



Sustainability
Report

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ABOUT THE REPORT

Turkey's largest industrial enterprise Tüpraş holds a leader position in Turkish economy not only through the economic added value it generates, but with the pioneering practices it performs.

As of 2019, besides reporting practices, our works, which we systematically manage by evaluating sustainability as a management element, leave the eleventh year behind and we present the social, economic and environmental impacts of our activities and the results we have obtained from our efforts in these areas to our stakeholders.

This report has been prepared in accordance with the GRI Standards: "Core" option. The preliminary aspects that form the basis of the report content were obtained as a result of processes carried out in accordance with the reporting principles specified in the GRI Standards. While making the explanations in the content of the report, the requirements of the UN Global Compact Progress Report were taken into consideration as well as the "subject" and "explanations" in the GRI Standards. In addition, performance indicators accepted throughout the sector are included in the report.

The information contained in the report covers refining activities carried out in Turkey by Tüpraş on January 1, 2019 - December 31, 2019. In order to reflect the corporate integrity, general introductory information about Tüpraş 's subsidiaries Opet Petrolcülük A.Ş. and Ditaş are also included in the report. In accordance with the financial reporting principles followed, financial data of subsidiaries are included in Tüpraş performance figures.

You can access the PDF version of the report and previous reports at www.tupras.com.tr.

Message from the General Manager

Dear Stakeholders,

The importance of the issues such as responsible consumption, economic inequality, climate change, digitalization and innovation is increasing day by day. The pandemic, which has shaken the world for a while, reminds us that we need to put the sustainability perspective, which is the solution of all these problems, on our agenda, both institutionally and individually.

Despite this challenging period in the world, we continue to ceaselessly meet the energy needs of our country with our sustainability-based production policies and corporate responsibility approach.

We put the United Nations Sustainable Development Goals at the center of our sustainability understanding that we have been developing since 2008. While continuing our activities continuously, we integrate sustainability into all our processes, from our supply chain to our after-sales operations.

We continue without interruption to train the qualified workforce of the future and to develop a safe working environment for our employees, that are an important part of this process and that we always regard as our most valuable capital. We keep human and occupational safety at the center of all our processes in the production journey we continue with the priority of "My Safety is My Future".

At the same time, we have been a supporter and follower of creating an egalitarian and inclusive business environment for many years in a male-dominated sector such as refining. In line with our practices that support this approach in 2019, we included female field operators and technicians for the first time in our country's refinery industry.

We aim to be an exemplary company in our industry with efficiency-oriented and innovative practices in both our production processes and products, acting with a responsible manufacturer awareness. Within this framework, we made environmental management and investment expenditures amounting to 268 million TL in 2019.

We continued to apply the most advanced technologies and programs related to energy saving during our reporting period. As a result of our energy saving projects and modernization efforts, we reduced our energy intensity index from 99.1 in 2018 to 98.4 in 2019.

In our refineries, we protect water resources with practices that reduce water consumption and reuse wastewater in processes, and work to reduce the negative impact on the biodiversity value of the natural receiving environment.

While the coverage ratio from the recovery of water requirement was 41%, we reduced water consumption per processed crude oil to 0.6 m³ / ton.

In terms of waste management, we primarily aim to reduce the amount of waste, recycle the generated wastes at their source and contribute to the circular economy.

We holistically manage digital transformation, R&D, in-house entrepreneurship and open innovation strategies. In this context, we continue to make a difference by focusing on developing environmentally friendly products and production technologies. In 2019, we transferred a total of 43.5 million TL to R&D studies.

With our projects supported by the European Union, Horizon 2020, we concentrate on focus areas such as waste management, energy and carbon capture, and develop efficient technologies. Our R&D Center has earned us the pride of being the most successful industrial institution of our country in this field by gaining a total of 6.02 million euros support with the 12 European Horizon 2020 projects it has implemented.

Within the scope of our innovation studies, we continue to provide added value by evaluating new technologies and business models that are developing in the world, creating a field of application for these innovations in our operations.

We have built our strategy and implementation steps in the field of digital transformation on developing technologies that support refinery processes and production, and do not compromise on safety and cyber security. In this context, we concentrated on the works in our focus areas as "Digitalization", "Data Analytics in Industry 4.0 Applications and "Optimization" and "Production and Field Activities". While making the data-based decision-making discipline an indispensable element of our working culture, we implement Industry 4.0 pioneering applications.

We are working to improve the environmental and social impacts of our supply chain and logistics operations, which are an important component of our value chain. We ensure the sustainability of our operations through regular evaluation, inspection and communication. We continued to contribute to the economy with the local purchasing rate reaching 80% in 2019. In line with the International Maritime Organization's (IMO) rule of sulfur in marine fuels of less than 0.5%, we invested in scrubbers in our 3 tankers. We have reached an agreement for Turkey's first hybrid locomotives.

In addition to the responsibility we undertake to meet Turkey's energy needs, we are carrying out projects to support the social development with an awareness to be a corporate citizen. In this regard, with an aim to increase the access of new generations to technology, we have implemented the project "Our Energy to future; I code, I model, I manufacture" in cooperation with the Ministry of National Education. Our project was chosen among many successful works and received the Koç Holding Award for My Country.

We continue our collaboration with the United Nations Women's (UN Women) HeForShe movement and Fenerbahçe Sports Club, with the aim of raising awareness in the field of gender equality, saying "Our Energy for Equality is not over."

In line with our sustainability approach, which we adopt as our business model, we will continue to work with all our energy to leave a more livable world for future generations. I would like to extend my thanks to all our stakeholders, especially our employees, suppliers and business partners who supported us on our sustainability journey and contributed to reaching our goals.

İbrahim Yelmenoğlu

2019 TÜPRAŞ IN FIGURES

Crude Oil Supply

26.8

Million Tons

DiTAŞ

3 Crude Oil Tankers:

479,765 DWT

1 Crude Oil/Product Tanker:

51.532 DWT

10 Product Tankers:

171.453 DWT

3 Product Tankers on Bareboat Rent:

46.031 DWT

12 Tugboats, **7** Mooring Boats,

2 Service Boats, **1** Pilot Boat

Tüpraş owns **79.98%** of Ditaş shares.

Refining Capacity:

30 Million tons/year

Average Nelson Complexity:

9.5

Processed Crude Oil

27.2 million tons

Production

28.1 million tons

KÖRFEZ ULAŞTIRMA A.Ş.

Number of Wagons:

439 (Tüpraş), **26** (Opet) Number of Locomotives:

5 (TCDD-leased), **5** (Tüpraş)

Tüpraş owns

100 % of Körfez Ulaştırma A.Ş. shares.

Total Storage Capacity:

8.1 Million m³

Opet Terminals:

1.1 million m³

Tüpraş Terminals:

7 million m³

OPET

Tüpraş owns **40** % of Opet shares.

Fuel Station:

1,670

Storage Capacity:

1.1 million m³

Opet conducts trading and storage of mineral oil, banker fuel, jet fuel.

OUR ACHIEVEMENTS SINCE 2008...

ECONOMIC IMPACTS

335.6

Billion TL Tax Payment Realized

+1.5

Corporate Governance
Rating Note Increased

11.5*

Billion TL Supply Operation

% 66

We provided from Local Suppliers

*Crude oil and petroleum byproduct/product supply are excluded.

281.5

Million Tons Crude Oil Processed

279.5

Million Tons Total Production

315

Million Tons Product Sales

329.5

Million TL R&D Expenditure Realized

SOCIAL IMPACTS

76.5%

Number of Female
Employees Increased

14.378

Students Received Internship

2.9

Million PersonxHour Training

1.2

Million PersonxHour OHS
Trainings Conducted

208.7

Million TL Donation and Sponsorship Realized

ENVIRONMENTAL IMPACTS

98.4



Energy Intensity Index Achieved

160,200



Saplings,

60.083



Tons/Year GHG Reduction Achieved
by Planting

11.5%



Solid Waste Recovery Rate
Increased

2.6



Billion TL Environmental
Expenditure
and Investment Realized

503



Through
Energy Efficiency Projects, We
Achieved

%45,5



Crude Water Use Ratio per
Processed Crude Oil

Reduced

7.3%



Increased Rate of Fresh Water Use
per Crude Oil Processed

34,953



TJEnergy Saving,

2.4



Million Tons CO₂e GHG


Reduction

TÜPRAŞ 2020 TARGETS AND 2030 UN SUSTAINABLE DEVELOPMENT GOALS




Since 2008, Tüpraş has been regularly sharing its environmental, social and governance performance and practices with its stakeholders every year.

Tüpraş considers sustainability as a management factor and prioritizes it in all our activities from investment decisions to work methods. In this regard, Tüpraş considers Sustainable Development Goals as an important guide for generating creative solutions to global problems. In line with its business goals and sustainability strategy, it carries out studies to determine the areas where it will contribute to these goals. With this step, which we have taken in line with our transparency and accountability principles, we plan to enable our stakeholders to follow the performance of our sustainability practices with concrete targets, thereby realizing more responsible and effective reporting practices.

GOVERNANCE APPROACH

SDG	2019 Targets	Realized in 2019	2020 Targets
	Protection of Women's Representation in Senior and Mid-Level Management	17% Women's Representation in Senior and Mid-Level Management 18% Women's Representation in the Board of Directors	17% Protection of Women's Representation in Senior and Mid-Level Management
	Dissemination of Business Ethics Principles within the institution through Tüpraş Code of Ethics and Implementation Principles Guide	The dissemination of Tüpraş Code of Ethics and Implementation Principles Guide continued.	Organizing Ethics Training for Employees
	Continue to be listed in BIST Sustainability Index	Continued to be listed in BIST Sustainability Index.	Continue to be listed in BIST Sustainability Index
	Carrying out Works with the Concept of Creating Sustainable Value and Continuous Improvement	Kalder EFQM Excellence Management Model at the General Directorate and Izmit Refinery was increased to 5-star Competency Level.	Building a Company Value Creation Model in Parallel to UN Sustainable Development Goals
	Risk Management Tracking Module (SAP GRC) update studies	The Scope of Risk Management was determined, and Risk Inventory was updated.	Within the scope of the Corporate Risk Management methodology, a comprehensive assessment and analysis of risks and key risk indicators within the framework of the determined standards, thereby managing the risks and opportunities of the Company management in accordance with the risk appetite in line with company strategies.


TALENT MANAGEMENT

SDG	2019 Targets	Realized in 2019	2020 Targets
	Conducting Projects in accordance with the United Nations Women's Empowerment Principles (WEPEs)	A Fair and Inclusive Workplace Model was developed, and projects were created.	Uygulamaların Tüm Rafinerilere Yaygınlaştırılması Ve Yeni Projelerin Hayata Geçmesi Dissemination of Applications to All Refineries and Implementation of New Projects
	Implementation of Female Field Workers Project	Female field workers started working at refineries.	Evaluation of Female Field Workers Project
	Increasing Leadership Trainings	719 employees received leadership training.	Continuation of Leadership Trainings






R&D, INNOVATION AND DIGITAL TRANSFORMATION

SDG	2019 Targets	Realized in 2019	2020 Targets
	Increasing Collaborations and Number of Projects in R&D	20 International and National Project Applications	Increasing the Number of National and International Project











		3 Projects Accepted	Applications and Projects Accepted
 	Increasing the Project Number of Horizon 2020 Program	With 12 project and 6.02 Million Euros, Tüpraş became the most successful Turkish industrial enterprise in the Horizon 2020 Program.	Projects and Putting New Projects into Practice Completing the Horizon 2020 Program as the Most Successful Turkish Industrial Organization
 	To Apply for Projects in Carbon Capture and Utilization - CCU	CCU projects COZMOS and MOF4AIR were launched within the scope of Horizon 2020 Program.	Applying for Horizon2020 Projects for adding Demo-scale New Technologies into Different Refinery Fields (Izmir, Kırıkkale) in regard to CCUS (Carbon Capture, Utilization and Storage)
	55 Employees Increasing the number of Innovation Volunteers	124 Innovation Volunteers	Increasing the Number of Innovation Volunteers and Developing Special Programs
	Establishment of Internal Entrepreneurship Internal Mentor Program	Internal mentoring training and development programs were organized for selected in-house entrepreneurs.	Active Assignment of Internal Mentors in Corporate Entrepreneurship Program and Open Innovation Studies
 	Starting Open Innovation Studies	Acceleration programs were supported. Demos /POCs of domestic and overseas startups were held. Startup evaluation team was created. With KWorks İnowhatif Program, acceleration program for Tüpraş focus areas was launched.	Cooperation with International Open Innovation Programs Managing Collaborations and National and International Open Innovation Studies under One Umbrella Program
 	Getting prepared to Industry 4.0 through METU and ITU Teknokent Tüpraş Data Analysis Centers to closely monitor the developments in data analytics	A new digitalization vision has been created focusing on 4 main areas: affiliates, connected processes, connected refinery and connected field operations.	Dissemination of digital and analytical structures and increasing their use.
	Training Analysts to Work in the Field of Data Analytics	“Analytics Tüpraş” Training Program was created. Data Analytics workshops were organized.	Creating Training Content, Application Alternatives and Infrastructure Needs of Analytics Tüpraş Improving the Project Processes with Data analysts from different departments
 	Establishment of Big Data System	Big Data System Established	Dissemination of the structures that use Big Data System and increasing its use Increasing the use of Pentaho software
 	Evaluation of digital transformation studies in international platforms	The Global Lighthouse application process was tracked, where companies evaluated the maturity of Industry 4.0 in World Economic Forum (WEF).	Determination of Global Light House Application Projects





	Cyber Security Studies	<p>Operasyonel Teknolojiler (OT) konusuna çalışan özel bir ekip kurulumu, süreç ve politikaların oluşturulması ve hayata geçirilmesi sağlandı. Investments in developing technologies in cyber security continued.</p> <p>It was provided to establish a special team working on the topic of Operational Technologies (OT), to establish and implement processes and policies.</p>	Continuing Processes Uninterruptedly by Establishing On-site Wireless Networks in Refinery Process Units and Increasing the Work of Digital Processes in the OT Area
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OCCUPATIONAL HEALTH AND SAFETY








SDG	2019 Targets	Realized in 2019	2020 Targets
 	Strengthening Employees' Perception of Safety	<p>Competence Management Workshop was held and development areas were determined.</p> <p>Safety campaigns have been organized on the root causes of recurring events and the issues that stand out in field observations. Critical case studies / actions and lessons learned were shared with the employees.</p>	<p>Continuation of Safety Campaigns and Awareness Training</p> <p>Process Safety Awareness Trainings and Workshops for Tüpraş and Contractor Employees, Critical Case Studies/Actions and Continue to Share Lessons Learnt with Employees</p>
  	Developing Applications for Preventing Accidents by Pre-Assessing Risks	<p>Joint Health Security Unit Implementation studies were started for contractors. Risk analysis and health risk assessment revisions were made in the Hazard and Effects Management Process.</p> <p>The frequency and quality of field controls were increased before work permit. Process Safety external audits were conducted.</p> <p>DYS was strictly monitored for TPY – DYS integration.</p>	<p>Spread of Common Health and Safety Units to All Refineries</p> <p>Electronic Work Permit Pilot Studies</p> <p>Placement of Control of Work Systematics</p> <p>Continuation of the Process Safety Auditing and Starting Cross-Refinery Internal Audits</p>

RESPONSIBLE PRODUCTION















SDG	2019 Targets	Realized in 2019	2020 Targets
  	Establishing a Zero Waste Management System and Monitoring	Project studies initiated.	Obtaining Zero Waste Documents for the Refineries
  	Developing Cooperation with International Institutions and Platforms for Combating the Climate Change	Participation to COP25 United Nations Climate Change Conference. Global trends and new Technologies at energy sector were followed.	Following Trends and Technologies within the Energy Sector.
   	-0,64 Reduction in Energy Intensity Index (delta)	-0,5 Reduction in Energy Intensity Index (delta)	-0,85 Reduction in Energy Intensity Index (delta)
	Setting Wastewater Recovery Targets in order to Reduce Consumption of Natural	Water Risk Evaluation Methods Defined	Starting Pilot-Scale Applications of Determined Methods

 12 SORUMLU TÜKETİM VE ÜRETİM	 13 İKLİM EYLEMİ	Resources		
 12 SORUMLU TÜKETİM VE ÜRETİM	 13 İKLİM EYLEMİ	Conducting Contribution Studies to Circular Economy	With industrial symbiosis projects, wastes were evaluated as raw materials.	Continuation of Contribution to Circular Economy Projects

RESPONSIBLE VALUE CHAIN MANAGEMENT

SDG	2019 Targets	Realized in 2019	2020 Targets	
 16 BARIS VE ADALLET	 17 HEDEFLER İÇİN ORTAKLIKLAR	Continuity of Inspections of 765 Suppliers that are Audited	Within the scope of supplier audit practices, 841 firms were checked.	Continuity of Supplier Audit Practices
 12 SORUMLU TÜKETİM VE ÜRETİM		Improving Customer Portal to ensure ease of use and establishing a call center serving the customer	Ease of use and speed were provided after digitizing the Customer Portal. The Customer Website was launched, and the scope of the call center was expanded.	Designing a New Software in SAP-CRM to Manage Customer Notifications More Actively and in line with Standards, and to measure 360° Customer Experience
 13 İKLİM EYLEMİ	 17 HEDEFLER İÇİN ORTAKLIKLAR	2020 International Maritime Organization (IMO) Compliance Studies	Ditaş installed flue gas scrubbers for 3 of its tankers to comply with the 2020 International Maritime Organization rules.	Continuation of Compliance Studies and Installing Scrubber to One More Tanker
 3 SAĞLIKLI BİREYLER	 11 SÜRDÜRÜLEBİLİR ŞEHİR VE YAŞAM ALANLARI	Reducing Road Transport Rates in Domestic Product Transportation	The rate of highway was reduced to 3% among domestic product shipments, and railway shipments were increased.	Continuation of the Studies

COMMUNITY DEVELOPMENT

SDG	2019 Targets	Realized in 2019	2020 Targets		
 4 İNTELİKLİ EĞİTİM	 10 EŞİTSİZLİKLERİN AZALTILMASI	 17 HEDEFLER İÇİN ORTAKLIKLAR	Contributing to Students to Obtain Next Generation Technology and Digital Skills	Through Our Energy to the Future; I Code, Model and Produce Project, 12,000 students were reached.	Dissemination of the Project among Schools in the Operating Areas
 4 İNTELİKLİ EĞİTİM	 10 EŞİTSİZLİKLERİN AZALTILMASI	 17 HEDEFLER İÇİN ORTAKLIKLAR	Providing Students with Access to STEM (Science, Technology, Mathematics) Education	Through Our Energy to Students Project, 3,000 students were reached.	Dissemination of the Project among Schools in the Operating Areas
 5 TOPLUMSAL CİNSİYET EŞİTLİĞİ	 10 EŞİTSİZLİKLERİN AZALTILMASI	 17 HEDEFLER İÇİN ORTAKLIKLAR	Raising Awareness in the Community on Gender Equality	With the cooperation of AÇEV, gender equality trainings reached 1,068 people from Fenerbahçe Club.	Executing Projects for Employee Awareness
 11 SÜRDÜRÜLEBİLİR ŞEHİR VE YAŞAM ALANLARI	 17 HEDEFLER İÇİN ORTAKLIKLAR		Cooperation for the Protection of Culture & Art Assets	Anatolian Civilizations Book Series was prepared with YKB.	Increasing Awareness on the Protection of Culture & Art Assets in Public
 13 İKLİM EYLEMİ	 14 SAĞLIKLI YAŞAM	 17 HEDEFLER İÇİN ORTAKLIKLAR	Protection of Seas and Biodiversity in Seas	Waste was collected in cooperation with TURMEPA Marine Environment Protection Association	Increasing Awareness in Public

SUSTAINABILITY JOURNEY

2008

- Construction of the Fuel Oil Conversion Facility has started.
- OSAR- Risk Assessment Table was activated.
- First corporate responsibility report in line with GRI Reporting Guidelines was published.
- Corporate Governance Rating was updated to 8.20.

2009

- Contractor Management System was commissioned.
- Customer Relationship Management System (CRM) was initiated.

2010

- R&D Center was launched.
- Tüpraş Ethical Values were revised
- Waste Management Automation Software was commissioned.

