Water Discharge (million m³)	10	17.1	14.9	14.3	15.5	11.0
Total Solid Waste Amount (ton)	35,588	41,506	31,392	32,646	34,433	20,372
Hazardous Waste Amount (ton)	29,168	30,971	17,811	23,617	22,144	17,224
Non-Hazardous Waste Amount (ton)	6,420	10,534	13,581	9,029	12,290	3,148
Solid Wastes by Disposal Method						
Recycling (ton)	20,671	27,746	22,618	28,934	23,947	11,978
Disposal (ton)	14,917	13,759	8,774	3,712	10,486	8,394
Solid Waste Recovery Ratio (%)	58.0	66.8	72.1	88.6	69.5	58.8
Planted Saplings for Forestation (pcs)	-	600	400	920	200	46
Amount of CO ₂ Emissions Removed by Forestation (ton CO ₂ e)	-	200	165	380	83	19
Environmental Investments (million TL)	202	346	390	150	268	238
Environmental Training (person hour)	-	17,331	16,012	10,391	14,127	7,020
Tüpraş Employees	-	4,310	4,010	4,168	4,200	2,502
Contractor Employees	-	13,021	11,971	6,223	9,927	4,518
Community	-	-	31	-	-	-

SOCIAL PERFORMANCE	2008	2016	2017	2018	2019	2020
Total Amount of Training (person hour)	251,121	284,878	233,034	384,405	238,168	93,244
Women	-	21,827	35,601	34,968	40,919	19,017
Men	-	263,051	197,434	349,437	197,249	74,227
Salaried	77,090	68,836	103,864	103,165	125,107	54,171
Hourly	174,031	216,042	129,170	281,241	113,061	39,073
Total Training (average hours of training per person)	58	59	45	70	44	17
Women	-	55	79	70	80	36
Men	-	59	42	71	40	15
Salaried	96	65	91	82	98	42
Hourly	49	57	32	67	27	10
Total Hours of OHS Training (person hour)	46,708	135,951	141,729	165,038	201,813	194,671
Tüpraş Employees	-	85,609	83,381	87,805	108,026	125,855
Business Partner Employees	-	50,342	58,348	77,233	93,787	68,816
Accident Frequency (Number of Accidents x 1,000,000/person hour) – 2 days	-	2.9	3.7	4.8	4.2	3.5
Accident Severity (lost workdays x 1,000,000/person hour) – 2 days	-	365.0	1,135.0	300.0	56.8	328.0
Tüpraş – LTI Frequency – OSHA (LTI Frequency = LTI Number of Incidents x 1,000,000/person hour)	-	0.47	0.71	0.69	0.70	0.46
Tüpraş – LTI Severity – OSHA (LTI Severity = LTI lost workdays x 1,000,000/person hour)	-	47.57	36.06	27.75	25.79	18.92
Ditaş* – LTI Frequency – OSHA (LTI Frequency = LTI Number of Incidents x 1,000,000/person hour)	-			3.12	2.68	1.04
Ditaş* – LTI Severity – OSHA (LTI Severity = LTI lost workdays x 1,000,000/person hour)	-			31.8	23.2	24
Körfez Transport** – LTI Frequency – OSHA (LTI Frequency = LTI Number of Incidents x 200,000/person hour)	-			0	0.82	0.75
Körfez Transport** – LTI Severity – OSHA (LTI Severity = LTI lost workdays x 200,000/person hour)	-			0	12.35	11.23
Number of Fatal Accidents	-	1	1	1	0	1
Employee Engagement (%)	57.0	53.0	61.0	57.2	35.8	61.0
Customer Satisfaction (%)	86.2	89.0	88.2	88.8	88.0	87.0
Supplier Satisfaction (%)	97.1	88.8	86.9	88.1	86.5	84.7
Contractor Satisfaction (%)	-	84.8	78.1	80.6	79.2	83.7
Pension Fund Liabilities (million TL)	4.9	77.4	89.0	103.9	122.0	136.59
Donations and Sponsorships (million TL)	13.67	24.4	30.0	40.1	3.6	22.7
Total Number of Interns	1,485	935	1,063	1,020	724	430
Minimum Starting Salary or Wages to Minimum Wage Ratio						
Hourly	2.6	2.0	2.2	2.2	1.9	1.9
Salaried	3.8	3.3	3.3	3.2	3.0	3.0

* Ditaş Deniz İşletmeciliği ve Tankerciliği A.Ş. (Ditaş) is a subsidiary of Tüpraş.