2013

- ISO 50001: 2011 Energy Management System Standard certification was realized.
- ISO / IEC 27001: 2005 Information Security Management System Standard certification was realized.

2014

- İzmit Refinery Fuel Oil Conversion Facility was completed.
- The Company is listed in Borsa İstanbul Sustainability Index.
- R&D Center Campus was launched.

2015

- Tüpraş participated in 21st Climate Change Conference (COP21) where Paris Agreement has been concluded.

2016

- At the İzmit Refinery, the Gray Water Treatment Plant was commissioned to treat the discharge water of the İSU Körfez Wastewater Plant in the refinery and use for industrial purposes.
- Kırıkkale Refinery Wagon Repair and Maintenance Workshop has been Turkey's most comprehensive Wagon Repair and Maintenance Workshop by taking the Unit Responsible for Maintenance Certification.
- Tüpraş Supplier Portal was commissioned.
- Three projects of Tüpraş R&D Center were accepted to Ufuk2020 Multinational Research and Innovation Program with peak evaluation points.
- Within the scope of the environment and energy efficiency, EBRD granted a 150 million USD loan to Tüpraş.
- Tüpraş participated in 22nd Climate Change Conference (COP22).

2017

- Tüpraş has become Turkey's first private railway train operator through Körfez Transportation A.Ş.
- R&D Center, the first catalyst pilot plant was established.
- Tüpraş took part in the 23rd Climate Change Conference (COP23) with two presentations.
- Tüpraş signed UN Women Empowerment Principles (WEPs).
- ISO 10002 Customer Satisfaction Management System certification was realized.
- Innovation Directorate was established and the Idea Unit Portal was launched.

2018

- Corporate Governance Rating has increased to 9.48.
- UN Women, Tüpraş and Fenerbahçe Sports Club signed a global cooperation agreement to support the UN Women's HeForShe movement.
- Tüpraş has made a presentation during 24th Climate Change Conference (COP24).
- Within the scope of customer satisfaction improvement studies Tüpraş Solution Center has been founded.
- London Trade Office has been launched.
- Data Analytics Centers have been launched in METU and ITU Teknokent.
- We have been included in the Turkish Corporate Entrepreneur Platform.

2019

- Körfez Transportation received 5 new locomotives.
- Körfez Transportation has agreed to Turkey's first hybrid locomotives.
- Tüpraş became the "Most Successful Turkish Industrial Organization" of the EU R&D and Innovation Program Horizon 2020. "MOFAIR", "MACBETH", "FACTLOG" and "HYDROPTICS" projects are entitle to receive support.
- Kırıkkale Refinery New Power Plant was awarded with the Project of the Year at the 8th ICCI Energy Awards.
- Ditaş installed flue gas scrubbers for its 3 tankers to comply with the 2020 International Maritime Organization rules.
- 12,000 students received robotic coding and 3D modelling trainings within Our Energy to Future: I Code, Model, Produce Project.
- Within the scope of Our Energy to Students Project, 3,000 students were reached with 260 experiments.

SPECIAL SECTION: OUR ENERGY FOR EQUALITY IS ENDLESS

The increasing participation of women in the workforce creates a driving force in the economic development and development of countries. From this perspective, Tüpraş moves beyond sectoral habits and idea patterns and follows being an inclusive and egalitarian workplace as one of the primary issues of the sustainability strategy.

The company continued to carry out studies in the reporting period, with the motto “Our Energy for Equality is Endless”, aiming to become an inclusive, egalitarian and diverse workplace on every platform.

723

Number of Female Employees*

12%

Female Employee Rate*

80

Hours

Training Duration of Female Employees per Person

**Including subcontractors*

Tüpraş follows the subject of creating inclusive workplace conditions and creating equal opportunities as an important agenda item. In this context, the targets are to increase the number of female employees with practices aimed at preventing all kinds of discrimination in the workplace, increasing the employment at all levels, development opportunities for women, and strengthening the Professional working life of women.

As a result of these efforts, the number of female employees has increased by 76.5% since 2008, and the rate of female employees has reached 12% as of 2019. *

The company cares about having more women at management levels and supports their preparation with development programs for this. In line with its priorities in this field, within the scope of the development and leadership programs carried out in 2019; 6 female managers participated in mentorship, 2 female employees participated in coaching programs and 3,487 personxhour leadership training was held for female employees.

By signing the United Nations Women’s Empowerment Principles (WEPs) in 2017, Tüpraş announced its goal of becoming an inclusive and egalitarian workplace in the energy sector, while continuing to carry out pioneering projects that will raise awareness and trigger transformation in the society in this regard. With this approach, the company aims to contribute to the 5th “Gender Equality” of the United Nations Sustainable Development Goals.

Since 2015, Tüpraş has been supporting the United Nations Women’s ‘HeForShe’ movement, which has invited men around the world to advocate gender equality with women.

Female Field Operators and Technicians

Tüpraş, moving towards the goal of becoming an inclusive and egalitarian workplace, has employed female field workers in the refinery sites with the project it developed.

Thus, female field operators and technicians that started working at Tüpraş which aims to create difference in the refinery sector that structurally holds a smaller number of female employees, hold the title of being the first women to work in this field in Turkey.

The project, which was carried out for women to take part in the field, was first implemented in Batman Refinery, Kırıkkale Refinery and Izmit Refinery in 2019. In 2020, efforts to strengthen women's employment in the field will continue.

With the increase in women's employment, actions were taken to regulate the physical conditions in the field.

Pınar Erođlu

Batman Refinery, Technical Safety and Environment Directorate, Workplace Doctor, *Officer*

"I have been working in the Technical Safety and Environment Directorate since 2011. In my profession, which I chose with the influence of my teachers, there were some difficulties in the beginning. I overcame these difficulties by loving and working meticulously in my job. I find the support of Tüpraş for women employees very valuable."

Gülşen Dal

Batman Refinery, Production Directorate,
Operator

"I have been working as a filling operator for 9 months. The first person who encouraged me to do this job was again a woman, my mother. Although the idea of being one of the first female operators at first was a little scary, but this feeling turned into excitement over time. With the support of my managers, supervisors and colleagues who supported the project, I continue to work with love. I am working in a department that was previously consisted of all male employees. During this process, everyone is trying to adapt to each other. I believe that we will become a stronger society by working together in mutual understanding and tolerance."

“My Energy is Refinery” Refinery Mothers Mentoring Program

With the “Refinery Mothers Mentoring Program” Tüpraş supports new mothers and expectant mothers in facilitating their adaptation to postpartum work and conducting motherhood and career together. Within the framework of the program carried out with the motto “My Energy is Refinery”, experienced mothers working in Tüpraş mentor new mothers and expectant mothers. In 2019, 5 mentors and 5 mentees matched at Batman Refinery. At the Kırıkkale Refinery, 10 Tüpraş employees received mentoring training.

Suggestion Boxes for “Our Energy for Equality is Endless”

Suggestion boxes were opened in the headquarters and refineries to get suggestions for the improvement of working life as part of the 8 March International Women's Day events. In 2019, 153 suggestions were received. 72 different suggestions were examined under 4 titles, action plans were prepared and the projects started to be put into operation.

Father Support Program in Refineries

The “Father Support Program” (BADEP), which was first launched at the Batman Refinery at the end of 2018 in cooperation with AÇEV, was put into practice in 2019 in İzmit, İzmir and Kırıkkale refineries. Within the scope of the program, it is aimed that fathers or candidate fathers take responsibility in childcare and establish a democratic relationship with their children and support their development effectively. 112 Tüpraş employees attended the program, which lasted for 10 weeks.

Fatma Nur Haskılıç

Kırıkkale Refinery Assistant

Production Directorate - Filling Unit *Operator*

"I have been working as a Chemical Technician at the Assistant Production Directorate for 6 months. When I started working in the department, I had a lot of fear. However, the work environment and my colleagues have facilitated my adaptation process. While at first, suppliers thought that we were not suitable for this environment and we could not do it, as time passed, they started to be pleased with our meticulous work. The most important thing in overcoming this challenging process was patience and perseverance. We knew we could."

Gül Şen

İzmir Refinery Quality Systems Directorate

Lab technician

"As the daughter of a refining father, my biggest dream was to work in Tüpraş. I studied the Refinery and Petrochemistry. I had a little difficulty in adapting during my first job. It took me a while to get used to the heavy working environment due to the intensity of the tasks that require physical strength. By performing at the highest level, I was able to handle these intense and heavy jobs. We, as women and mothers, have the power to deal with all kinds of difficulties in our lives."



17%

Female Representation in Senior and Mid-Level Management



18%

Female Representation in the Board of Directors



9.5

Corporate Governance Rating Score

GOVERNANCE APPROACH

Tüpraş presents a fair, transparent and accountable corporate governance approach. Tüpraş Corporate Governance Model, shaped by the Corporate Governance Principles determined by the Capital Markets Board and international management norms, is constantly being developed.

CORPORATE GOVERNANCE APPROACH

Tüpraş Board of Directors consists of 11 members, 4 of whom are independent, elected by the General Assembly for certain periods of office.

There are no executive members among the members of the Board of Directors. The posts of Chairman of the Board and General Manager are held by different individuals. Corporate Governance Committee, Risk Management Committee, Audit Committee, Executive Committee and Ethics Committee serve to increase efficiency in Tüpraş Board of Directors' duties.

31 senior executives, who have proven their expertise and professional competencies in various fields, take charge in the top management of Tüpraş. The top management, headed by the General Manager, is responsible for the implementation of the strategic plans and corporate policies created by the Board of Directors.

In Tüpraş that supports the participation of female employees at all levels of business life, 2 of Tüpraş's Board members are women.

In addition,

38

female managers work in mid-level and senior management.

RISK MANAGEMENT

Corporate Risk Management and Existing Committees

The Corporate Risk Management process will protect the existing values of the Company, create new values for stakeholders, manage risks and opportunities, transfer the risks that can be transferred through the insurance channel, and evaluate the risks that are defined in all functions in accordance with the risk appetite managed by the Board of Directors and the Company's Senior Management. It has been developed to enable communication between processes.

Tüpraş strengthens its corporate culture and establishes necessary committees by creating statements and policies within the framework of its commitment to Corporate Governance Principles and Ethical Values.

A. Early Detection of Risk Committee

In order to ensure compliance with the Corporate Governance Communique of the Capital Markets Board and the effective functioning of the committees with the 378th article of the Turkish Commercial Code no. 6102, which came into force on July 1st, 2012 with the decision taken at Tüpraş's Board meeting dated July 28th, 2010, the Early Detection of Risk Management Committee was established in order to carry out works for early identification of risks that may endanger the existence, development and continuation of the Company, to implement the necessary measures related to the identified risks, and to manage the risk.

B. Risk Tracking Committee

The Risk Tracking Committee is a committee that reports to the Corporate Risk Management practices and reports to the General Manager. Committee members; The General Manager consists of Assistant General Managers and Risk Management and Audit Manager. The purpose of the Committee is to identify all risks that may jeopardize the existence and sustainability of the Company, to take necessary measures related to the identified risks, to develop the necessary policies and practices for the effective execution of corporate risk management processes, and to take action for risk plans and risk trends. It is to be followed periodically by means of its indicators.

C. Information Security Committee

Tüpraş undertakes to protect the confidentiality, integrity and accessibility of all the physical and electronic information assets of the institution, and to protect its commercial and corporate image by ensuring legal compliance.

In order to ensure complete information security, to create awareness of information security, to increase the level of awareness and to operate information security in a healthy way, the Information Security Committee has been established in accordance with 5.3 Corporate Roles, Responsibilities and Authorizations clause of ISO 27001 Standard. In addition to this committee, sub-committees have been established in all Refineries in order to ensure that the decisions taken by the Operational Technologies Cyber Security Committee are carried out in a healthy way.

D. Tüpraş Risk Inventory and Management Process

After the risk assessment, Tüpraş categorized its risks under 7 main headings:

- 1- Technical Safety and Environmental Risks
- 2- Financial Risks
- 3- Commercial Risks
- 4- Operational Risks
- 5- Strategic Risks
- 6- Compliance and Legal Risks
- 7- Reputation Risks

1- Technical Safety and Environmental Risks

1.a – Technical Safety Risks

Tüpraş continues its development in line with its targets to eliminate risks by identifying risks and to reduce them to acceptable levels within the framework of national and international standards. In this context, Process Safety a priori and posteriori core performance indicators prepared with reference to international standards and practices are monitored monthly.

1.b– Environmental Risks

In addition to fulfilling the national environmental legislation requirements, Tüpraş follows and implements the international environmental regulations that concern the sector, and manages Environmental Risks by evaluating the sustainability and environmental impact of investments.

2- Financial Risks

Tüpraş attaches importance to sustain its Strategic Finance Management approach, which is essential to ensure business continuity, and to make this its corporate culture.

Management of financial resources and risks is carried out proactively within the framework of existing policies.

Currency Risk

Foreign currency risk may arise due to reasons such as financial liabilities in foreign currency and raw material imports. Within the scope of currency risk management, foreign currency position limits are determined and derivative instruments are used.

Liquidity Risks

The Company's liquidity is monitored and managed daily with the effective cash flow planning and active-passive management against the risk of not meeting the liabilities due on cash or cash equivalents at hand.

Counterparty Risk

The risk of counterparty, which may occur in case the collection ability of overdue receivables disappears, is managed by taking guarantee.

The Corporate Governance Rating, which was determined as 7.91 in the Corporate Governance Index of Tüpraş in 2007, was increased to **9,5** in 2019 in line with the developments provided over the years.

3- Commercial Risks

Commodity Prices Risks

Tüpraş maintains a significant amount of crude oil, byproduct and product stocks due to its activities. As a result of decreases in crude oil and product prices, there is a stock depreciation risk. Within the framework of protection policies from stock depreciation risk, the amount of stock exposed to price risk is hedged by using various derivative instruments at the beginning of the year.

4- Operational Risks

Operational risks are defined as the possibility of loss or damage due to faults and irregularities as a result of disruption in internal controls, failure to act on time by Company management and personnel in line with the conditions, errors in management of the company, errors and disruption in information technology systems, and disasters such as earthquakes, fire, floods.

Supply/Transport

In Tüpraş, the procurement process consists of crude oil, semi-finished products, final product and material replenishment processes. Optimization is made in procurement operations in order to diversify supply sources, distribute risk in the supply chain, provide price and freight advantage and increase the Company's operational capability.

Product Analysis in Production and Sales Processes

Laboratories accredited by the Accreditation Council of Turkish Refineries are operating in Tüpraş Refineries. The accreditation scope includes all analyzes included in the sales product specifications. Laboratories take necessary measurements at every stage of production and sales, and eliminate the risks of producing and selling faulty products.

Information Technologies Risks

Applications about the management of risks that may arise in the field of Information Technologies are defined in the Information Assets and Information Technologies Risk Management Standard. Risks related to Information Technologies include Tüpraş's both Information Technologies and operational technologies risks.

5- Strategic Risks

Structural risks that may prevent Tüpraş from reaching its targets set in short, medium or long terms are managed by classifying under this heading. Strategic risks that Tüpraş may be exposed to include country risk and alternative energy sources. In addition, innovations and developments in the transportation sector, including electric vehicles, are followed through this process.

6- Compliance and Legal Risks

Following the changes in legal regulations, these risks include the possibilities such as the negatively affected activities, the misinterpretation of the regulations, and the probability of the realization of rights lower than expected or of liabilities higher than expected due to the incomplete or late fulfillment of the relevant documents.

7- Reputation Risks

Reputational risk can be defined as a potential negative reputation about the practices of institutions. In order to keep the prestige and corporate reputation of Tüpraş strong at all times, crisis management processes are specified and implemented through various policies.

INTERNAL AUDIT AND CONTROL

“In Tüpraş, audit activities are followed by a proactive methodology formed by International Internal Auditing Standards and Tüpraş Ethical Principles, and are managed over processes and issues determined over the years, under the main headings of financial, operational, risk, process, legal compliance, business ethics and abuse by Tüpraş Risk Management and Audit Directorate.

The audit issues determined are shared with the relevant units of the Company at the beginning of each year, and annual risk-based audit plans are created. Basic financial and process audits are conducted twice a year in all Tüpraş's activity centers.

In order to ensure the effective, reliable and uninterrupted execution of Tüpraş's activities and service and in order for the integrity, consistency, reliability and timely availability of the information provided in the accounting and financial reporting system and used in the consolidated financial statements, the determinations occurring during the continuous internal controls are shared with the Company Management and accompanied by efforts to improve processes. Audit determinations are published within the Company without delay and necessary corrective measures are taken. The corrections and improvement suggestions regarding the audits are followed through the Risk and Action Portal. Thanks to this platform, the actions are monitored more systematically according to their severity.

The Audit Committee was informed about the findings and results of the audits during the year. Tüpraş Audit Committee convenes at least 4 times a year and more frequently if necessary. 7 meetings were held in 2019.

BUSINESS ETHICS AND ANTI-CORRUPTION

While continuing its activities, Tüpraş strictly adheres to legal regulations and business ethics principles. The “Tüpraş Anti-Corruption Policy” and the “Anti-Corruption Guide” and “Foreign Trade Control Implementation Guide” were put into effect in July 2017, in line with the Ethical Code of Conduct to ensure the company's existence and business continuity, protect its reputation and manage compliance risks.

An additional “Anti-Corruption Guide” and “Foreign Trade Control Implementation Guide” were put into effect in July 2017. All employees, the subsidiaries of Tüpraş and all employees of these partnerships, third parties doing business on behalf of Tüpraş are obliged to read and comprehend the relevant policies and must comply with these policies. In particular, it should be noted that these policies are implemented to cover all Company employees and executives, regardless of their position in the corporate hierarchy.

Tüpraş Ethics Committee affiliated to the Board of Directors is responsible for taking necessary actions in case of compliance with ethical rules and violation of ethical rules. In case of violation of the ethical rules, the Company's Risk Management and Audit Directorate is involved in the process, and necessary investigations are carried out.

In the event that a risk against bribery and anti-corruption is detected during the audit activities, the issue is examined and transferred to the Tüpraş Ethics Committee. In line with the decision of the Ethics Committee, necessary sanctions are applied and corrective / preventive actions are carried out immediately.

All Tüpraş employees are obliged to report this when they encounter an ethical violation or suspicion of bribery and corruption. Various communication channels have been created to enable employees and other relevant stakeholders to transfer suspicious situations about violation of ethical rules to the Risk Management and Audit Department. The notices conveyed are evaluated confidentially. Tüpraş employees are not sanctioned due to their notifications.

Tüpraş is not a party to any trend or organization with religious, political or ideological thinking; it does not directly or indirectly support the activities or campaigns of the political party, politician and candidates. It is not permitted to use company activity areas or company resources for such works and to carry out lobbying for the company's private interest. Tüpraş shares mutual information and responds to information requests about the sector within the framework of transparent relationships it establishes with public institutions.

It supports the work of sectoral non- governmental organizations and contributes to the solution of problems in the sector. It acts in full compliance with free competition rules and legal procedures in cases where public institutions are in the position of customers and in the procurement processes.

In 2019, there are no notifications regarding the cases of violation or corruption in regards to Tüpraş Ethical Values and universal human rights. Likewise, there are no legal proceedings open against the company due to any in compliance with laws and regulations during the period.

Compliance risks, especially also subject to international sanctions with the aim of detecting the opposite side are benefiting from online software program. If the status of any of the counterparty changes as a banned institution or person through the said software programs, a warning message is sent to the Company and the status of all interlocutors within the framework of the sanction legislation is followed throughout the ongoing business relationship.

SUSTAINABILITY MANAGEMENT

Tüpraş acts with the awareness of the economic, social and environmental impact areas it creates in its operational geography in order to create an effective sustainability management model. It makes efforts within the framework of the principle of “creating value” that it adopts while managing all these effects.

Sustainability priorities have been determined through the prioritization process carried out by Tüpraş Sustainability Working Group. Stakeholder expectations, risk areas and opportunities, company strategies and opinions of external experts are taken into consideration in determining the priorities.

A subject universe consisting of social, economic and environmental issues was designed with a preliminary assessment involving the company’s senior executives. The priority issues determined within the subject universe were evaluated once again by the Sustainability Working Group and the priority issue portfolio was finalized. During the reporting period, expert opinion was received on the priority subject portfolio, and no changes were found necessary following the evaluation.



STAKEHOLDER ENGAGEMENT

Tüpraş adopts a management approach based on stakeholder engagement. Participation of stakeholders in decision and implementation processes is encouraged in several ways. Various stakeholder communication mechanisms have been created in order to convey their views and suggestions to their stakeholders. The communication methods determined specific to the stakeholder group serve to inform the stakeholders about Tüpraş activities and the effects arising from the activities, while also contributing to the enrichment of the decisions and practices in line with the views of the stakeholders.

Employees	Sustainability Report (annual), Annual Report (annual), Employee Engagement Survey (annual), Internal Communication Meetings (annual), Performance Evaluation Meetings (annual), Occupational Health and Safety Boards (monthly), Technical Safety Bulletins (weekly / monthly), Internal Information Announcements (instant), Social Projects (continuous), Social Activity Clubs (continuous), Refined Suggestions System (continuous), Recognition, Appreciation and Rewarding System (continuous), Tüpraş Ethical Principles (continuous), Collective Bargaining Agreement (continuous), Employee Trainings (continuous), Website (continuous), Refinery Knowledge Base (continuous), Stakeholder Communication Management System (continuous), Corporate Portal (continuous) and Corporate Reputation and Perception Researches (two years)
Shareholders and Investors	Sustainability Report (annual), Annual Report (annual), General Assembly Meetings (annual), Interim Reports (quarterly), Briefing and Material Disclosures (instant), Roadshow and Investor Presentations (upon request), Meetings and Interview (upon request), Analyst Presentations and Teleconferences (upon request), Tüpraş Code of Ethics (continuous), Website (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Customers	Sustainability Report (annual), Customer Satisfaction Survey (annual), Meetings and Interview (upon request), Customer Portal (continuous), Customer Relations Management System (continuous), Tüpraş Ethical Principles (continuous), Tüpraş Solution Center (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Business Partners and Suppliers	Sustainability Report (annual), Supplier Satisfaction Survey (annual), Technical Safety Bulletins (weekly / monthly), Meetings and Interview (upon request), Tüpraş Ethical Principles (continuous), Business Partner HSE-S (continuous), Website (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Indirect Employees	Technical Safety Bulletins (weekly / monthly), Meetings and Interview (on request), Tüpraş Ethical Principles (continuous), Business Partner HSE-S (continuous), Employee Trainings (continuous), Website (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Unions	Sustainability Report (annual), Annual Report (annual), Occupational Health and Safety Boards (monthly), Meetings and Interviews (continuous), Collective Bargaining Agreement (continuous), Website (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Public institutions and organizations	Sustainability Report (annual), Annual Report (annual), Audits (periodic / instant), Meetings and Interviews (on request), Joint Projects (on request), Incentives (on request), Website (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Non-Governmental Organizations	Sustainability Report (annual), Annual Report (annual), Meetings and Interviews (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 Researches (two years)
Educational Institutions	R&D Partnerships (on project basis), Donations and Sponsorships (on request), Infrastructure and Trainer Supports (on request), Master's and Sectoral Expertise Programs (continuous), Website (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Media	Sustainability Report (annual), Annual Report (annual), Meetings and Interviews (on request), Press Conferences and Bulletins (instant), Website (continuous), Stakeholder Communication Management System (continuous) and Corporate Reputation and Perception Researches (two years)
Local Communities	Corporate Reputation and Perception Research (biennial), Meetings and Interviews (upon request), Announcements (instant), Social Projects and Infrastructure Support (continuous), Website (continuous), Stakeholder Communication Management System (continuous)
Society	Corporate Reputation and Perception Research (biennial), Announcements (instant), Social Projects and Infrastructure Supports (continuous), Website (continuous), Stakeholder Communication Management System (continuous)



QUALITY MANAGEMENT

Tüpraş follows international quality and management standards as well as internal standards set for the purpose of ensuring standardization in products and services. Adopting the business excellence model, Tüpraş manages its activities within the framework of the Integrated Quality Management System consisting of ISO 14001, ISO 9001 Quality Management System, ISO 14001 Environmental Management System, OHSAS 18001 Occupational Health and Safety Management System and ISO 50001 Energy Management System standards. In 2019, Integrated Management System Internal Audits were carried out at the Head Office and refineries.

All Tüpraş laboratories have ISO 17025 Laboratory Accreditation Certificate, which is a certificate of international recognition and acceptability. In order to ensure information security, Tüpraş uses the ISO 27001 Information Security Management System, which constantly analyzes the hazards against information assets, decides which controls to apply against risks and monitors that these controls are operated correctly.

The operability of Tüpraş's quality management systems is guaranteed not only by international certifications, but also by internal and external audits at the Head Office and refineries.

In addition, Lean Six Sigma Studies are carried out within the scope of quality management.

In 2019, "National Quality Movement Goodwill Declaration" was signed with KalDer. The EFQM Model (European Foundation for Quality Management) enables combined management of all improvement activities and performance evaluation tools of companies; and it is seen as a benchmarking tool that compares the organization with its competitors and other leading organizations.

External evaluation of EFQM Excellence Management Model was performed by KalDer at the Head Office and Izmit Refinery, and the rating of perfection in excellence has increased to 5 stars.

EFQM Excellence Model fundamental approach includes corporate culture, corporate and individual leadership, awareness of the business-related external environment, stakeholder focus, managing change and transformation, superior performance, creating sustainable value and continuous improvement.

The EFQM model has been updated with a focus on transformation, taking into account the global trends, the United Nations Sustainable Development Goals and the concept of ecosystems. In 2020, the target of Tüpraş is to be the first company in Turkey to implement this new version of EFQM Model, and to be a company that sustains excellent performance in the changing world order by expanding continuous improvement culture and the approaches which this model includes.



12%

Female Employee Rate*



100%

Unionization Rate in Hourly Employees



201,813

person*hour OHS Training



44

Average Training Hour per Person

**including subcontractors*

TALENT MANAGEMENT

Tüpraş continues to train the qualified workforce of the future with its unending energy. The essence of Tüpraş Human Resources Policy is the philosophy of “Our most valuable asset is our human resources”. In line with this philosophy, Tüpraş offers an egalitarian, fair, inclusive, respectful to human rights, healthy and safe work environment that places its employees at the center.

This company, which continuously invests in the development of its employees, also continues its activities with the aim of integrating creative, dynamic, knowledgeable, highly motivated, effective and efficient human resources. Human resources processes are carried out using objective systems and standards within the framework of international norms and legal regulations.

EMPLOYEE RIGHTS

While implementing employee rights practices, Tüpraş acts in accordance with the UN Global Compact Principles it has adopted. It is, by no means, party to human rights violations and supports the promotion of human rights within its sphere. Tüpraş expects its employees and suppliers and business partners to adopt identical principles with Tüpraş. Having common values in establishing and maintaining business relationships is accepted as a basic criterion. In Tüpraş, which has adopted an objective approach throughout all human resources processes starting from recruitment, all employees are offered equal opportunities regardless of age, gender, belief, ethnicity or other personal characteristics; and practices that evoke discrimination or acts of discrimination are not allowed. Within the scope of its activities, Tüpraş does not allow child labor, forced or compulsory labor, abuse of employee rights, or situations that evoke these practices. It requires that these principles be adopted by suppliers and business partners. Tüpraş adopts the principle of “equal pay for equal work” in the remuneration of employees. Wage differences between employees consist only of seniority or performance differences. The principles to be followed in pricing are clearly regulated in purchasing agreements with suppliers and are audited within the scope of visits.

Tüpraş respects the union rights of employees and enables them to exercise their rights freely. Employees are encouraged to become members of unions and non-governmental organizations, provided that they are organized under the law.

As of 2019, all hourly employees in Tüpraş and 76% of all employees work under collective bargaining agreements. At the same time, as of 2019, 33 Tüpraş employees take part in the management of the unions in which they are members. Tüpraş expects its suppliers and business partners to adopt this rigorous approach for the protection union rights. In the operations of suppliers and business partners, it is monitored whether trade union rights are fully implemented.

Side Benefits for Employees

Tüpraş promises a satisfying work environment that supports employee loyalty and happiness. For this purpose, it provides various opportunities that will contribute to increasing the living standards of the employees and their families and increasing the level of welfare. Employee benefits are determined by taking into consideration the mutual interests of Tüpraş and its employees.

Within the scope of KoçAilem Program, Tüpraş employees can take advantage of the products and services offered by Koç Group companies throughout their retirement lives. In addition, Tüpraş employees and their families can optionally benefit from Koç Holding Retirement and Aid Fund Health Insurance. Under the Extended Health Insurance Program, all Tüpraş employees are covered by complementary health insurance. Within the scope of the program, employees are offered the opportunity to benefit from private health institutions for themselves and their families with very affordable costs.

Employee Support Program is a professional program that serves the lifestyles and individual needs of Tüpraş employees and their families. The program includes financial, legal psychological counseling and offers fast solutions for special needs in daily life. Providing an auxiliary research assistant, the program provides 24/7 uninterrupted service.

With the Flextra Package, a flexible additional benefits application, employees choose from a pool of benefits added to their existing benefits. Within the scope of the program, which includes options such as life insurance, gift and discount checks, and private pension schemes, employees have the option to change their benefits packages according to their lifestyle and different needs.

In order to ensure the rapid adaptation of newly hired Tüpraş employees to the corporate culture and the job, these employees are guided through the first quarter of the compliance process.

Nursery Aid Benefits Package is offered to female employees in order to support work-private life balance and career development. During the period, 71 women benefited from the nursery aid application.

With the Support at Work Program, screenings and trainings are carried out by industrial psychologists at all refineries and individual psychological support is given to employees.

Studies carried out within the scope of the program are diversified from year to year.

With the Flexible Working Hours application, monthly wage employees can organize the start and end times of daily and weekly working hours within the limits of management's knowledge and according to their personal needs and preferences.

EMPLOYEE DEVELOPMENT

Tüpraş aims to evaluate the talents in the most efficient way by attracting qualified workforce. Tüpraş prepares training and development plans for employees' professional and personal knowledge and skills, behavioral competencies. With the programs designed specifically for Tüpraş, it is aimed to support the employees in the most accurate way in their career journey. In this context, training and development activities, project studies, on-the-job learning and rotation processes are designed with industry-leading business schools and university collaborations. Development programs aiming at improving the leadership competencies of employees, covers effective communication, coaching and development, cooperation development, and future oriented development. In 2019, 719 employees benefited from leadership training.

Training activities are managed in accordance with Tüpraş Internal Training Management Standard and training processes are followed by training experts. Training programs are focused on developing employees' skills and competencies. After the training is carried out, the content of the training is evaluated and the efficiency of the training operation is measured by organizing surveys.

Development Dialogue

In order to meet the expectations of the employees of Tüpraş, the design studies of the “Development Dialogue” process, in which the employee and the manager come together and establish a dialogue with an approach that focuses on development, continue. As part of the process, solutions are created to improve the technical, Professional and behavioral competencies of monthly paid employees. In the Qualification Matrix prepared for Technical and Professional Development within the scope of the Development Dialogue, the qualifications expected from the positions and the trainings that should be taken in order to have these qualifications are determined. To strengthen behavioral competencies, the Training and Development Catalogue, paired with the competencies prioritized by Tüpraş for development is presented. Training and development processes are carried out through Tüpraş’s online training platform, Enerjik.

Performance Management

An important part of employee development is a well-structured performance and career management system. The target card systematic is used in the performance evaluation of office employees. Employees receive feedbacks on their performance through annual performance evaluation meetings. Field workers are provided with feedbacks on the results and target expectations by senior management.

Talent Management

Talent management process ensures that the human resources are evaluated in the most efficient way and the development needs are determined correctly. Data obtained during the talent management process is reviewed at Strategic Human Resources Meetings that are held annually. Within the scope of these meetings, performance evaluations of monthly paid employees are made and backup plans are created for executive positions.

Within the internal backup system, critical positions and backup plans are created, and the potential talent pool is determined. It is aimed to find talented employees in Tüpraş with talent pools designed for different levels.

Two levels of talent programs were launched in 2019 to be developed in the First Level and Mid-Level managerial roles.

EMPLOYEE TRAININGS	2019
Total Training Hours (personxhour)	238.168
By Category	
Hourly Paid Employees	113.061
Monthly Paid Employees	125.107
By Gender	
Female	40.919
Male	197.249
Average Training Hours per Employee	44
By Category	
Hourly Paid Employees	27
Monthly Paid Employees	98
By Gender	
Female	80
Male	40

Tüpraş conducts graduate programs in cooperation with universities in order to contribute to the training of the qualified workforce required by the refining sector and to enrich the studies in the sector with academic knowledge. Employees' participation in these programs is supported. In addition to Tüpraş employees, students who want to continue their academic education also participate in the programs.

Tüpraş runs the Refinery Training Program so that field workers can do their jobs safely. The program is constantly updated to provide ease of application with an innovative approach.

The efforts to establish a Technical Training Center at the Kırıkkale Refinery, which was launched so that Tüpraş field employees can receive their technical and vocational training, continued in 2019. The center, where the workshops, education classes, conference hall and library will be located, is planned to be commissioned in 2020.

Tüpraş contributes to strengthening vocational education with the projects it conducts for business partner employees, high school and university students. In 2019, 479 students had the opportunity to be interns at Tüpraş refineries.

Nextremers Program

In 2019, Nextremers, a long-term Project-based internship program aimed at contributing to the Professional development of university students, was launched. Throughout Tüpraş, 25 undergraduate students from various universities (Information Technologies (Analytical), Maintenance, Engineering, R&D, Product or Service Design, Sales, Financial Transactions, Project Management, Corporate Communication) have successfully completed the 3-month program. Nextremers Program is successfully in progress with 17 project students whose education in Turkey's leading universities continue.

EMPLOYEE ENGAGEMENT

Employee engagement in decision-making processes in strengthening employee loyalty and commitment plays an important role. There are various mechanisms established in Tüpraş to ensure that employees take an active role in the company. Employees' opinions are collected through target dissemination meetings, OHS board meetings, suggestion systems, surveys, collective agreements and social activity clubs and evaluated in process improvement studies. The behaviors and efforts of the employees that contribute to the company's success are rewarded under the Recognition, Appreciation and Reward System.

With the Refined Suggestions System, which is one of the employee participation tools, creativity and productivity skills are supported by getting improvement suggestions from the employees. Tüpraş employees made 254 suggestions within the scope of the Refined Suggestions System in 2019, 33 of these suggestions were put into practice and work on other suggestions is ongoing.

Tüpraş encourages its employees to volunteer in social responsibility projects within the scope of employee participation practices. Employees can also organize activities that favor social benefit through social activity clubs at refineries.

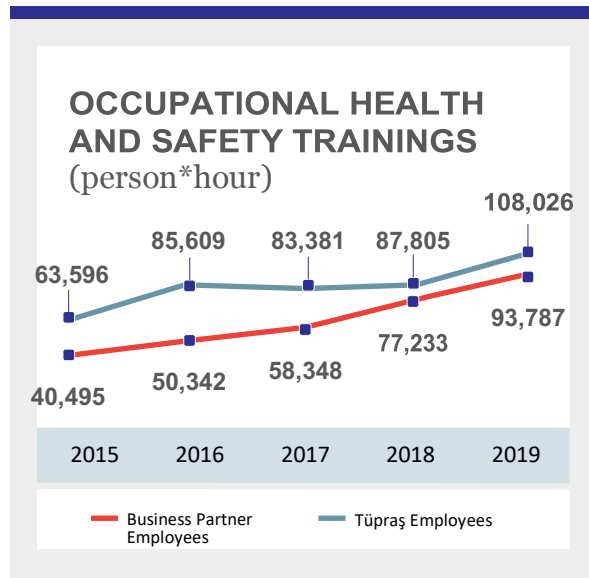
Employee Loyalty

The Employee Engagement Survey in Tüpraş is repeated annually with the participation of all employees. The research is carried out through surveys conducted by an international independent research company. In line with feedbacks given by the employees within the scope of the survey, practices to increase employee satisfaction and loyalty are implemented. According to the Employee Loyalty Survey results conducted in 2019, the loyalty score of monthly paid employees was 52.9% and the loyalty score of hourly paid employees was 29.1%. Tüpraş General Loyalty Score is 35.8%.

OCCUPATIONAL HEALTH AND SAFETY

In Tüpraş's occupational health and safety approach, the main goal is to prevent health and risks or to reduce the risks to an acceptable level within the framework of standards. HSE (Health, Safety, Environment) Policy has been established for the safety of all employees and stakeholders in Tüpraş's field of activity, and to ensure an accident-free work environment. Tüpraş expects its employees and solution partners to comply with this policy without compromise.

The subject of occupational health and safety is managed in accordance with the OHSAS 18001 Standard and legal requirements. Occupational health and safety performance is monitored monthly and annually and reviewed within the scope of Technical Safety Assessment Meetings. In addition, OHS performance is evaluated with OHS Coordination meetings, where all refineries are included, twice a year.



OHS Practices

Tüpraş carried out various applications in 2019 in order to improve the safety perception of its employees and to prevent possible unsafe accidents by evaluating the risks beforehand. In this context, Tüpraş;

- Started to transfer the “Competence Management” works, which are widely used in the international oil-gas industry,
- Accelerated safety campaigns on certain topics on-site,
- Implemented more effective identification and control systems with the collaboration of the Operation, Maintenance and OHS teams in order to use the Control of Work system more effectively,
- Made reviews with system users in order to make the Work Permit System more effective,
- Included employees in international training programs and intensive internal training and implementation programs,
- Prepared the ground for a single Common Health Safety Unit (CHSU) application for contractors to benefit from OHS services more effectively and accurately,
- As the General Maintenance Contractor, appointed more experienced and institutional solution partners in the refineries and achieved improvements in the contractor OHS statistics.

In the 5 OHS Boards located at Tüpraş Headquarters and Tüpraş refineries, 35 members are employed, including 10 of which are employee representatives. Approximately 100 people attend the board meetings. Participants include OSH experts at refineries, unit managers and representatives from the units, as well as full members.

OHS trainings are carried out in order to increase the occupational health and safety knowledge of Tüpraş employees and contractor employees, and to act responsibly in the field of activity. In 2019, Tüpraş employees received 108,026 person*hour, the contractor employees received 93,787 person*hour of OHS trainings.

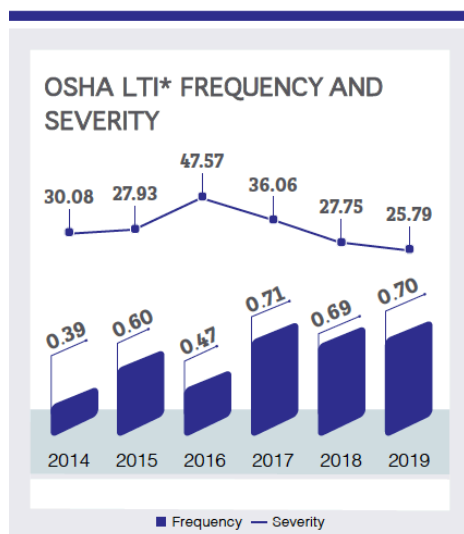
Tüpraş shares its gains, experience and good practices in the fields of occupational health and safety, process safety, emergency response with its reliable and leading corporate identity in the energy sector in congresses and symposiums.

Occupational Safety

The basic rules and principles of occupational safety that must be complied with within the Tüpraş operation areas are determined by Tüpraş Safety Principles and the “No 10 NON” Tüpraş Basic Working Rules. Weekly Accident Sharing, Safety Speech, “Couldn't We Prevent These Accidents?” meetings are held in order to strengthen the occupational safety culture and ensure the continuity of communication on this issue.

“Visible Leadership” is implemented in order to build a productive and sustainable safety culture, to reinforce positive safe behaviors, to increase awareness of OHS and to follow field practices of safety standards. Within the scope of this application, “Visible Leadership” is exhibited with the active participation of managers by conducting behavior-oriented safety tours. With the application, positive safety behaviors of employees are appreciated and encouraged, risks in people's behavior and working conditions are identified and is corrected , communication and dialogue are strengthened for a safe working environment , awareness is raised , and an environment is created where employees can share their opinions and observations about safety .