** Körfez Transport is an affiliate of Tüpraş.

EMPLOYEE DEMOGRAPHICS	2017	2018	2019	2020
Total Headcount	5,185	5,458	5,442	5,354
Women	453	500	510	515
Men	4,732	4,958	4,932	4,839
Contractor Employees	584	630	650	630
Women	184	198	213	214
Men	400	432	437	416
Number of Employees by Contract Type				
Employees on Indefinite Contract	5,182	5,454	5,437	5,352
Women	453	498	508	514
Men	4,729	4,956	4,929	4,838
Employees on Temporary Contract	3	4	5	2
Women	0	2	2	1
Men	3	2	3	1
Employees by Category				
Hourly	4,042	4,199	4,158	4,077
Women	136	142	146	142
Men	3,906	4,057	4,012	3,935
Salaried	1,143	1,259	1,284	1,277
Women	317	358	364	373
Men	826	901	920	904
Employees by Employment Type				
Full Time	5,185	5,455	5,438	5,354
Women	453	498	508	515
Men	4,732	4,957	4,930	4,839
Part Time	0	3	4	0
Women	0	2	2	0
Men	0	1	2	0
Employees by Age Group				
Under 30	1,633	1,784	1,632	1,288
Between 30 – 50	3,036	3,201	3,400	3,686
Over 50	516	473	410	380
Senior Management				
By Gender	30	32	31	28
Women	1	1	0	0
Men	29	31	31	28
Middle Management				
By Gender	178	185	193	218
Women	29	36	38	43
Men	149	149	155	175
New Hires				
By Gender	533	587	268	90
Women	62	86	62	36
Men	471	501	206	54
Resignations				
By Gender	327	314	284	175
Women	21	39	52	32
Men	306	275	232	143
Employment under Collective Labor Agreements	4,042	4,199	4,158	4,077
Number of Employees on Child Leave	20	22	30	32
Number of Employees Returned to Work After Child Leave	26	19	19	22

AWARDS AND ACHIEVEMENTS



Turkey's Largest Company

When companies in Turkey are ranked by size,

Tüpraş is **Number 1** (ISO 500, Capital 500, Fortune 500)



Export Champion

According to the Turkish Exporters Assembly (TIM) study, Tüpraş ranks **Number 1** in the chemical materials and products sector and **Number 3** in the overall industry classification.



In Digitalization An Industry Pioneer

Received the Digitalization Award in the energy and oil industry category within the scope of the “digitalization” theme of the Platinum Global 100 Index.



Horizon 2020's Most Successful Turkish Industrial Enterprise

Received support of €7.38 million for 16 R&D projects in the Horizon 2020 Program.



Sustainable Business Awards

Number 1 in the Waste Management category with Izmit Refinery's “Industrial Symbiotic Applications” project.



Achievement In Energy Efficiency

Projects aligning with Tüpraş's energy efficiency strategy, Kırıkkale Refinery's “Energy Optimization Works” project received the **Second Prize** and Izmit Refinery's “Hydroprocess Units Operational Energy Optimization” project received the Special Jury Award in the Industrial Energy Efficiency (SENER) competition.



Shared Tomorrows Are Possible Together Awards

The social responsibility project, “Our Energy for the Future: I Code, I Model, I Produce,” received the “Possible Together” award, and the “Smart Baret” project received the “Digitalization” award in the “Shared Tomorrows Are Possible Together” competition of the Confederation of Employer Unions of Turkey.

ATTACHMENTS

ANNEX-1: UN GLOBAL COMPACT (UNGC) PROGRESS REPORT

UN Global Compact (UNGC) Progress Report		
Principles		Related Heading
HUMAN RIGHTS	Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights.	Talent Management Supply Chain Management Tüpraş Code of Ethics and Business Conduct and its Implementation Principles
	Principle 2: Businesses should make sure that they are not complicit in human rights abuses.	Business Ethics and Anti-Corruption Supply Chain Management Tüpraş Code of Ethics and Business Conduct and its Implementation Principles
WORKING STANDARDS	Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	Employee Rights Supply Chain Management
	Principle 4: Businesses should uphold the elimination of all forms of forced and compulsory labor.	Employee Rights Supply Chain Management
	Principle 5: Businesses should uphold the effective abolition of child labour.	Employee Rights Supply Chain Management
	Principle 6: Businesses should uphold the elimination of discrimination in respect of employment and occupation.	Employee Rights Diversity and Equal Opportunity Supply Chain Management Tüpraş Code of Ethics and Business Conduct and its Implementation Principles
ENVIRONMENT	Principle 7: Businesses should support a precautionary approach to environmental challenges.	Responsible Production Responsible Value Chain Management
	Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility.	Responsible Production Responsible Value Chain Management Environment Memberships and Supported Enterprises
	Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies.	Responsible Production Responsible Value Chain Management
	Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.	Business Ethics and Anti-Corruption Supply Chain Management Tüpraş Code of Ethics and Business Conduct and its Implementation Principles Tüpraş Anti-Corruption Policy