Tüpraş adopts an approach that aims to minimize risks in occupational safety and raise the level of precaution against potential risks. It manages occupational health and safety processes with risk assessment and continuous learning understanding.



* LTI fr= Loss time injury per 1 million manhour = LTI*1M/mh

**LTI Sev= Days of LTI per 1 million manhour = Days*1M/mh

In this context, safety risks are eliminated by following risk evaluation systematic, working procedures and many internal and international standards such as Risk Assessment Scheme (RAS), Hazard and Effects Management Process (HEMP), Case Classification, Research and Reporting (CCRR), Contractor HSE Management System, Tüpraş Tracking System (TTS). In 2019, during TEYS process, priority was given to realizing, managing risks, conducting health risk assessment studies and transferring resources to critical jobs within the scope of preparing risk analyzes.

Occupational Health

Protecting employees' health as well as safety is a priority for Tüpraş. Various measures are taken to protect employees against both occupational diseases and general illnesses. All Tüpraş employees undergo periodic health checks during their employment from recruitment. Various health services are offered to employees and preventive measures such as vaccination are taken. Besides, Health Risk Assessment (HRA) studies are carried out in all refineries. These studies aim to identify the health hazards that may arise from the environment where the employees are located and to evaluate the risks associated with these hazards. In HRA studies, chemical, physical, biological, ergonomic and psychological factors specific to the field are examined in detail.

Tüpraş aims at maintaining a healthy life for families of both its employees and contractor employees. Accordingly, it encourages the families of employees and the participation of contractor firm employees in training programs for healthy life and preventive measures. Thanks to Tüpraş 's meticulous approach to employee health, in the reporting period, no occupational disease cases occurred between Tüpraş employees or contractor company employees.

Process Safety

Process Safety Management System based on CCPS (Center for Chemical Process Safety) is applied in Tüpraş refineries. The system is based on the principle of leadership and ownership and targets Operation Discipline and Business Excellence. Within the scope of the system, 16 process safety preliminary and positive performance indicators prepared based on international standards such as CCPS, OSHA, API754 are monitored monthly. In this way, it is aimed to take precautions before the accidents occur and to learn from the accidents and not to repeat them. With the Process Safety Management System, all areas such as maintenance and control activities that can lead to process safety accidents, operational procedures, change management, process hazard analysis, training and competence, contractor management are evaluated together according to Tüpraş safety requirements. In 2019, Process Safety Event Frequency was realized as 0.87 in Tüpraş.

	2014	2015	2016	2017	2018	2019
LTI	17	14	14	15	16	17
LTI fr	0,39	0,60	0,47	0,71	0,69	0,70
LTI Days	1315	651	996	764	646	625
LTI Severity	30,08	27,93	47,57	36,06	27,75	25,79
Manhours	43.719.384	23.308.809	20.939.650	21.186.894	23.276.864	24.236.448

Disaster and Emergency Management

In disaster and emergency management, including the Standard Emergency Management Center, Tüpraş Security Policy, Security Management Standard, National Marker related Technical Safety, Environment and Safety Measures Standard, Search and Rescue Standards, Electronic Security Systems within the framework of the standard of modern safety management practices with national and international security norms are taken as basis. For the management of disaster and emergency management, Technical Safety Directorate is responsible at the Head Quarters, while Technical Safety and Environment Directorates are responsible at refineries. Applications and plans to be implemented against all extraordinary conditions and disasters such as fire, energy and water shortage, work accident, earthquake, flood, terrorism and sabotage have been predetermined.

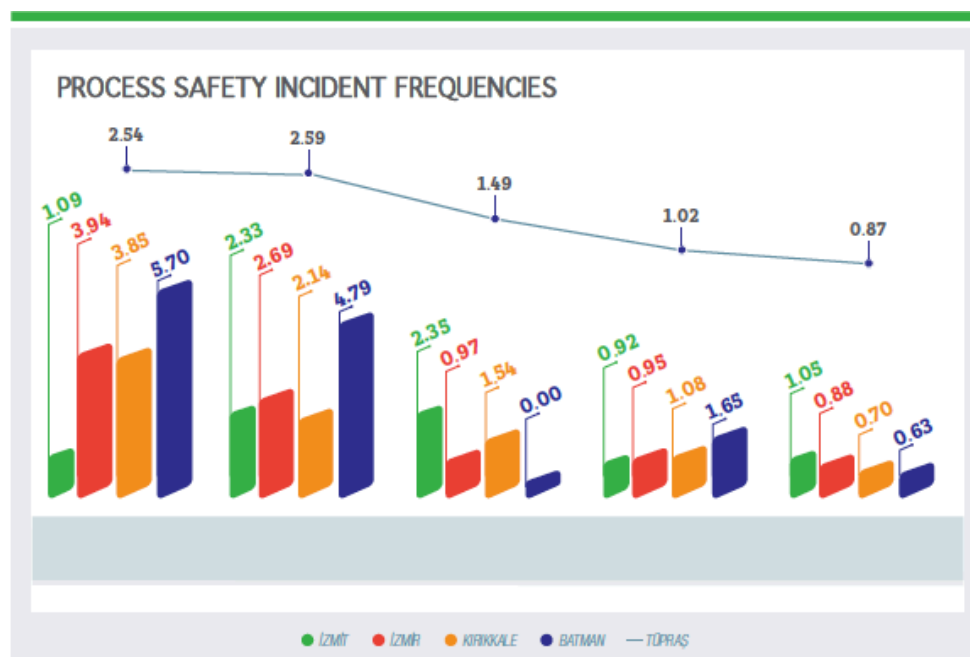
Tüpraş intervenes with modern equipment and competent staff to emergencies with a capacity of highest technology. National and international standards are taken as reference in trainings carried out in order to modernize and improve emergency protection and response systems and to increase the competence of teams.

In Tüpraş, in order to strengthen the preparedness for disasters and emergencies, more practices are organized than required by the relevant laws. Fire, disaster plan, hydrocarbon cloud / toxic gas emission and environmental spill practices are carried out in all refineries in order to minimize and intervene the risks that may arise in emergencies.

Along with public institutions and organizations, neighboring facilities also participate in these practices as a stakeholder with their teams and equipment. The performance of these practices is evaluated and the actions determined after the meeting are followed.

Tüpraş takes strict measures against possible emergency risks that may occur in supply operations. It requests suppliers to ensure certain standards in the tankers to be carried in order to ensure the safety of supply. In particular, crude oil imports, with ISO 9001 and class certification "ISPS" code (International Ship and Port Facility Security Code) appropriate conditions and ports accepted by marine tankers must be used. Thus, the risks that may arise during transportation are greatly reduced. Despite all these measures, every refinery has the necessary equipment to fight against any accident or leakage that may occur.

In 2019, in accordance with the Regulation on the Prevention of Major Industrial Accidents (Seveso- II Directive), numerical risk assessments were made at all refineries and critical scenario analyzes and actions were determined and Safety Reports were prepared and submitted to the Ministry of Labor and Social Security. Within the scope of Scenario-based Emergency Action Plans, office and on-site practices were conducted by the relevant units and technical safety personnel in order to be prepared for emergencies.





24

Energy Efficiency Project



0.6

m³/Ton Raw Water Usage per Crude Oil



98.4

Energy Intensity Index



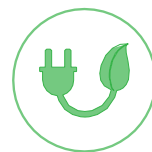
69.5%

Solid Waste Recovery Rate



473_{TJ}

Annual Energy Saving



26.3

Thousand Ton CO₂e Annual Greenhouse Gas Reduction

RESPONSIBLE PRODUCTION

To meet Turkey's demand for petroleum products through products with reduced environmental impact, and with minimum environmental impact in production processes as well, is the priority of Tüpraş. In this context, Tüpraş, with a sense of responsibility towards the environment and society, closely follows the national, international and sectoral developments, and incorporates the best products and production technologies available.

ENVIRONMENTAL MANAGEMENT

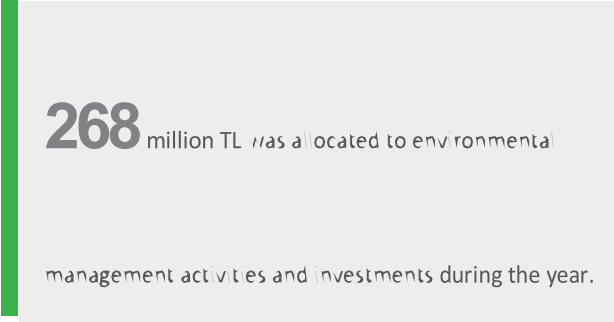
Management of environmental impacts is considered as a priority area within Tüpraş's risk management activities. With these studies, potential risks that company activities may create on natural areas and living organisms are identified and precautionary mechanisms are established.

In line with these decisions, specialization units operate throughout the operation. In this context, environmental issues are managed by the Environment Directorate throughout Tüpraş operations. Internal and international standards are followed in the management of these issues. In this context, all activities are implemented through processes that comply with ISO 14001 Environmental Management System Standard.

While the management of environmental, climate and energy issues is evaluated broadly, the basic principle is primarily to maintain compliance with relevant legal regulations and legislations. The main areas of work for environment, climate and energy management are energy and water efficiency, reducing waste and other environmental impacts, monitoring and reducing greenhouse gas air emissions, increasing environmental awareness in employees and society, protecting and developing natural life.

An important aspect of environmental management is to increase Tüpraş and its business partner employees and environmental awareness throughout the society. In this regard, Tüpraş continues its training activities without interruption.

11,092 contractor employees received 14,127 personxhour environmental training. On the other hand, 268 million TL was allocated for environmental management activities and investments during the year.



268 million TL was allocated to environmental

management activities and investments during the year.

Tüpraş refinery facilities are located in areas devoted to industrial activities. Therefore, in the physical impact area, there are no wetlands with a grade 1 site area, environmental protection area, RAMSAR or similar biodiversity value. When deciding on physical investment locations, it is a criterion to consider that it is far from such special status areas.

Environmental management activities are audited throughout Tüpraş activities, and the performance achieved is constantly monitored. In addition to internal auditing, environmental performance is subjected to the Ministry of Environment and Urbanization, to the external audits by independent organizations authorized and to Koç Group Environmental Audit practices. In 2019, there was no lawsuit filed against the company or a significant number of fines received due to non-compliance with environmental laws and regulations.

In the reporting period, Tüpraş added Life Cycle Analysis to its performance enhancing efforts in line with Sustainable Development Goals. Thus, it is aimed to evaluate the environmental impacts arising from operations and investments with a more holistic approach. In this context, primarily Sustainability, Life Cycle Thought and Analysis (YDA) Training was given to employees to adopt this approach throughout Tüpraş.

In the year, the first examples of the studies aimed at disseminating the life cycle idea in operations have been implemented. In this context, the environmental impacts of the emissions created by the different emission output limits and the different fuel scenarios used in production for the vapor recovery units planned to be established at the refineries have been examined and reported from a life cycle perspective. In addition, within the scope of the “CO₂-to-fuels” R&D Project for the production of methanol and dimethyl ether (DME) from carbon dioxide, the necessary infrastructure for the use of life cycle analysis has been established.

Infrastructure studies are underway to evaluate the life cycle analysis results of the main projects included in the investment program together with the economic indicators resulting from feasibility studies.

TÜPRAŞ CLIMATE VISION

Tüpraş identifies its responsibilities in combating climate change and projects activities that can be examples of remedial and good practices. In this context, it supports the efforts to combat climate change by participating in working groups, meetings and seminars organized by relevant institutions and non-governmental organizations in Turkey and abroad, especially the Ministry of Environment and Urbanization.

Tüpraş has been an active participant in the UN Climate Change Parties Conference since 2015. Accordingly, Tüpraş also participated in the 25th Conference of the Parties (COP25) held in Madrid, Spain in 2019.

Tüpraş also supports the PMR (The Partnership for Market Readiness) Project run by the Ministry of Environment and Urbanization. Phase 1 of the Project has ended and phase 2 has started. In the second phase of the project, Tüpraş will continue to support the development of the legal and institutional infrastructure to be realized, the determination of the emission upper limit, the creation of allocation plans and the ETS registration system, the development of the emission trading system simulation application and the work of its components. On the other hand, Tüpraş also supports the efforts to combat climate change carried out at TÜSİAD.

While evaluating investment projects, Tüpraş considers internal carbon pricing as a parameter in feasibility studies and also ensures that projects are evaluated with internal carbon prices.

Emission Management

In order to combat climate change and control air quality, greenhouse gas and flue gas emissions, arising from Tüpraş activities, are monitored seriously and mitigating activities are carried out.

Tüpraş monitors greenhouse gas emissions from its activities for many years, in line with the principles recommended by international standards. Within the scope of the “Regulation on Monitoring Greenhouse Gas Emissions”, the annual greenhouse gas emission reports of all refineries are prepared and verified and sent to the Ministry of Environment and Urbanization. Greenhouse gas reduction amounts provided by some energy efficiency projects selected from 2018 are certified according to ISO 14064-2 Standard.

In accordance with the Communiqué on Continuous Emission Measurement Systems, all combustion plants with rated thermal power above 50 MW in Tüpraş refineries are equipped with Continuous Emission Measurement Systems. In this context, the relevant parameters of 31 chimneys located in refineries are monitored online by the Ministry of Environment and Urbanization. Fully compliant with national legislation in tracking flue gas emissions, harmonization studies with EU legislation are carried out. In addition, emission confirmation and air quality measurements of all refineries are carried out and reported by companies qualified by the Ministry of Environment and Urbanization in line with legal obligations.

In the reporting period, within the scope of Izmit and Izmir refineries, the project “Facilitating the Application for the Determination and Reduction of Air Pollution Caused by Industry” conducted by Dokuz Eylül University under the leadership of the Ministry of Environment and Urbanization, is supported.

ENERGY MANAGEMENT

Energy efficiency studies are the basic tools Tüpraş uses in terms of more efficient production and reduction of greenhouse gases. Energy related issues are managed by the Energy Directorate under the coordination of refineries across Tüpraş operations. Internal and international standards are followed in the management of these issues. In this context, all activities are implemented through processes that comply with the ISO 50001 Energy Management System Standard.

With the common calculation criteria determined in accordance with international standards, instant energy values monitored in all refineries are analyzed and efficiency projects are planned and implemented.

Accordingly, 24 energy efficiency projects were implemented in Tüpraş refineries in 2019.

Thanks to these projects, in the year 2019, 473 TJ energy savings was achieved with 26.292 tons of CO₂ e greenhouse gas reduction. Thus, the energy consumption value per processed crude oil was reduced by 5.3% to 3.55 GJ / Ton.

The calculation methodology of the Energy Intensity Index, which evaluates the energy consumption performance of companies operating in the refining industry worldwide, is one of the main indicators used in monitoring Tüpraş's energy performance. The energy efficiency and modernization efforts launched in 2019 had a positive result in Tüpraş's energy intensity index. In this context, the energy intensity index, which was 99.1 in 2018, regressed to 98.4 in 2019.

The energy efficiency and modernization studies that were launched in 2019 had a positive result in Tüpraş's energy intensity index. In this context, the energy intensity index, which was 99.1 in 2018, decreased to 98.4 in 2019.

	Number of Energy Efficiency Projects	Energy Savings (TJ)	Emission Savings (Ton CO ₂ e)
2014	22	1,772	126,442
2015	21	1,031	71,744
2016	18	1,054	77,666
2017	15	830	45,945
2018	21	3,620	243,666
2019	24	473	26,292

Energy Efficiency Projects

Izmit Refinery Fuel Saving by Reducing 147E-110 By-Pass Valve Opening

Bypass valve opening of 147E-110 heat exchanger located in plant 147 unit of Izmit Refinery has been reduced from 40% to 11%. Thus, the inlet temperature of the 147F-002 furnace has been reduced, and the inlet temperature of the 147F-101 furnace has been increased. The project, implemented in September 2019, saved 2.4 Gcal / hour of energy.

Energy Saving with Izmir Refinery U-1400 Unit PT-1402 Pump Steam Turbine-Electric Motor Revision

Compared to electric motors, steam turbines are less efficient drive mechanisms. High efficiency electric motors are much more advantageous in terms of ease of maintenance and energy saving. For this purpose, the drive of the PT-1402A pump in the Izmir Refinery Base Oils Complex has been converted from high-stage steam to an electric motor. The project, which provides an average of 3.1 Gcal / hour energy advantage, was put into operation in August 2019.

Energy Saving by Backing Up Kırıkkale Refinery Plant-1150 Unit E-1154 Heat Exchanger

In the E-1154 heat exchanger in the Kırıkkale Refinery isomerization unit, the LSRN charge which enters the furnace with high pressure steam is heated. Thanks to the E-1183 heat exchanger installed as a backup to this heat exchanger within the scope of the project, it is ensured that the heat exchangers stay in use efficiently all year round without the need for a unit stop. The project's energy return, which was put into operation in June 2019, is 1.9 Gcal / hour.

Batman Refinery E-1114/E-1115 Heat Exchangers Thermal Integration Project

Batman Refinery crude oil unit E-1114 / E-1115 heat exchangers thermal integration project was put into operation in March 2019. E-1103 side reflux heat exchanger located before the desalter within the scope of the project, was moved to the post of desalter as E-1105. E-1114 heat exchanger and E-1101 AE-1102 A / B heat exchangers have been installed for the heating need before desalter.

The project ensured about 25C increase in the inlet temperature of crude oil furnace; thus, the amount of natural gas used in the furnace is reduced. The total effect of the project, which provides 3.6 Gcal / hour of energy saving, was calculated as 18.835 Gcal in 2019.

WATER MANAGEMENT

Tüpraş's basic approach is to use water, which is a limited resource, with maximum efficiency, to reduce the consumption of fresh water and waste water with recycling practices, and to discharge wastewater at the pollution load levels specified in legal permits without harming the biodiversity of the receiving environment.

Despite the increased production and crude oil processing amounts in 2019, compared to 2018 in total water consumption in Tüpraş operations, it obtained about %1 reduction, deducing it to 29,6 million m³ level. Thus, water consumption per processes crude oil has been reduced from 0.7 m³/ton to 0.6 m³/ton.

There are two types of water recovery activities at Tüpraş refineries. The first is to recycle the fresh water used in the operations and return it to production. The other is to process the urban wastewater in the recycling facilities, as it is done at the Izmir Refinery, and then charge it for production after making it usable in production. With this practice, Tüpraş's water needs are met with recycled water and it is returned to production instead of urban wastewater discharge. With Izmit Refinery Municipal Urban Wastewater Recovery Project, a total of 11,6 million m³ recovery was obtained from urban waste water;

In Tüpraş's activities in 2019, a total of

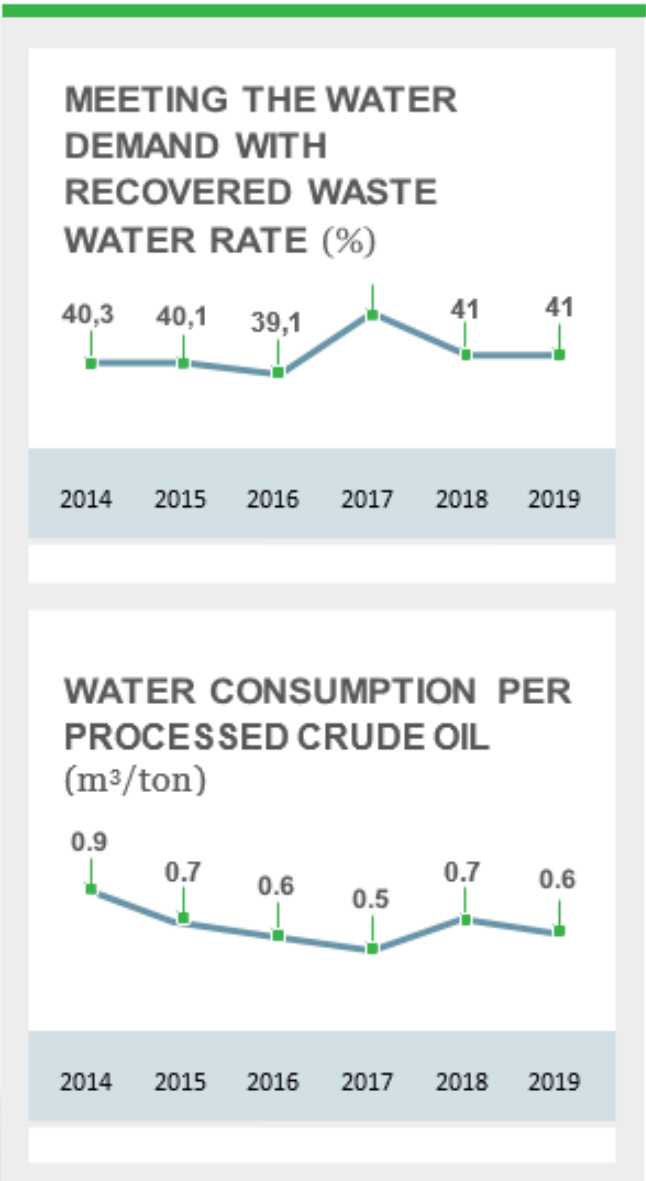
20.6

million m³ water is recovered.

thus, the water needs of Izmit Refinery, excluding domestic water, covered by 99% recycled water. As a result of all these works, a total of 20.6 million m³ water is recycled in Tüpraş's activities in 2019.

In order to protect natural resources and ensure sustainability, Tüpraş prioritizes the recovery of wastewater by obtaining waste water from natural resources, rather than meeting the water consumed in refineries. However, since all of the water used in the activity process cannot be recovered, wastewater is still generated. The resulting wastewater is discharged to the natural receiving environment by delivering it to pollution loads far below the limit values specified in the relevant legislation and permits. Thus, there is no negative impact on the water resources and the biodiversity value of the natural receiving environment due to Tüpraş activities. In 2019, Tüpraş refineries has discharged 15 million m³ wastewater into natural receiving environment in accordance with the limit values specified in the legal permissions.

Within the scope of the "Determination of Water Risks" study, existing risk assessment tools used in the sector were examined, and methods that could be used in refineries were determined.



WASTE MANAGEMENT

The main principle that Tüpraş follows in the management of waste arising from its activities is, firstly, to minimize the amount of waste, separate and recover the waste generated at its source, and dispose non-recoverable waste by appropriate methods. Tüpraş Waste Management Standard, developed within the framework of legal requirements, determines the principles and methods used in the management of waste management processes. The follow-up of waste management processes, control of compliance with relevant legal regulations and necessary reporting activities are carried out through the Waste Management Program.

As a result of the activities carried out by Tüpraş in 2019, a total of 34.433 tons of waste, 22.144 tons of hazardous and 12.290 tons of non-hazardous waste, has been generated.

Nearly 70% of these wastes are recycled. Within the scope of the circular economy, industrial symbiosis studies were carried out, and some of our wastes are used as raw materials by other companies. Non-recoverable wastes were disposed by licensed companies in accordance with the rules and procedures specified in legal legislations.

Industrial Symbiosis Project Examples Realized Through a Circular Economy Approach

Sludge Dewatering

- Sludges from canal and manhole cleaning, tank bottom sludges and treatment plant mechanical sludges contain water and oil. With the decanter, approximately 20% oil in the sludge is recovered and sent to the tanks. Water is sent to wastewater purification system and then discharged.

Thus, the volume of the sludge to be sent to disposal is reduced by approximately 90 %, the disposal cost is reduced and at the same time, the oils retained by the decanter system are recycled through the refining process, thereby contributing to resource efficiency.

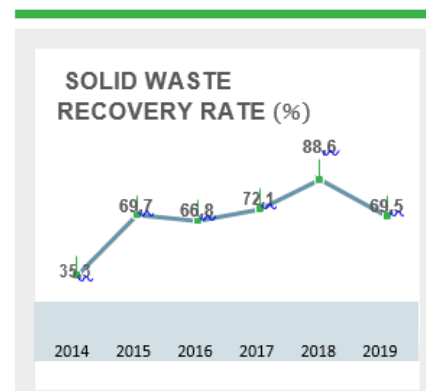
Sand Blasting Waste

- An exemplary study for industrial symbiosis has been conducted as the sand blasting waste sent for disposal was ensured to be used as a source of raw material for cement facilities.

Using approximately 250 tons of sand blasting waste, resource was recovered and economic gain was achieved.

Refractory Waste

- Instead of sending catalyst and refractory wastes to landfill for disposal, efforts made to reduce their environmental impact by bringing them to the economy. Within the scope of industrial symbiosis, these wastes are recycled in refractory brick plants.



About

70% of wastes were recovered.





43.5

Million TL
R&D Investment



33

National and International Scientific
Publications



9

National Patent
Applications



650

Million Lines of Date

200,000

Number of Data Processed Daily with Sensor

Big Data

Platform Project



100

More than
Open Innovation Studies (with more
than 100) Startups



80

More than
In-House Entrepreneurs

R&D, INNOVATION AND DIGITAL TRANSFORMATION

Tüpraş continues to produce its own technology and make a difference by realizing innovative solutions and projects with its R&D activities. Among the leading companies in Turkey's Technology and R & D investments, Tüpraş is managing internal entrepreneurship, digital transformation, R&D and open innovation in a holistic manner.

LEADING AND INNOVATIVE R&D STUDIES IN THE SECTOR

Tüpraş R&D Center has the values of "Safety, Cooperation, Productivity, Transparency, Reassuring, Fair, Creative-Innovative, Questioning, Continuous Developing" at the center of all its works since its establishment. In this respect, constituting technology roadmaps, risk maps and action, the center aims to contribute not only to its own business processes and also to Turkey's energy sector with each project it conducts.

The company transferred 43.5 million TL to R&D studies carried out in line with these targets in 2019.

Tüpraş R&D Center includes 47 researchers and 16 technicians, 29 of whom are graduates and 9 of them are doctoral graduates. At the R&D center, 17 researchers continue their doctoral studies. R&D Center, consisting of 11 teams working in harmony and common goals with refinery teams, continues to work with more than 150 devices in an area of 12,950 m² in three buildings consisting of design, laboratory and pilot facilities.

The new project management systematics was launched in 2019 by Tüpraş R&D Center. While making evaluations with this system, the following criteria are taken into consideration: industrial R&D content of the project, the level of technology and innovative direction, the adequacy of project plan and company infrastructure, and the ability to produce economic benefit through project outcomes for Tüpraş and Turkey. Projects determined by R&D are then evaluated by the relevant units and senior management.

To prepare Tüpraş for the future, in the focus of R&D studies, there lies reducing the use of resources in production processes and products, ensuring energy efficiency, digitalization, and developing new and innovative technologies such as IOT and data analytics. In addition to developing technologies that will prepare Tüpraş for the future, the R&D Center continues to work on developing new products to meet future energy needs, by closely monitoring the changes in consumer expectations.

Within the scope of renewable / alternative product development / improvement, fuel formulation and material development studies, the center carries out its studies using reaction tests, as well as hydrocarbon, catalyst and material characterization tests in laboratory and pilot scale reaction systems. Within the scope of energy efficiency and process improvement studies, it also carries out projects in the fields of optimization, modeling, data analytics, sensor and robotics technologies.

In line with environmental triggers, it carries out projects in areas such as reduction of carbon dioxide emissions, clean hydrogen production, water and waste management.

Since its establishment, Tüpraş R&D Center has been involved in a total of 12 HORIZON 2020 projects and has been entitled to receive a total of 6.02m euros in support. Three of these projects have been completed successfully and 9 projects are ongoing. At the end of 2019, with the total support it received, Tüpraş has become Turkey's most successful industrial institution that is included to HORIZON 2019 program. Since 2019, the following projects have been initiated in line with HORIZON 2020: MACBETH - Membranes and Catalysts Beyond Economic and Technological Hurdles, FACTLOG - Energy-aware Factory Analytics for Process Industries, HYDROPTICS - Photonics sensing platform for process optimization in the oil industry and MOF4AIR - Metal Organic Frameworks for carbon dioxide Adsorption processes in power production and energy Intensive industries.

Intellectual Rights

Tüpraş R&D attaches great importance to protect the Technologies it develops with patents. Within the framework of Tüpraş's intellectual rights studies, 9 national patents and 1 utility model application were made in 2019. Thus, the total number of patent applications filed since the R&D Center came into operation reached 92; out of them 66 are national and 26 are international.

Within the company, up to date, a total of

92 total number of patent applications

193 projects have been realized.

Tüpraş is the **First Turkish Company** to be included to A.SPIRE Platform.

Tüpraş is the first company to represent the private sector to join the A.SPIRE (Sustainable Process Industry through Resource and Energy Efficiency) platform, which the most important organizations in the process industry are members to.

By taking part in the A.SPIRE platform, Tüpraş obtains the opportunity to be a strategic R&D company that shapes the future of process industry, to take part in studies to determine R&D needs, to closely follow technological developments, grant programs, European strategic agendas, to direct technologies of future and to create collaborations.

A.SPIRE platform has been conducting studies since 2018 to guide the “Horizon Europe” program, which will start after Horizon 2020. Tüpraş closely follows these studies. Tüpraş R&D Center experts also participated in SPIRE 2050 Roadmap, which is the most important output of these studies. The SPIRE 2050 Roadmap contains many of the fundamental changes that the industry must make by 2050 to keep global temperature rise below 2C, which is also the goal of Paris Treaty, and this roadmap was also created within the framework of joint efforts of the representatives from different industries that address the current status, requirements and developmental aspects of technology. Tüpraş follows SPIRE 2050 Roadmap document as a crucial guide.

Prof. Dr. Hasan Mandal

President of TÜBİTAK

In line with stronger integration target with the international community and the European Research Area, orientation to strategic R&D and innovation collaborations that will have an output-oriented, big budget and great impact is of great importance for our country. In this context, the Horizon 2020 Program is critical in the harmonization process with the European Research Area. In order to increase the participation in the HORIZON 2020 Program and to maximize the gains from our program, the institutions and organizations should benefit from the TÜBİTAK HORIZON 2020 Support and Reward Programs that Tüpraş applies and uses while achieving this success. In addition, our researchers can get all kinds of support from the TÜBİTAK HORIZON 2020 National Coordination Office both before and during the application. It is sublime that Tüpraş is the most successful Turkish industrial organization in the HORIZON 2020 Program. I would like to congratulate everyone who made contributions.

Energy Efficiency Projects

While meeting the demand for petroleum products, Tüpraş aims to minimize energy consumption by avoiding the energy losses without compromising from its quality and performance, thereby lowering greenhouse gas emissions and contributing to the UN Sustainable Development Goals. In line with this purpose and the Technology Road Map, Tüpraş continues to implement innovative projects aimed at increasing energy efficiency. The partnership of the two European Union Horizon 2020 projects has an important place among the efforts of Tüpraş R&D Center for energy efficiency.

Indus3Es

Indus3Es project aims to develop a system that can be adapted to different industries in order to contribute to emission reduction with the energy efficiency achieved by significantly reducing heat losses in the industries. As part of the Indus3Es Project, an innovative absorption heat system (AHT) has been implemented in Tüpraş for the recovery and reuse of low-temperature waste heat generated in industrial processes. With the AHT system, low-temperature waste heats can be increased to higher temperatures and reused in the industry; in this way, 50% of waste heat will be recovered.

The AHT System was successfully commissioned at Tüpraş Izmit Refinery Steam Production Unit in 2019 and 150 KW of energy was recovered. In the coming years, efforts to use this technology to recycle different waste heat sources will continue.

BAMBOO

Tüpraş is among the partners “BAMBOO” (Boosting New Approaches for Flexibility Management by Optimizing Process Off-gas and Waste Use) project for energy efficiency. With this project, Tüpraş has become the only Turkish industrial organization in the Horizon 2020 program that received the highest amount of incentives at once.

Within the scope of the project, which started in 2018 and is planned to be completed in 2022, new technologies for the evaluation of waste heat will be implemented in four different energy intensive industries (steel, refining, paper and mineral).

Within the scope of the project, an electricity generation system with a capacity of 2 MW based on “Organic Rankine Cycle (ORC)” technology will be installed at the Izmir Refinery U-100 Crude Oil Unit, and electricity will be produced using the waste heat source at the refinery. Preparations for the field installation of the unit continued in 2019. The amount of energy to be produced is approximately 50% of the energy requirement of the U-100 unit. The amount of greenhouse gas reduction that can be achieved with the project has been determined as 1.6 tons of CO₂e/h.

Studies on Renewable Fuel Technologies

Tüpraş conducts renewable fuel research and development activities in line with its business objectives and within the scope of compliance with the European Union Renewable Energy Directive (RED II- Renewable Energy Directive). These studies serve to reduce the dependence on fossil raw material, expand the product range, and reduce the carbon dioxide emissions arising in the supply chain and production.

Renewable fuel studies consist of four main groups, including biofuels obtained from biomass sources, electrofuels obtained by fermentation or photoelectrochemical methods using solar energy, electrofuels obtained by electrochemical methods using electrical energy and renewable hydrogen obtained by electrolysis. In renewable fuel production complying with the fuel standards, hydrotreating and hydrocracking basic refinery processes are also used.

Tüpraş develops its knowledge and experience in renewable fuel production technologies with projects in different fields. In 2019, the TÜBİTAK ARDEB 1003 Program, the only bio- jet fuel project and where Tüpraş also participated as a partner, in the project named MICRO-JET, it is aimed to obtain sustainable and affordable bio-jet fuel through high-efficiency fuel synthesis catalysts using the microalgae biomass suitable for the geographical production conditions of our country.

Within the scope of renewable production and product technologies, nine project applications were made within the scope of the European Union Horizon 2020 program in 2019. Three of these projects target the production of biofuels (aviation, marine and land transport fuels), while the other six target the conversion of carbon dioxide and water into C1-C4 hydrocarbons and platform chemicals such as methanol and formaldehyde.

Projects for Capture, Storage and Conversion of Carbon Dioxide into Valuable Products

Slowing down the impacts of climate change on a global scale and Carbon Capture Utilization – CCU studies aimed to prepare for the carbon trade or carbon pricing sanctions that industries may encounter in the near future are included in the scope of Tüpraş’s greenhouse gas reduction studies.

In the field of carbon capture and conversion technologies, there are many national and international at different technological maturity levels, including laboratories, pilot and demonstration scales; and the number of technologies commonly applied on a commercial scale is quite low. In this regard, CCU studies, with the aim of developing technical competence, started with the laboratory scale carbon dioxide conversion project as of 2017 by using Tüpraş own resources. In addition to the conversion of carbon dioxide released from refinery processes, it is aimed to take part in projects with national and international partners, together with universities and industrial organizations specialized in the field of carbon dioxide capture.

Project applications to be funded by European Union are carried out by focusing on the R&D Center studies in following the promising technologies in line with Tüpraş’s sustainability strategies in the areas of carbon dioxide capture and conversion.

Our project entitled COZMOS in partnership with 11 international organizations from 9 countries aimed at conversion of carbon dioxide into valuable chemicals and fuels and our project entitled MOF4AIR in partnership with 14 different international organizations from 8 countries aimed at effective capturing of carbon dioxide from flue gases have been entitled to receive incentives from the European Union. The projects were initiated as of 2019.

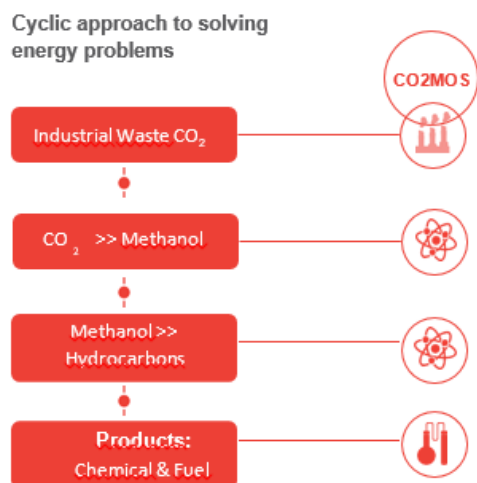
COZMOS

With the COZMOS (Efficient CO₂ conversion over multisite Zeolite-Metal nanocatalysts to fuels and Olefins) project, the aim is to develop innovative catalysts for the efficient conversion of carbon dioxide from industrial processes to propane / propylene. It is planned to perform performance tests of catalysts in the R&D Center Pilot Facilities Building. With the application of the technology to be developed in the project, the aim is to obtain a reduction of at least 1.9 tons of CO₂ per each C₃ ton product and at least 0.4 million tons of CO₂/year as of 2020 and 2.2 million tons of CO₂/year as of 2034.

Within the scope of “MOF4AIR” (Metal Organic Frameworks for carbon dioxide Adsorption processes in power production and energy Intensive industries) project, which Tüpraş is among its partners and within the scope of “Advanced Carbon Dioxide Capture Technologies” project, the aim is to efficiently capture carbon dioxide released due to industrial processes and thus to develop innovative adsorbent materials that will reduce carbon dioxide emission.

Within the scope of the project, Tüpraş will take a role in the development of technology to capture waste carbon dioxide in flue gases and will perform field tests of the technology to be developed. Within the scope of the project, it is aimed to process 2 million Nm³ flue gas and capture 490 tons of CO₂ during the demonstration operations, which are aimed to continue for a minimum of 18 months within the total duration of the project, with the demo scale CO₂ capture facility that will be established in 3 different locations, one of which is Tüpraş.

In the areas of carbon dioxide capture and conversion, Tüpraş continues its technology and material development, follow-up and transfer studies based on adsorption and thermolytic technologies, and aims to take part in international consortia and develop projects in these areas. The aim is to increase the knowledge and experience in this field and to expand the appropriate technological applications in all Tüpraş refineries.



Robotic Studies

Tüpraş aims to lead and direct the implementation of robotic applications in its refineries along with digitalization and automation technologies and the development of these technologies with an end-user perspective.

Thanks to robotic technologies, dangerous, demanding inspection and maintenance works carried out in refineries can be done more safely, quickly and in detail. Robots reduce inspection and maintenance costs, help to extend the life of assets and prevent dangerous accidents. While robotic solutions provide rich data for status and risk assessment, this data also makes it possible to make predictions about the remaining life and possible failures of the equipment. Risk-based inspection and maintenance works of refinery assets are routinely performed in Tüpraş.

In parallel with the studies, Tüpraş presented a problem proposal and collected project suggestions for the solution of the problem, within the scope of ESMERA, a Digital Innovation Hub project that supports SMEs producing robotic solutions and supported by the European Union Horizon 2020.

Tüpraş participates in events organized to exchange information with companies developing technology in the field of robotics, academic institutions and technology users. Tüpraş plans to join 3 different subject groups, feeding the European Roadmap, of EU Robotics, an association that aims to increase robot research, development and innovation in Europe.

It is aimed to take part in European Union projects in the application and development of robotic technologies with the communication network developing in this thematic area. In this process, an application was made to a Horizon 2020 project, which was able to perform complex technical control examinations autonomously with cognitive ability, and aimed at the development of commercially viable, multiple robotic swarms.

Data Analysis and Digitalization Projects

The concept of 'Artificial Intelligence', which has been developed by nurturing people's knowledge with digitalization in our processes and refinery processes, constantly improving itself with the available data, supporting the decisions made by the employees and aiming to improve their skills with the contribution, has come to the fore. The first studies in the field of artificial intelligence in Tüpraş R&D Center started with the research of application issues and techniques commonly used in system development, which can be easily integrated into the refinery environment. Our R&D projects in this context are briefly summarized below:

- FUDIPO project, which aims to provide a “decision support mechanism” to refinery processes and is supported under the European Union Horizon 2020 program,
- “Big Data” project, which aims to increase the efficiency of refinery with advanced data analysis methods by using refinery process data and supported within the scope of TUBITAK TEYDEB 1501 program,
- R&D Center project, which aims to estimate maintenance times in heat exchangers in refineries and is carried out with equity,
- R&D Center project carried out with equity to estimate the required cleaning time in the coking furnaces in the refinery.

Machine learning methods that use the historical data and experiences of the systems are used in our projects aimed at predictive maintenance. In this way, the aim is to expand predictive maintenance solutions and decision support systems in our refineries, while our expertise in machine learning techniques is developing. Accordingly, predictive maintenance work is carried out in pumps, such as membranes, reactors in accordance with PIANISM project, which was launched two years ago under the ITEA call.