ANNEX-2: GRI CONTENT INDEX



The content of the report has been developed in accordance with the GRI Standards Basic option requirements. We have received confirmation that the general reports from GRI standards 102–40 through GRI standards 102–49 were accurately reflected in the report under the “Materiality Disclosures Service” provided by the GRI. This service was provided using the Turkish version of the report.

GRI STANDARD	NOTIFICATIONS	RELATED TITLE or DESCRIPTION	PAGE NUMBER
GRI 101: Foundation 2016			
General Disclosures			
GRI 102: General Disclosures 2016	Corporate Profile		
	102-1	About the Report	4 – 5
	102-2	Tüpraş Products	https://www.tupras.com.tr/en/products
	102-3	Contact	133
	102-4	Contact	133
		Tüpraş Refineries	https://www.tupras.com.tr/en/rafineries
	102-5	2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (p. 141)
	102-6	2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 76-77)
	102-7	Performance Data	118-121
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 12-13, 66, 74)
	102-8	Performance Data	121
	102-9	Responsible Value Chain Management	98-101
	102-10	Tüpraş Material Event Disclosures	https://tupras.com.tr/en/material-disclosures?q=2016
	102-11	Risk Management	33 – 36
		Internal Audit and Control	36
		Sustainability Management	40 – 41
		Disaster and Emergency Management	63
		Responsible Production	66 – 67

GRI 102: General Disclosures 2016	102-12	Sustainability Journey	20-21
		Sustainability Management	40-41
		Memberships and Supported Enterprises	43
	102-13	Memberships and Supported Enterprises	43
	Strategy		
	102-14	Message From the General Manager	8-11
	102-15	Message From the General Manager	8-11
		Corporate Governance	32
		Risk Management	33-35
		Sustainability Management	40-41
		Sustainability Priorities	41
		Tüpraş 2021 Targets and 2030 UN Sustainable Development Goals	14-19
	Ethics and Integrity		
	102-16	Tüpraş Vision, Mission and Values	https://www.tupras.com.tr/en/vision-mission-values
		Business Ethics and Anti-Corruption	36-37
		Tüpraş Code of Ethics and Business Conduct and its Implementation Principles	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/Code_of_Ethics.pdf
	102-17	Business Ethics and Anti-Corruption	36-37
		Tüpraş Code of Ethics and Business Conduct and its Implementation Principles	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/Code_of_Ethics.pdf
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 150, 166, 171)
	Governance		
	102-18	Corporate Governance	32
		Sustainability Management	40
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (p. 150)

GRI 102: General Disclosures 2016	102-19	Corporate Governance	32
		Business Ethics and Anti-Corruption	36-37
		Sustainability Management	40
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 150-151)
	102-20	Corporate Governance	32
		Sustainability Management	40
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 150-151)
	102-21	Sustainability Management	40
		Sustainability Priorities	41
		Stakeholder Engagement	42
	102-22	2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 22-27, 146-147, 150)
	102-23	Corporate Governance	32
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 22-23, 40-41, 146-147)
	102-26	Corporate Governance	32
		Sustainability Management	40
		Tüpraş 2021 Targets and 2030 UN Sustainable Development Goals	14-19
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 152-153, 166-171)