Circular Economy Projects

Refinery Waste Ceramic Based Materials

Ceramics used in refineries are produced by extracting, processing, shaping and processing mineral based natural resources in general at high temperatures ($T > 1000^{\circ}\text{C}$ etc.) However, due to the high melting temperatures of ceramics, its reuse as a secondary raw material, such as metallic materials, is not easy and common. Ceramics that turn into waste cause high disposal costs and are not recycled to the circular economy, the problem of finding space in storage areas and environmental problems arising from storage. Within the scope of the project, it is aimed to contribute to the sustainable environment and cyclical economy with the reuse of refinery waste ceramic materials in the ceramic refractory material industry. In this context, it contributed to the Zero Waste Project and environmentally important gains were achieved by preventing regular storage of waste.

University Collaborations

One of the important factors in the success of Tüpraş R&D Center is to work in close cooperation with internal and external stakeholders. In this context, Tüpraş Energy Center (KUTEM), incorporated with Koç University, established with the support of Tüpraş as the first energy center founded with the private sector participation in Turkey has continued its studies in 2019 as well. The foundations of 2 new projects have been laid on the conversion of gases from refinery processes, which are the continuation of previous projects carried out together, into valuable products. In addition, joint studies were carried out in 4 study areas determined to expand the study areas of the research center.

Detailed Aromatic Content Analysis (HPNA) Project

Chemicals in heavy vacuum gas oil (HVGO) used as raw materials in diesel and jet fuel production turn into unwanted impurities (HPNA), creating performance problems in hydrocracker units. Within the scope of the project that has been ongoing since 2017, the analysis method was developed for the solution of the problem by examining the factors forming the HPNA. In line with the results obtained with the developed analysis method, refinery daily operations can be managed and efficiency improvement studies are carried out in the hydrocracker unit. With the know-how obtained during the method development studies, various methods were paved for different studies. The company continued its collaborations with various academicians and universities in 2019, with the awareness that academic expertise and knowledge in universities are an important resource. In this context, expect for Horizon 2020 projects, with 14 projects, various projects in various universities in Turkey and worldwide have been implemented. For the year 2020, the aim is to increase this number in the range of 30%.

Tüpraş encourages its employees to follow scientific developments and activities with the same approach. In this context, 33 international and national scientific articles were published in 2019, thus the number of scientific publications prepared since the R&D Center started its operation has reached 294. Increasing the number of scientific articles and publications in 2020 is also among the targets.

INNOVATION

One of the most important parts of Tüpraş's innovation approach is to evaluate the new technology and business models developing in the world and to provide value to these innovations by creating a field of application in their operations. When creating new products, services, processes and business models, the element of creating value is at the center of the activities. Within the scope of Tüpraş innovation strategy, emphasis is given to internal entrepreneurship and open innovation efforts. In-house entrepreneurship and open innovation activities are carried out with the leadership and support of the senior management, in line with the company strategies and focus areas, within the framework of the goals desired to be achieved in the short and long term.

Tüpraş has been a volunteer in Koç Innovation Program since 2017. Within the scope of the program, an innovation strategy has been determined, and the strategies and processes have been made widespread throughout the company. In parallel, internal and external communication and training activities were carried out to support cultural transformation and increase competence.

Innovation Volunteers Team

Innovation Volunteers Teams consisting of employees from different levels have been formed in order to ensure that innovative thinking is a part of the corporate culture and the internal entrepreneurship perspective is expanded throughout the company. Special trainings and work programs are designed for the teams on innovation, open innovation and corporate entrepreneurship. All employees who want to support open innovation activities and take part in in-house entrepreneurship project teams can become an Innovation Volunteer through the Idea Unit portal.

In-house Entrepreneurship Studies

The purpose of in-house entrepreneurship studies is to support new business model ideas that will support growth and development for a future that benefits from new business models. Tüpraş maintains its in-house entrepreneurship program, where its employees carry out their commercial and creative ideas, startup methodologies and commercialization. With the entrepreneurship ecosystem created, it is aimed to provide added value to both Tüpraş and entrepreneurs.

Information and awareness raising activities are organized in all refineries on creativity and entrepreneurship. In 2019, all Idea Generation Sessions were held to support the emergence of innovative ideas in focus areas at all locations.

Tüpraş provides active support to in-house entrepreneurs who convey their ideas through the Idea Unit portal in all steps from the idea to the realization phase. Within the scope of in-house entrepreneurship programs, more than 80 in-house entrepreneurs have found the opportunity to work their ideas with methods similar to the way startups work. In-house entrepreneurs included in the program receive entrepreneurship methodologies-intensive training and entrepreneurial mentoring support. At the same time, sponsorship support is given by the top and middle management by closely following the entrepreneurship projects during the maturation of the projects.

Tüpraş is a member of Corporate Entrepreneur Platform of Turkey established with an aim to develop learning across institutions, to increase awareness about successful practices and to expand the systematic practices of in-house entrepreneurship.

In addition, Tüpraş is in the TÜSİAD Entrepreneurship Ecosystem Working Group, established to develop the entrepreneurship ecosystem in Turkey.

In-house Mentorship Program

As of 2019, employees identified among in-house entrepreneurs have been included in the special training and development program to support projects as internal mentors. The aim is to help them gain competencies to actively mentor in in-house entrepreneurship activities to be carried out in future. Entrepreneurs included in the program participate in ecosystem events as well as being involved in in-house events, idea production workshops, all processes of the in-house entrepreneurship program, and take part as panelists and speakers.

Open Innovation Studies

Today, it is very important for companies to integrate their own resources with external resources. Collaboration mechanisms that allow the opportunity to get to know different and flexible working cultures closely feed the corporate culture of Tüpraş. Tüpraş continues its open innovation efforts for today's jobs and tomorrow's jobs.

As part of the open innovation strategy for today's business, Tüpraş aims to seek solutions to internal needs primarily, and to capture new growth areas by following game disrupting technologies. The needs of the business units are collected by the Innovation Directorate and the solutions obtained from the domestic and international startup ecosystem are delivered to the relevant units.

The Startup Evaluation Team, established within the company, with the aim of turning the innovation and entrepreneurship culture within Tüpraş into effective collaborations with startups, continues its activities. Tüpraş is in active communication and cooperation with more than 100 startups within the framework of open innovation areas.

At the same time, within the scope of future studies, new technologies and business models that may pose an opportunity or threat to the company are followed through startups through all channels at home and abroad. In this way, the company's strategic plans are supported with the learned startup perspective.

Tüpraş Ecosystem Events and Mentorship Studies

Within the scope of integration with the entrepreneurship ecosystem, Tüpraş participates in many activities for early and advanced startups and entrepreneur candidates, organizes programs and provides mentorship support to entrepreneurs.

More than 1000 students and entrepreneurs have been reached through posts about entrepreneurship, innovation and Tüpraş studies at university events. Tüpraş follows the process of turning ideas into initiatives and scaling efforts of enterprises through mentoring studies. Thus, in addition to supporting the development of enterprises, it can also Access entrepreneurs with whom it can collaborate by contributing to the ecosystem.

Inowhatif Acceleration Program with Tüpraş

“Inowhatif with Tüpraş” program, carried out in conjunction with KWORKS entrepreneurship, is one of the important centers in Turkey. The program, which is prepared for the potential needs of today and tomorrow in a large industrial company, is an acceleration study, and helps the development processes of the enterprises in the areas they need.

Entrepreneurs selected among those who apply to the “Inowhatif with Tüpraş” program will have the opportunity to work with a real problem, they will have the opportunity to get to know the sector closely with Tüpraş, and they will have the opportunity to develop business ideas and learn lean entrepreneurship methods.

DIGITAL TRANSFORMATION

Tüpraş closely follows the developments in the world in the field of digitalization and carries out pioneering works in the field of digital technologies and data analytics. Tüpraş aims to spread its digital thinking structure to the corporate culture and to be ready for Industry 4.0 in its digital transformation journey. The internet of things, big data infrastructure and data analysis systems, artificial intelligence, virtual reality and three -dimensional printers are subjects that developments are closely followed within the scope of digital transformation studies. Tüpraş develops projects in these areas and works to increase its expertise and knowledge.

Within the scope of the RPA (Robotic Process Automation) project launched in 2018 and within the scope of digitalization studies, more than 50 processes have been carried out by the software robot so far.

Thus, manpower and time are saved, as well as errors are prevented.

In 2019, within the framework of Industry 4.0 principles, technologies using IoT devices such as Corrosion Monitoring System and wearable technologies, field applications of wireless and mobile solutions were tested and solutions that provide added value were put into use.

Tüpraş invests in developing technologies in the field of cyber security, one of the biggest risks brought by the digital world. Accordingly, a roadmap and strategy has been created that aims to provide the highest level of protection in cybersecurity as well as in technical safety. In this context, a special team working on Operational Technologies (OT) was established, and the processes and policies in this field were created and implemented.

Big Data System Project

Refineries are large-scale industrial facilities where tons of crude oil are transformed into valuable end products such as gasoline, diesel, jet fuel, through different physical and chemical processes every day. In such large facilities, in order to monitor product quality and process safety, a large amount and variety of field and process data are produced at all stages from the first entry of crude oil to the end products. At this point, “Big Data” technology, which enables more efficient management and analysis of rapidly growing and diversified data, gains importance in a global framework. Industrial systems also need to be designed to produce excessive data, to store the data safely and properly and to analyze easily.

In Tüpraş, the “Big Data System” was established in 2019 with the aim of making better, adaptable and predictive logical decisions using the data provided by the technology in the projects produced and making the information obtained available in all processes. In this context, the preparation of the necessary infrastructure for transferring process, laboratory and other related data to the system, monitoring the data in the system, and making analytical studies on the system has been completed. Pentaho data integration and reporting tool is used, which enables different data sources needed for different applications to access data from a single point by users. Users were provided with Pentaho access, allowing them to conduct their own work.

With the Big Data System Project, infrastructure will be created for applications that make reporting, comparison or interpretation of the past and present, and provide future predictions and plans. Within the scope of the project, a data infrastructure and analysis system, which produces accurate and fast analysis results and supports the whole process, have been created. During the project, Gebze Technical University Computer Engineering Faculty Members gave support on the creation of algorithms, machine learning and the application of deep learning techniques accurately and effectively, ensuring the transfer of knowledge and following current developments.

Data Analytics and Analytic Tüpraş

In 2019, Tüpraş revised its digital transformation journey and updated its vision and strategies in this regard. The strategy focusing on “value added solutions in useful areas” in 2015-2018, thus benefiting from new technologies and establishing trust in the corporate culture, has been reshaped in line with the internalization axis of “data-based decision making and action”. Tüpraş has placed the keyword "to be connected" to the basis of its new vision of digitalization. For Tüpraş, commitment and being "interconnected" mean moving forward to a common goal with common "data". The new digitization vision consists of 4 main focus areas: connected employees, connected processes, connected refinery, connected field operations.

Tüpraş opened Data Analytics Centers in ITU and METU Teknokents in 2018 in order to reach qualified and equipped employees who will work in the field of data analytics in line with the understanding of being an “analytical company” and to be close to technology companies and the academic world. In 2019, in order to train analysts, a comprehensive training program has been established under the name of Analytical Tüpraş.

Senior evaluation committee meetings are held monthly in Tüpraş with the aim of evaluating, supporting, and directing the projects carried out in the field of data analytics, with the participation of the Digital Transformation Leader and managers related to the projects. With the Data Analytics workshops held at the refineries and with employees from all levels, information and awareness raising on data analytics and artificial intelligence are provided throughout the refinery.

In the field of data analytics, projects that provide efficiency and profitability have been implemented by using artificial intelligence projects developed in machine learning in maintenance, production and planning processes. Thanks to these projects, over 50 million TL productivity was achieved in 2019. Shift Optimization, Laboratory Result Estimation, Hydrogen Optimization, Ship Planning and Inventory Management are some projects carried out in different areas of the value chain in this context.



80%

Local Purchasing



88%

Customer Satisfaction



86.5%

Supplier Satisfaction



79.2%

Contractor Satisfaction



2,060

Indirect Product
and Service
Supplier

RESPONSIBLE VALUE CHAIN MANAGEMENT

The refining industry products generate a driving force for the economy due to the wide range areas of use. Due to this quality, the continuity of the value chain arising from Tüpraş activities has a strategic importance for the Turkish economy.

In order to secure production continuity, risk assessment and performance management systems are used and production planning is made. While planning production, variables such as market conditions, product demand, product portfolio efficiency projections, refinery configuration and raw material supply are taken into consideration. In addition, short, medium and long-term production targets are evaluated in the light of different scenarios, and necessary investments and practices are implemented. Tüpraş also works to meet the expectations of its customers at the highest level. Ensuring customer satisfaction is among the priority issues of Tüpraş.

Tüpraş places special emphasis on securing the continuity and development of the value chain extending from the supply chain to its customers and managing the effects in the value chain. The difficulties in the supply of refining products adversely affect the communications and transportation sectors, as well as many other businesses connected to these sectors and their supply chain. Thus, in case of an extraordinary condition that may occur at Tüpraş, the company fulfills the responsibility to keep the national reserve at the amounts specified in the regulations in order to ceaselessly meet Turkey's need for fuel products.

Applying to local procurement practices in procurement activities, Tüpraş purchased a total of over 2 billion TL from 2,060 active suppliers. 80% of purchases during the reporting period were from local suppliers.

In 2019, from

2,060

active suppliers, a total of

2

billion TL purchasing.

*Excl. Crude oil and oil by-product/product supply.

SUPPLY CHAIN MANAGEMENT

Supply management, which is the first phase of the Tüpraş value chain, is divided into three main processes: crude oil supply, by-product and product supply, indirect products and services, according to the type of products and services. The system, rules and principles to be followed while performing these processes have been determined with corporate documents such as Tüpraş Supplier Management Policy.

Tüpraş Crude Oil Supply Directorate and Domestic Crude Oil and Operations Directorate are included in the field of activity, while the refineries need to import the crude oil and purchase it from domestic producers. The types and quantities of crude oil needed by the refineries are determined by the optimization program and the process is carried out in accordance with the outcomes of this program. Some of the supplied crude oil is covered within the framework of annual agreements with the producer countries, and the remaining amount is purchased through the tender method from companies that actively trade crude oil in the market.

Tüpraş Foreign Trade Group Directorate imports the products and byproducts required by the refineries. Product and byproduct needs are determined with the optimization program and the process is carried out in accordance with the outcomes of this program. Considering the world conjuncture, company strategies and all the factors in the global and local market, some of the products traded can be carried out within the framework of periodic agreements, all or some of them can be carried out through tender method or one-to-one meetings of the Trade Office. Companies that are likely to be traded must have completed their registration process and entered the Tüpraş Suppliers list.

All indirect products and services used in Tüpraş activities are carried out by Tüpraş Contract and Purchase Directorate. The process is started by basing all needs on a purchase request through the SAP SRM system and the SAP ERP system.

There is a separate unit in all product and service groups that tracks the customs and transportation procedures for purchases from abroad.

All stakeholders in the Tüpraş supply chain are expected to carry out their activities in line with certain rules and working principles. These are specified in various policy documents, primarily the Supplier Code of Conduct, and the related procedures are followed. The functionality of these principles and procedures is controlled by the audits carried out in the supply chain.

All stakeholders who want to become a supplier of crude oil, products and byproducts must apply through the relevant commercial units to register with the supplier portfolio before starting a business cooperation. Documents regarding the firm's detailed information, commercial activities and financial reports are requested from all suppliers that apply for registration, and these information and documents are evaluated for commercial compliance and legal compliance. Within the framework of legal compliance, regular checks of both companies wishing to register and companies that have already registered are checked through different sources, especially the Thomson Reuters World Check database. Support for 3rd party companies can be obtained when deemed necessary for legal compliance controls, and this process is operated for all direct and indirect products and our service providers.

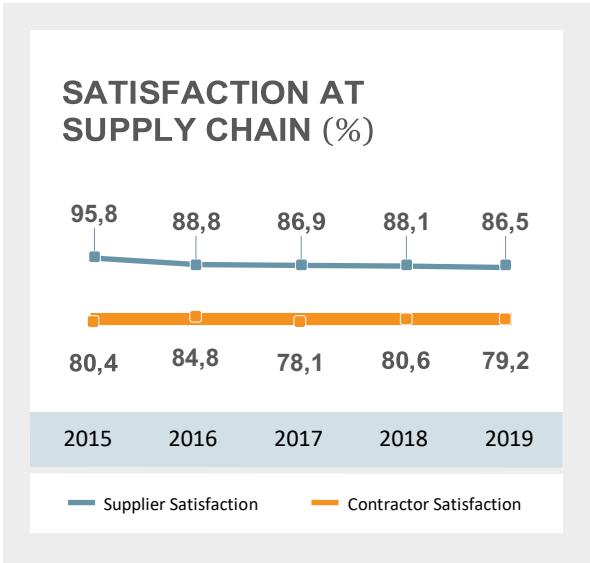
A "Supplier Preliminary Assessment Questionnaire" is applied to suppliers who apply to the Tüpraş Supplier Portal to register in the Tüpraş Supplier Portfolio, or who are already registered but are required to be evaluated by purchasing units. Within the scope of the survey, supplier companies are asked about ISO certificates for health, safety and environmental practices and processes. Companies that certify these processes provide an advantage in the purchasing process.

Within the scope of the study, companies are informed about the corporate policies such as Tüpraş Supplier Code of Conduct, Tüpraş Code of Ethical Conduct, Tüpraş Information Security Management System Policy, Tüpraş Personal Data Protection and Processing Policy, and the Processing of Personal Data Disclosure Text.

Workplace visits are carried out within the framework of the annual plan for suppliers. During these visits, audits are carried out in areas such as compliance with supplier behavior principles, production and material qualifications, compliance with quality, environment, occupational health and safety standards. Assessment surveys are conducted within the scope of the Contractor HSE Management System for suppliers that will serve at Tüpraş sites. During the reporting period, 841 companies were inspected within the scope of all supplier audit practices.

As Koç Holding is a signatory, suppliers are expected to comply with UN Global Compact Principles and related articles in ILO Conventions, which are also binding for Tüpraş. These principles included in the Supplier Code of Conduct are also included in the purchase contracts.

A "Supplier Satisfaction Survey" is held annually to increase cooperation with suppliers and to make the working process more efficient. Tüpraş manages this work as a process of mutually improving processes, increasing efficiency and learning from experiences.



RAILWAY TRANSPORTATION

Preferring safe and environmentally friendly methods in logistics operations, Tüpraş has become Turkey's first private railway train operator with the establishment of the Gulf Transportation Inc. 2017.

The company, which carried fuel transportation between Kırıkkale-Izmit Refineries with 5 locomotives that it leased from TCDD in 2018, continued to carry fuel transportation with two trains on the same line in 2019 by purchasing 5 new diesel locomotives. The company, which serves bidirectionally on the Izmit-Kırıkkale, Izmit-Batman, Kırıkkale-Batman, Kırıkkale-Mersin and Batman-Mersin lines, has started the transportation of terminal delivery sales to Tüpraş fuel customers between Izmit-Güvercinlik (Marşandiz). Carrying 1,83 million tons of products / byproducts in 2019, Körfez Ulaşım realized 50% of this amount with its own trains.

The company aims to increase its carriages outside of Tüpraş in the near future and to be the largest fuel carrier by undertaking 10% of Turkey's railway freight shipment. For this purpose, the amount of locomotive-wagon investments, which were received or decided to be invested was taken in 2019, exceeds \$ 100 million.

Greener Transportation

92% of greenhouse gas emissions resulted from the transportation sector in Turkey is due to road transport, while only 0.5% of it due to rail transport. Up to 60% less fuel is consumed in rail transport compared to highway to transport 1 ton of product for 1 km, and therefore less emissions are produced. With the operation of close lines in rail network, Tüpraş aims to reduce its annual CO₂ emission by about 8.300 tons during transportation.

In this context, the company has signed an agreement with the Swiss railway vehicles manufacturer Stadler for 7 locomotives with dual fuel (which can operate in diesel / electric modes). The locomotives to be produced at the Stadler's factory in Spain are planned to be delivered in 2021.