GRI 102: General Disclosures 2016	102–27	Sustainability Management	40
		Sustainability Priorities	41
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 152–153, 166–171)
	102–29	Corporate Governance	32
		Business Ethics and Anti-Corruption	36–37
		Sustainability Management	40
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 166–171)
	102–30	Risk Management	32–35
	102–31	2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 166–171)
	102–32	Sustainability Management	40
		Sustainability Priorities	41
	102–33	Sustainability Management	40
		Sustainability Priorities	41
		Stakeholder Engagement	42
		Memberships and Supported Enterprises	43
	102–35	Tüpraş Remuneration Policy	https://www.tupras.com.tr/Remuneration-Policy
	102–36	Performance Management	53–54
		Tüpraş Remuneration Policy	https://www.tupras.com.tr/Remuneration-Policy
	102–38	2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 203, 224–226, 237)
	Stakeholder Engagement		
	102–40	Stakeholder Engagement	42
		Memberships and Supported Enterprises	43
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	102–42	Stakeholder Engagement	42
	102–43	Sustainability Priorities	41
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	102–44	Sustainability Management	40
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	102–45	About the Report	4–5
		2020 Annual Report	https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/Tupras_2020_annual_report.pdf (pp. 141, 189-190)
	102–46	About the Report	4–5
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	102–47	Sustainability Management	40
		Sustainability Priorities	41
	102–48	No new revisions.	128
	102–49	Sustainability Priorities	41
	102–50	About the Report	4–5
	102–51	2019 Sustainability Report (January 1, 2019 – December 31, 2019)	128
	102–52	Annual	128
	102–53	Contact	133
	102–54	About the Report	4–5
	102–55	GRI Content Index	125
	102–56	No external security services received.	128

GRI 200: Economic			
Indirect Economic ImpactS			
GRI 103: Management Approach 2016	103–1	Sustainability Management	40
		Sustainability Priorities	41
		R&D, Innovation, and Digital Transformation	78–95
	103–2	R&D, Innovation, and Digital Transformation	78–95
GRI 203: Indirect Economic Impact 2016	103–3	R&D, Innovation, and Digital Transformation	78–95
	203-1	R&D, Innovation, and Digital Transformation	78–95
	203-2	R&D, Innovation, and Digital Transformation	78–95
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GRI 103: Management Approach 2016	103–1	Business Ethics and Anti-Corruption	36–37
		Tüpraş Anti-Bribery and Anti-Corruption Policy	https://www.tupras.com.tr/anti-corruption-policy
	103–2	Business Ethics and Anti-Corruption	36–37
		Tüpraş Anti-Bribery and Anti-Corruption Policy	https://www.tupras.com.tr/anti-corruption-policy
GRI 103: Management Approach 2016	103–3	Business Ethics and Anti-Corruption	36–37
		Tüpraş Anti-Bribery and Anti-Corruption Policy	https://www.tupras.com.tr/anti-corruption-policy
GRI 205: Anti-Corruption 2016	205–1	Business Ethics and Anti-Corruption	36–37
	205–2	Business Ethics and Anti-Corruption	36–37
	205–3	Business Ethics and Anti-Corruption	36–37

GRI 300: Environmental			
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GRI 103: Management Approach 2016	103-1	Sustainability Management	40
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GRI 301: Materials 2016	301-1	Tüpraş at a Glance	12-13
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GRI 103: Management Approach 2016	103-1	Sustainability Management	40
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		Responsible Production	66-73
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		Performance Data	119
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		Performance Data	119
	302-4	Energy Management	69-70
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GRI 103: Management Approach 2016	103-1	Sustainability Management	40
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		Responsible Production	66-73
	103-2	Responsible Production	66-73
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		Performance Data	119
GRI 303: Water and Waste Water 2018	303-3	Water Management	70-71
		Performance Data	119
	303-4	Water Management	70-71
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GRI 103: Management Approach 2016	103-1	Sustainability Management	40
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GRI 305: Emissions 2016	305-5	Tüpraş Climate Vision	68
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	103-3	Responsible Production	66-73
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GRI 306: Waste 2020	306-3	Waste Management	72-73
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GRI 103: Management Approach 2016	103-1	Sustainability Management	40
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GRI 307: Environmental Compliance 2016	307-1	Environmental Management	66-67
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		Performance Data	121
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GRI 404: Training and Education 2016	404–1	Employee Development	51–52
		Performance Data	120
	404–2	Employee Development	51–52
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Diversity and Equal Opportunity			
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		Performance Data	120–121
GRI 405: Diversity and Equal Opportunity 2016	405–1	Corporate Governance	32
		Performance Data	121
	405–2	Remuneration is based on performance and no gender-based discrimination is made in remuneration.	132
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GRI 103: Management Approach 2016	103–1	Sustainability Management	40
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		Talent Management	47–63
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		Inclusion, Equality, Diversity	112–113
	103–3	Talent Management	47–63
		Inclusion, Equality, Diversity	112–113
GRI 406: Non-Discrimination 2016	406–1	No such case has taken place.	132

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