Safer Transportation

Railway transport is a much safer model than roads. In the period of 2018-2019, more than 25.000 tankers were pulled out of the traffic when approximately 633,000 tons of products were transported annually by rail, and the total road transport was reduced by 11 million km. On the other hand, since the hazardous substance load is also far away from settlements and other vehicles, possible risks and potential hazards are significantly reduced and social benefits are created. As of 2019, Tüpraş has reduced the rate of road transports within domestic dangerous goods transports to 3%, and it aims to further decrease this rate in the coming years.

The high performance of the workshop, which is the most comprehensive wagon maintenance and repair workshop serving according to ECM standards in Turkey and which is located in Kırıkkale Refinery, enables wagons operate at maximum efficiency.

In addition, while a technical maintenance team is formed within the Kırıkkale Refinery to carry out maintenance activities of company-owned locomotives, investments in the subject are still ongoing.

More Affordable Transportation

Railway transport costs less than road transport. In 2019, Tüpraş increased its logistics efficiency by providing substantial savings with railway transports.

1. You can access to the impacts of transportation activities in Turkey on greenhouse gas emission from 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 kilometers.

2. You can access road and railway accident statistics by year from the website of TÜİK.



RESPONSIBLE SEA TRANSPORTATION

The transportation of crude oil and petroleum products by sea is of great importance in Tüpraş's logistics operations. The company's marine transport is carried out by Ditaş Marine Operations and Tanker Management Co., whose 79,98% of shares it owns.

Ditaş constantly monitors national and international legislation concerning the field of work for quality, safe and environmentally friendly service, and completes the necessary compliance studies on time. In this context, ISO 9001:2015 Quality Management System and ISO 14001: 2015 Environmental Management System certificates are available for Ditaş offices, ships and terminals. Scrubber investment was made in 3 tanks in 2019 within the framework of compliance with IMO's (International Maritime Organization) rule of sulfur content in marine fuels to be less than 0.5%.

Mandatory trainings have been received for ships and terminals within the framework of the Occupational Health and Safety Law No. 6331 and related regulations. In addition, studies such as risk assessment, emergency action plans and periodic health checks are carried out together with occupational safety specialists and workplace doctors.

Cyber security studies were completed during 2019, awareness trainings on the safety of information were given. Since Maritime has been identified as a critical sector in terms of cyber security, the Corporate Cyber Incidents Response Team (SOME) has been established.

Ditaş has conformity certificates for ships, such as ISM (International Safety Management) code, ISPS (International Ship and Port Facility Security) code and Voluntary MLC (Maritime Labor Convention). Ditaş is the first in Turkey and 11th in the world to have the International Standard for Maritime Pilot Organizations' Compatibility Certificate which it received for its pilotage, towage and mooring services for Izmir Terminal.

TMSA 3 implementation studies, which are an important reference in tanker operation and are requested by the oil companies, are ongoing. The ships in the Ditaş operation are inspected by the member organizations OCIMF Sire system and are found eligible.

Electronics was used in all publications, except for publications that require compulsory use of paper on ships as part of digitalization studies and the Company's environmental policy. Document tracking has been started on the online program. In order to improve the professional competence and safety culture of the ship's personnel, an agreement has been reached with an industry- leading international company in digital training for shipping.

In 2009, during the operations of crude oil and chemical product ships arriving at Tüpraş offshore terminals, cargo operation captainship services are provided to increase safety; and since 2010, the compliance of ships on arrival to national, international rules and Tüpraş standards have been checked and reported. In this context, in 2019, 129 ships were inspected at the Izmit and Izmir terminals, and 206 ships received loading masters service.

CUSTOMER SATISFACTION

Tüpraş works to meet the expectations of its customers at the highest level. Ensuring customer satisfaction is among the priority issues of Tüpraş. All operations that are in contact with customers are executed in accordance with ISO 10002 Customer Satisfaction Management Standard.

Offering high quality products and services that meet the needs and expectations of customers, Tüpraş is committed to establishing transparent and bi-directional communication with customers, treating customers equally and fairly, and ensuring continuous improvement in product and service processes.

A Customer Satisfaction Survey is held regularly every year in order to monitor the level of customer satisfaction, identify points that are open to improvement, and thereby to make the necessary improvements. In the survey conducted in 2019, the satisfaction level of the customers was determined to be 88%. During the period, a project group was established in Tüpraş refineries that focused on identifying and eliminating differences in customer-oriented practices. In addition, all processes in which customers seek daily and fast solutions were designed and transferred to Tüpraş Solution Center.

In line with the feedbacks received from the customers in Tüpraş Customer Portal which was designed at the end of 2018 due to intense demand of customers and was opened for use via a mobile application, various improvements that would offer ease of use and speed to the daily processes of customers thanks to digitalization were projected and carried out. Many new reports were opened to online access through the portal, so document exchange was transferred to digital media. In addition, the announcements made to the customers were analyzed and made more frequent, and the announcements were instantly available to all users via e-mails and SMS.

Again, in line with the feedback from the customers and determined development areas, the customer website was designed and opened for use. In addition to being a guide for customers, the customer website is intended to be a communication channel where customers can easily communicate their complaints, requests and suggestions.



25

Million;

Number of people reached in cooperation with UN Women - HeForShe – and Fenerbahçe



12,000

Number of students reached through robotic coding training within Our Energy to the Future; I Code, Model, Produce Project



3,000

Number of students reached through science experiments in Our Energy to Students Project

COMMUNITY DEVELOPMENT

Tüpraş aims to transfer its strength, leadership and energy in the industry to projects that will support social development. The projects aim to create sustainable added value by adopting the business world, public and non-governmental cooperation model. While acting with a sustainable development approach in the works it develops and supports, it has guided the United Nations Sustainable Development Goals.

OUR SOCIAL RESPONSIBILITY APPROACH

In addition to the economic value created by Tüpraş, it carries out social responsibility projects primarily in the regions where it operates, with the responsibility of being a corporate citizen in order to contribute to social development.

With this understanding, it aims to lead the creation of environments that will allow the world and humanity to live better in its projects. Tüpraş develops projects that will contribute to these goals by guiding the United Nations Sustainable Development Goals in its activities.

Tüpraş acts with the principle of cooperation between the public, non-governmental organizations and the business world in its corporate social responsibility projects realized in the fields of education, environment, culture and arts.

Corporate reputation and perception studies that are carried out every two years with different stakeholder groups are used in the planning of social projects. In 2019, Tüpraş spent 3.5 million TL in donations and sponsorships as part of its social responsibility efforts.

CORPORATE CITIZENSHIP AND VOLUNTEERING AT TÜPRAŞ

While Tüpraş works with the goal of being a responsible producer, it encourages the voluntary support of its employees in the corporate social responsibility projects it conducts in light of its corporate culture and values.

Volunteers, consisting of employees and their families, take part in projects carried out by local and national non-governmental organizations, and contribute with their experience and knowledge.

The company carried out many social responsibility projects in 2019 with the voluntary participation of its employees.

EDUCATION

Our world has rapidly become digitalized with the widespread use of internet and new technological developments. With the onset of the 4.0 revolution, the replacement of human labor is triggered by artificial intelligence, automation and digital innovations. Individuals equipped with digital skills that can use technology efficiently are needed with new business areas.

Fourth of the United Nations Sustainable Development Goals, "Qualified Education" aims to increase the access of children to qualified education by 2030 and to train young people with science, technology, engineering and mathematics competencies.

Tüpraş is producing projects to raise new generations that produce technology in Turkey based on its contribution to sustainable development approach.

Our Energy to Future; I Code, Model, Produce Project

introducing digital technologies, robotic coding trainings provide children with the development of problem-solving, cause-effect relationship, development of psychomotor behavior, critical thinking-questioning, and self-expression skills. With these trainings, children have the power to understand, interpret and direct the technological world.

In the light of this information, Tüpraş collaborated with the Ministry of National Education, General Directorate of Basic Education and developed "Our Energy is to the Future; I code, I model, I produce" social responsibility project.

With "Our Energy to the Future; I Code, Model, Produce" Project, the aim is to raise new generations with research, innovative thinking, problem solving and generating skills by increasing the access of children to technology and digital education at an early age.

Dr. Cem Gençoğlu

Ministry of Education General Directorate of Basic Education

"When we talk about education, what comes to mind solely is the structures focusing on innovative thinking which is way beyond what is taught in schools. Our fundamental desire is to increase the number of Design and Talent Workshops all around the country. Design and Talent Workshops are the investments that encourage students to say: 'Just like I wish.' In this regard, I would like to offer my sincere gratitude to Tüpraş, Koç Holding authorities and those who contributed to this project."

Within the scope of the project, the Company has established robotic coding, three-dimensional modeling and production skill classes for the 7th and 8th grades in 30 secondary schools in Batman, Kırkkale, Izmir and Izmit provinces where the refineries are located. The project is not limited to establishing classes, but it is also carried out with an approach to supply consumables, provide trainings for student and teacher acquisitions, to measure and report the improvement; and aims at differentiation based on sustainability. The education content and tools of the project are prepared in accordance with the curriculum for "Technology and Design" courses of 7th and 8th grade classes of the Ministry of Education.

With the "trainer training" organized within the scope of the project, 80 teachers received their certificates approved by the Ministry of National Education after 5 days of training and examination. The aim is to increase the number of trainers who can use and teach new technologies by sharing the knowledge of the trainers with their colleagues.

In the 2019-2020 academic year, 12,000 students were trained. Project measurement report was prepared by Boğaziçi University Faculty of Education Instructor

Assoc. Dr. Serkan Özel. Classroom installations will continue in the 2020-2021 academic year.

In the 2019-2020 academic year,

12,000

students received robotic coding training.

Ersen Ertaş
Tüpraş R&D Manager

"As R&D Volunteers, we have developed our projects with the Corporate Communication and Human Resources Departments in order to contribute to the scientific development of children and add multi-dimensional value to their world. On our journey that started with an idea, I am very happy for our team for touching the hearths of thousands of students. Our team previously received many awards in the technical category at the Most Successful Koç Members" competition; however, it is a source of motivation for us as Our Energy to Students Project received award in "Those Adding Value to the Environment and Society" category among various projects. I would like to wholeheartedly congratulate my all my teammates."

Our Energy to Students Project

According to the results of Program for International Student Assessment (PISA), Turkey has been below the average in literacy in science among Economic Co-operation and Development Organization countries since 2006.

Acting with the belief and responsibility that sustainable development will be possible with access to qualified education, Tüpraş has launched the “Our Energy is for Students” project in cooperation with the Ministry of National Education. The project, which aims to give students love of science, aims to encourage students to become scientists. A 25-person volunteer group consisting of Tüpraş R&D Center staff was the trainer and practitioner of the project. Volunteers participated in the “training of the trainer” program organized by the Ankara Researcher Children's Center for this study.

In secondary schools without laboratories, volunteer instructors conduct experiments with students with materials that are easy to obtain. While the trainers emphasize the importance of working together between men and women in the scientific world, they inform students about the dangers that may occur during the experiments and share important information on safety, health and environmental issues. In order to monitor the social impact of the project, a measurement and evaluation model has been developed with the support of academic consultancy from the Faculty of Education at Boğaziçi University.

The project, which was started in the second half of the 2018-2019 academic year, is primarily carried out in 4 schools in Kocaeli. With “Our Energy to Students” Project, 3,000 students have been reached so far and 260 experiments have been carried out.

I Design the Future for Tüpraş and My Country

Koç Group's “For My Country” project, which focuses on the main issues of our country and this year's theme is devoted to “Digital Transformation”; In our world, which is shaped by the rapidly developing technologies from the beginning, it is based on the idea of not staying behind the change and directing the change.

Tüpraş realizes its social investments within the framework of this theme and aims to contribute to the empowerment of as many people as possible with technology. In this context, “I Design the Future” training presentations were held for 877 employees in 2019. Tüpraş has been awarded the Koç Holding “2019 for My Country” award by organizing the highest number of “I Design the Future” meetings across Koç Group.

INCLUSIVENESS, EQUALITY, DIVERSITY

In 2017, Tüpraş announced the goal of becoming an inclusive and egalitarian workplace in the energy sector by signing the United Nations Women's Empowerment Principles (WEPs), and continued to develop pioneering projects that will raise awareness and trigger transformation in the society. With this approach, the 5th Sustainable Development Goals aim to contribute to "Gender Equality".

In 2018, Tüpraş started global cooperation with the Fenerbahçe Sports Club and the United Nations Women's (UN Women) HeForShe Movement to raise awareness about gender equality. This cooperation is the only large-scale commitment in the field of sports on gender equality to date.

Within the scope of this awareness movement, which is carried out with the slogan "We Are Equal Together" and "Our Energy is Endless for Equality", Fenerbahçe A Football Team started to carry the HeForShe logo on the right arm of its jersey.

The dissemination of the project started from Fenerbahçe Sports Club. Gender equality awareness trainings were provided to 1,068 people, including athletes and employees, through volunteer trainers trained in cooperation with AÇEV (Mother - Child Education Foundation). "Fenerbahçe Sports Club and Affiliated Companies Gender Analysis" was carried out by the United Nations Women (UN Women).

Within the scope of the project, Fenerbahçe Sports Club carried out a "16-Day Activism Campaign for Combating Violence Against Women" with the support of the power of community access. As part of the March 8, 2019 Women's Day Event with the United Nations Women's Unit (UN Women) HeForShe Movement and Fenerbahçe Sports Club, former women athletes were hosted and the contributions of women athletes in this field were shared with the public.

Simla Türker Bayazıt

Fenerbahçe Sports Club
Board Member

"By saying "We are Equal Together" with our valuable business partner, Tüpraş, for a better society, a better and brighter future, we have carried out many crucial steps that will raise awareness in a very short time and help us gain social awareness with the HeForShe movement set out in 2018.

As Fenerbahçe Sports Club, which embodies goodness, with Tüpraş, with which we share our sensitivities, having the same perspective, we have created a serious impact in terms of awareness with the power we receive from our values, the transformation we have realized in ourselves and in our community about gender equality; and we managed to show our ability to be "pioneer and exemplary" once again to the sports community.

Our main message and desire in these awareness moves that we realized with the valuable support of Tüpraş was to ensure equality between men and women at every moment of life and at every part of our society, and to end violence against women.

We have a very large, discreet and well-established community. Throughout this process, we got the opportunity to work effectively in all organizations we held in coordination with the associations both in Turkey and all around the world; and we got a completely different frequency of social awareness by going out of sports.

We are happy to take part in and contribute to this cooperation, which we believe is very valuable with all the dynamics and structure of Fenerbahçe Sports Club.

Along with our peace of mind and our belief in tomorrow; we would like to thank Tüpraş and all its employees for this special cooperation through which we realized the firsts in terms of creating social awareness and contribution; and we believe that our efforts will continue in order to strengthen our new awareness moves, through which we touch human values, with new steps."

Zeliha Ünalđı

Programs Manager, United Nations Women (UN Women) Turkey

"We are pleased to work together with Tüpraş, one of Turkey's leading industrial organizations, in ensuring social gender equality which is one of the Sustainable Development Goals. Tüpraş, the signatory of United Nations Women's Empowerment Principles (WEPs), sets an example for many institutions and organizations in the private sector with its work on gender equality in business life. As the UN Women, we cooperate with Fenerbahçe Sports Club with the support of Tüpraş for the HeForShe Movement and we work to ensure gender equality. This study serves two important areas not only in the international arena but also in Turkey, which are: innovative approaches for men participation to social gender and social gender equality in accessing sports and physical activity as a human right. As UN Women, we will continue to cooperate with the private sector to sustainably improve life for future generations."

ART & CULTURE

In line with the 11th Sustainable Cities and Living Spaces of Sustainable Development Goals, Tüpraş is contributing to many projects under the protection of culture and art in order to contribute to the sub-goal of the Protection of Cultural Heritage.

Our Energy to Art: Arter

Tüpraş undertook the corporate sponsorship of Arter which was opened in 2010 as an institution of Vehbi Koç Foundation and moved to its new building at Dolapdere as of September 2019, for a 5-year period.

In this context, Tüpraş will provide an environment where young people and children can meet freely with temporary art, while ensuring that young people aged 24 and under can visit the art exhibitions for free. Arter, which opened its doors to visitors again in September, aims to be an accessible, lively and sustainable culture and life platform for everyone with its program that will cover all disciplines of art.

Melih Fereli

Founding Director of Arter

"I would like to proudly and gladly announce that Tüpraş has undertaken Arter's Corporate Sponsorship. Tüpraş lays the foundations of this reformist structuring by embracing the values represented by Arter, in the context of their widespread and adoption in the context of a relationship established by new generations through art. Thanks to Tüpraş, young people aged 24 and under will always be able to visit the Arter exhibitions for free."

Anatolian Civilization Series with Yapı Kredi Culture, Arts and Publishing

Tüpraş continued its support for the Anatolian Civilizations book series in 2019 as well. To date, with the cooperation of Yapı Kredi Culture, Arts and Publishing, the following works have met with the readers: "Urartu, Change in the East", "Phrygians: In the Land of Midas, in the Shadow of the Monuments", "Hittites An Anatolian Empire", "Pergamon, A Hellenistic Capital in Anatolia", "From Lukka to Lycia: The Land of Sarpedon and St. Nicholas", "Persians, Might and Splendor in Anatolia", "Assyrians, from the Tigris to the Taurus": God in Assyrian Kingdom" and "Anatolia in the Hellenistic and Roman Periods : Kings, Emperors city States".

Young Musicians at the World Stage

Tüpraş has been supporting the "Young Musicians on the World Stage" project for 6 years. The project was launched in 2010 with the aim of transferring 50 years of experience and visionary experiences of our world-renowned pianists Güher Süher Pekinel to young people. With the scholarship provided within the scope of the program, talented young people between the ages of 12 and 23 receive education in the most prestigious music schools in the world. In the "Young Musicians on the World Stage" program, the education of 10 students is still continuing and 20 gifted students have been provided with education until today.

23rd Istanbul Theater Festival

Within the scope of the 23rd Istanbul Theater Festival organized by İKSV with the contributions of Koç Holding Energy Group Companies, a total of 23,000 art lovers were reached. In order to increase students' access to the festival, the participation of 7,000 students to the festival was supported with the "23rd Istanbul Theater Festival Student Project".

16th Istanbul Biennial

The 16th Istanbul Biennial, organized by İKSV, was sponsored by Koç Holding, with the support of Tüpraş. The biennial hosted 451,387 visitors with the theme of "Seventh Continent" to draw attention to environmental pollution to a new continent formed by plastic wastes.

ENVIRONMENT

With its responsible producer identity, Tüpraş focuses on energy efficiency in production, conservation of natural resources and reduction of waste, and supports social responsibility projects to combat climate change and protect the environment.

DTO Fethiye Waste Collection Boat

Within the scope of sustainable marine tourism, TURMEPA, which provides mobile services in the bays frequented by yacht and touristic boat owners, contributes to reducing the environmental footprint of marine tourism by collecting thousands of tons of liquid waste. DTO Fethiye liquid waste collection boat, which has been sponsored by Tüpraş since 2016, collected 600,697 liters of wastewater, equivalent to 3,318 daily waste water, from 949 boats in its activities in Göcek Bay in 2019. Approximately 32,000 carboy-sized black and gray water were prevented from mixing with the sea, ensuring that 4,805,576 liters of seawater remained clean.

Tüpraş continued to support its support for the protection of nature, seas and biodiversity in 2019 through voluntary activities with its employees. Tüpraş volunteers participated in zero waste blue mobilization under the leadership of TURMEPA on 21 September International Coastal Clean-Up (ICC) Day. Within the scope of these activities, sea sand coasts have been cleaned simultaneously by volunteers in more than 100 countries, including Turkey. Within the scope of the event, more than 300 sea lovers came together for coastal cleaning and collected approximately 170 kilograms of waste, including plastic, metal, glass and cigarette butts, within an hour.

IMPROVING LOCAL SOCIETY

The Batman Disabled Sports Club

Tüpraş has been supporting the Batman Disabled Sports Club Association since 2007-2008 season. The Batman Disabled Sports Club, struggling in the 2nd league of Turkey Physically Disabled Wheelchair Basketball League, has risen to Wheelchair Basketball 1st League in the 2019-2020 season. The club, which has 42 athletes under its roof, has been providing sports for hundreds of disabled youth for 12 years.

Batman Tüpraşspor Football Club

Tüpraşspor Football Club, which was established in 1995, provides training at an early age to talented youth of the city of Batman where its refinery is situated and contributes to their profession in sports. This club is managed in cooperation with the District Directorate of Youth Services and Sports, Batman Amateur Sports Club Federation, Turkish Football Club and other clubs by the volunteers consisting of Tüpraş employees. In Tüpraşspor Football Club, there are 95 athletes between the ages of 10-18, 52 licensed and 43 unlicensed.

Awards Received

2010

Batman Refinery won the first place and Izmir Refinery took the third place in the Industrial Energy Efficiency competition.

2011

Izmir and Batman Refineries won the first prize in the Industrial Energy Efficiency competition.

2012

Batman Refinery won the first prize in the Industrial Energy Efficiency competition.

2013

Batman Refinery won the first prize in the Industrial Energy Efficiency competition.

Izmir Refinery received the first place in the Aegean Region Chamber of Industry's Environmental Practices Award.

2014

Batman Refinery won the first prize in the Industrial Energy Efficiency Competition.

2015

Tüpraş took the first prize in European Union Environment Awards Turkey Program, in Process Category.

Kırıkkale Refinery won the first place, İzmit Refinery second place, İzmit Refinery third place and Batman Refinery Jury Special Award in the Industrial Energy Efficiency Competition.

2016

Batman Refinery won the first place, Kırıkkale Refinery took the second place and İzmit Refinery took the third place in the Industrial Energy Efficiency Competition.

2017

Tüpraş R&D Center was selected as the Best R&D Center in the petroleum and petroleum products sector by the Ministry of Science, .

Batman Refinery won the first prize at the ICCI Energy Awards organized with the support of the Ministry of Energy and Natural Resources and EMRA.

Izmit Refinery won the second place and Kırıkkale Refinery won the third place in the Industrial Energy Efficiency Project Competition.

Izmir Refinery was awarded second place in the Environment Award competition organized by the Aegean Region Chamber of Industry.

2018

Kırıkkale Refinery won the first place, İzmit Refinery the second and Batman Refinery the third in the Industrial Energy Efficiency Project Competition.

Izmit Refinery won the first prize in the Sustainable Business Awards - Water Management Category.

Izmit Refinery received the second prize in the ISO 2018 Environment Awards - Large-Scale Enterprise Environment Friendly Practice Category.

In Turkey Investor Relations Association's 2018 Summit, Tüpraş received the second prize in the category of "the Company Most Invested by Sustainability Funds".

Tüpraş won the PERYÖN Human Value Awards - Employee Health and Safety Category.

2019

Tüpraş won the first place in the Innovation Strategy category within the scope of innovation development program İnovaLİG.

Energy Efficiency in Industry Project Competition, Tüpraş won the first and jury special awards.

Kırıkkale Refinery New Power Plant Project received the first prize in the Sustainable Business Awards "Energy Management" category.

Kırıkkale Refinery New Power Plant project was selected as the "Project of the Year" at the ICCI International Energy and Environment Fair and Conference.

Tüpraş received the Large-Scale Organizations Sector Award in the Sectoral Performance Awards organization of the Kocaeli Chamber of Industry (KSO).

Corporate Memberships

ESTABLISHMENT	LEVEL OF REPRESENTATION
A.SPIRE SUSTAINABLE PROCESS INDUSTRIES	Member
MEDITERRANEAN EXPORTERS' ASSOCIATION (AKİB)	Member
RAILWAY TRANSPORT ASSOCIATION	Board Member
WORLD ENERGY COUNCIL – TURKISH NATIONAL COMMITTEE (DEK-TMK)	Board Member / Representative
AEGEAN REGION CHAMBER OF INDUSTRY (EBSO)	Committee / Member of Assembly
ENERGY EFFICIENCY ASSOCIATION (ENVER)	Member
ETHICS AND REPUTATION SOCIETY (TEİD)	Member
İMEAK - Istanbul and Marmara, Aegean, Mediterranean and Black Sea Regions Chamber of Shipping / ALİAĞA BRANCH	Board Member - Aliğa Branch
KIRIKKALE CHAMBER OF COMMERCE AND INDUSTRY	Board Member / Member of Assembly and Committee Member / High Advisory Board Member
KOCAELİ CHAMBER OF INDUSTRY (KSO)	Board Member / Member of Assembly and Committee Membership
CORPORATE COMMUNICATIONS ASSOCIATION (KİD)	Member
ASSOCIATION OF TECHNOLOGY, INFORMATION MANAGEMENT AND AUDIT INSTITUTE (ISACA-ISTANBUL CHAPTER)	Member
TSE CEN/TC 19 TECHNICAL COMMITTEE	Member / Committee Memberships
TURKISH BRITISH CHAMBER OF COMMERCE AND INDUSTRY (TBCCI)	Member
TÜM ACCUMULATOR EXPORTERS AND MANUFACTURERS ASSOCIATION	Member
TURKISH INDUSTRY AND BUSINESS ASSOCIATION (TÜSİAD)	Member / Committee Memberships
TURKISH FOREIGN TRADE ASSOCIATION (TURKTRADE)	Member
EDUCATION AND DEVELOPMENT PLATFORM ASSOCIATION (TEGEP)	Member
TURKISH ENTREPRENEUR ASSOCIATIONS PLATFORM	Member
TURKEY QUALITY ASSOCIATION (KALDER)	Board Member / Member
TURKISH COGENERATION AND CLEAN ENERGY TECHNOLOGIES ASSOCIATION - TÜRKOTED	Member
TURKISH CORPORATE GOVERNANCE ASSOCIATION (TKYD)	Member
THE UNION OF CHAMBER AND COMMODITY EXCHANGES OF TURKEY (TOBB)	Member / Committee Memberships
TURKISH INVESTOR RELATIONS ASSOCIATION (TÜYİD)	Member

PERFORMANCE DATA

OPERATIONAL PERFORMANCE	2008	2015	2016	2017	2018	2019
Processed Crude Oil (thousand tons)	24,208	27,559	28,348	28,502	24,540	27,238
Production - Refining (thousand tons)	22,780	27,268	27,928	28,883	25,695	28,112
Sales (thousand tons)	25,957	28,739	30,255	31,493	29,830	29,197
Product Exports (thousand tons)	6,112	6,494	5,491	5,804	4,191	6,807
Product Imports (thousand tons)	2,931	2,999	3,749	4,388	6,252	2,827
White Product Ratio in Total Production (%)	68.6	75.4	76.6	76.3	77.4	79.0
Crude Oil Capacity Utilization (%)	86.0	98.1	100.9	101.4	87.3	90.8
Semi-product Capacity Utilization (%)	-	102.5	105.3	108.1	95.9	97.8
EKONOMİK VE İDARİ PERFORMANS	2008	2015	2016	2017	2018	2019
Net Sales (million US dollars)	23.353	13,571	11,547	14,801	18,349	15,804
Operational Profit (million US dollars)	984	1,012	781	1,333	1,189	393
Profit Before Taxes (million US dollars)	421	819	644	1,227	772	-55
Profit After Taxes (million US dollars)*	331	938	594	1,046	769	93
EBITDA (million US dollars)	1,099	1,397	1,125	1,614	1,846	712
Net Debt (cash) (million US dollars)	215	2,370	1,729	1,657	2,275	1,418
Return on Equity (ROE) (%)	11	35.3	21.9	41.3	36.8	4.6
Net Working Capital (million US dollars)	202	536	405	786	1,163	-253
Investment Expenditure (million US dollar)**	395	344	213	184	138	157
Profit per Share (TL)	1,73	10.18	7.16	15.22	14.83	2.1
Gross Dividend per Share (TL)	2,31	6.5	6.22	13.6	15.15	-
Net Dividend per Share (TL)	1,97	5.53	5.29	11.56	12.88	-
Taxes and Similar Obligatory Payments (million TL)	19.975	31,916	37,548	42,430	31,590	31,260
Corporate Governance Rating	8	9.44	9.42	9.47	9.48	9.50
Fitch Ratings Foreign Currency Long Term Rating	BB	BBB-	BBB-	BBB-	BB+	BB-
Fitch Ratings Local Currency Long Term Rating	BBB-	BBB-	BBB-	BBB-	BB+	BB-
Procurement Operations (million TL)	164	1,573	1,921	1,692	1,911	2,017
Domestic	64	1,122	1,200	1,217	1,164	1,608
Special Production	27	12	5	4	13	14
Overseas	73	439	716	471	734	395
Local Procurement Rate (%)	55,49	72.10	62.72	72.16	61.60	80.43
Total Number of Indirect Products and Suppliers	-	2,238	2,266	2,120	2,164	2,060

ENVIRONMENTAL PERFORMANCE	2008	2015	2016	2017	2018	2019
Direct Energy Consumption (TJ)	76,432	90,313	101,639	104,749	91,752	96,528
<i>Natural Gas</i>	18,052	36,005	39,085	47,306	45,342	51,039
<i>Fuel Oil</i>	34,138	13,184	15,487	8,581	3,481	2,292
<i>Fuel Gas</i>	21,232	38,512	44,265	46,164	40,562	41,028
<i>Coke</i>	3,010	2,612	2,802	2,698	2,367	2,169
Indirect Energy Consumption – Electricity (TJ)	221	483	518	315	172	32
Total Energy Consumption (TJ)	76,653	90,796	102,156	105,851	91,924	96,560
Energy Consumption per Refined Crude Oil (GJ/Ton)	3.2	3.29	3.60	3.71	3.75	3.55
Energy Intensity Value	119.1	102.3	103.4	102.2	99.1	98.4
Number of Energy Efficiency Projects	36	21	18	15	21	24
Saving in Energy Consumption (TJ)	978	1,031	1,054	830	3,620	473
Reduction of Costs Through Energy Efficiency (million USD)	-	9.6	9.1	4.9	36.0	3.2
Reduction in GHG Emissions Through Energy Efficiency Projects (Ton CO ₂ e)	106,870	71,744	77,666	45,945	243,666	26,292
Total Crude Water Consumption (million m ³)	-	20.1	17.5	15.7	18.2	18.0
Total Water Consumption (million m ³)	24.6	25.7	31.2	31.4	29.9	29.6
<i>Underground</i>	0.8	0	0	0	0	0
<i>Surface</i>	23.8	19	16.3	14.4	17.2	17.2
<i>Municipal</i>	0	1	1.2	1.2	1.1	0.8
<i>Treated waste water from Körfez Municipality</i>	0	5.7	13.7	15.7	18.2	11.6
Changes in Water Consumption (%)	9.41	13.0	-10.1	-5.7	8.2	-0.9
Water Consumption per Refined Crude Oil (m ³ /Ton)	1.1	0.7	0.6	0.5	0.7	0.6
Volume of Water Recycled (million m ³)	12.0	17.2	20.0	25.7	20.8	20.6
Percentage of Water Recycled in Total Water Consumption (%)	33.7	40.1	39.1	45.0	41.0	41.0
Total Wastewater Discharge (million m ³)	9.9	11.3	17.1	14.9	14.3	15.5
Total Amount of Solid Wastes (ton)	35,588	25,538	41,506	31,392	32,646	34,433
<i>Hazardous Waste (tons)</i>	29,168	14,192	30,971	17,811	23,617	22,144
<i>Non-Hazardous Waste (tons)</i>	6,420	11,346	10,534	13,581	9,029	12,290
Wastes by Disposal Method						
<i>Recycling (tons)</i>	20,671	17,812	27,746	22,618	28,934	23,947
<i>Disposal (tons)</i>	14,917	7,726	13,759	8,774	3,712	10,486
Solid Waste Recycling Rate (%)	58	69.7	66.8	72.1	88.6	69.5
Number of Saplings Planted during Afforestation Activities (units)	114,092	223	600	400	920	200
Estimated Reduction in CO ₂ Emissions due to Afforestation Activities (ton CO ₂ e)	44,344	75	200	165	380	83
Environmental Investment and Operation Expenditures (million TL)	202	208	346	390	150	268
Environmental Training (person x hour)	-	17,787	17,331	16,012	10,391	14,127
<i>Tüpraş Employees</i>	-	7,438	4,310	4,010	4,168	4,200
<i>Contractor Employees</i>	-	10,121	13,021	11,971	6,223	9,927
<i>Society</i>	-	228	-	31	-	-

SOCIAL PERFORMANCE	2008	2015	2016	2017	2018	2019
Total Training (personxhours)	251,121	234,311	284,878	233,034	384,405	238,168
<i>Female</i>	-	31,140	21,827	35,601	34,968	40,919
<i>Male</i>	-	203,171	263,051	197,434	349,437	197,249
<i>Monthly-paid Employees</i>	77,090	98,314	68,836	103,864	103,164	125,107
<i>Hourly-paid Employees</i>	174,031	135,997	216,042	129,170	281,241	113,061
Total Training (average hour per employee)	58	49	59	45	70	44
<i>Female</i>	-	79	55	79	70	80
<i>Male</i>	-	46	59	42	71	40
<i>Monthly-paid Employees</i>	96	93	65	91	82	98
<i>Hourly-paid Employees</i>	49	36	57	32	67	27
Total HSE Training Hours (personxhours)	46,708	104,091	135,951	141,729	165,038	201,813
<i>Tüpraş Employees</i>	-	63,596	85,609	83,381	87,805	108,026
<i>Business Partner Employees</i>	-	40,495	50,342	58,348	77,233	93,787
Accident Frequency Rate (number of incidents x 1,000,000/personxhour) 2 Days	-	2.8	2.9	3.7	4.8	4.2
Accident Severity Rate (lost days x 1,000,000/personxhour) 2 Days	-	320.0	365.0	1,135.0	300.0	56.8
Accident Frequency Rate (number of incidents x 1,000,000/personxhour) 4 Days	-	2.5	1.9	2.7	3.2	3.1
Accident Severity Rate (lost days x 1,000,000/personxhour) 4 Days	-	315	354	1,132	292	54
LTI Frequency - OSHA (LTI fr= Loss time injury per 1 million manhour = LTI*1M/mh)	-	0.6	0.47	0.71	0.69	0.7
LTI Severity - OSHA (LTI Sev= Days of LTI per 1 million manhour = Days*1M/mh)	-	27.93	47.57	36.06	27.75	25.79
Number of Fatalities	0	1	1	1	1	0
Employee Loyalty (%)	57	50	53	61	57.2	35.8
Customer Satisfaction (%)	86.2	88.8	89	88.2	88.8	88
Supplier Satisfaction (%)	97.1	95.8	88.8	86.9	88.1	86.5
Contractor Satisfaction (%)	-	80.4	84.8	78.1	80.6	79.2
Donations and Sponsorships (million TL)	13.67	17.3	24.4	30	40.6	3.5
Total Number of Interns	1485	1,076	962	874	884	479
Koç Holding Pension Fund Liabilities (million TL)	4.9	63.9	77.4	89.0	103.9	122.00
Rate of Minimum Wage to Minimum Starting Salary						
<i>Monthly-paid Employees</i>	3.8	4.1	3.3	3.3	3.2	3.0
<i>Hourly-paid Employees</i>	2.6	2.6	2	2.2	2.2	1.9

Employee Demographics	2016	2017	2018	2019
Total Number of Employees	4,979	5,185	5,458	5,442
<i>Female</i>	412	453	500	510
<i>Male</i>	4,567	4,732	4,958	4,932
Contractor Employees	601	584	630	650
<i>Female</i>	179	184	198	213
<i>Male</i>	422	400	432	437
Employees by Contract Type				
<i>Employees on Permanent Contract</i>	4,977	5,182	5,454	5,437
<i>Female</i>	412	453	498	508
<i>Male</i>	4,565	4,729	4,956	4,929
<i>Employees on Fixed-term Contract</i>	2	3	4	5
Employees by Category				
<i>Hourly-paid Employees</i>	3,899	4,042	4,199	4,158
<i>Female</i>	136	136	142	146
<i>Male</i>	3,763	3,906	4,057	4,012
<i>Monthly-paid Employees</i>	1,080	1,143	1,259	1,284
<i>Female</i>	276	317	358	364
<i>Male</i>	804	826	901	920
Employees by Employment Type				
<i>Full Time</i>	4,979	5,185	5,455	5,438
<i>Female</i>	412	453	498	508
<i>Male</i>	4,567	4,732	4,957	4,930
<i>Part Time</i>	0	0	3	4
Employees by Age Groups				
<i>Under 30</i>	1,435	1,633	1,784	1,632
<i>Between 30 - 50</i>	2,979	3,036	3,201	3,400
<i>Over 50</i>	565	516	473	410

GRI CONTENT INDEX



Disclosures/Subject	Description and Page Numbers	Omissions
GRI 101: Foundation 2016		
GRI 102: General Disclosure		
2016 Organizational Profile		
102-1	Contacts (p.98)	-
102-2	http://www.tupras.com.tr/urunler	-
102-3	Contacts (p.98)	-
102-4	Contacts (p.98)	-
102-5	Tüpraş 2019 Annual Report (p.125)	-
102-6	Tüpraş 2019 Annual Report (p.71)	-
102-7	Tüpraş 2019 Annual Report (p.14-15, 56, 68)	-
102-8	Performance Data (p.95)	-
102-9	Responsible Value Chain Management (p.74-75)	-
102-10	https://www.tupras.com.tr/material-disclosures	-
102-11	Risk Management (p.24-26), Internal Audit and Control (p.27), Disaster and Emergency Management (p.43)	-
102-12	Sustainability Journey (p.16-17), Quality Management (p.31), https://www.tupras.com.tr/ethical-rules	-
102-13	Corporate Memberships (p.91)	-
Strategy		
102-14	Message from the General Manager (p.6-7)	-
102-15	Message from the General Manager (p.6-7), Risk Management (p.24-26), Internal Audit and Control (p.27), Sustainability Management (p.28)	-
Ethics and Integrity		
102-16	Business Ethics and Anti-Corruption (p.27-28), https://www.tupras.com.tr/ethical-rules	-
Governance		
102-18	Corporate Management Approach (p.24), Employee Demographics (p.95)	-
Stakeholder Engagement (p.9-10)		
102-40	Stakeholder Engagement (p.29)	-
102-41	Employee Rights (p.34)	-
102-42	Stakeholder Engagement (p.29)	-
102-43	Stakeholder Engagement (p.29)	-
102-44	Customer Satisfaction (p.79)	-
Reporting Practice		
102-45	About the Report (p.5), Tüpraş 2019 Annual Report (p.125)	-
102-46	About the Report (p.5), Sustainability Management (p.28)	-
102-47	Sustainability Management (p.28)	-
102-48	About the Report (p.5)-	-
102-49	About the Report (p.5)-	-
102-50	About the Report (p.5)-	-
102-51	About the Report (p.5)-	-
102-52	About the Report (p.5)-	-
102-53	Contact (p.98)	-
102-54	About the Report (p.5)-	-
102-55	GRI Content Index (p.96-97)	-
102-56	Legal Disclaimer (p.98)-	-

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

Material Topics			
Standard	Disclosure	Description and Page Numbers	Omissions
Environment and Climate			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Sustainability Management (p.28), Responsible Production (p.46-52)	-
	103-2 The management approach and its components	Responsible Production (p.46-52)	-
	103-3 Evaluation of the management approach	Responsible Production (p.46-52)	-
GRI 301: Materials 2016	301-1 Materials used by weight or volume	Tüpraş in Numbers (p.8-11), Performance Data (p.92)	-
GRI 302: Energy 2016	302-1 Energy consumption within the organization	Performance Data (p.93)	-
	302-3 Energy intensity	Responsible Production (p.48), Performance Data (p.93)	-
	302-4 Reduction of energy consumption	Responsible Production (p.48), Performance Data (p.93)	-
GRI 303: Water and Pollutants 2018	303-3 Water withdrawal by source	Responsible Production (p.50-51), Performance Data (p.93)	-
	303-4 Discharge of waste water	Responsible Production (p.50-51), Performance Data (p.93)	-
GRI 305: Emissions 2016	305-5 Reduction of GHG emissions	Responsible Production (p.49), Performance Data (p.93)	-
GRI 306: Waste 2020	306-3 Wastes by Disposal Method	Responsible Production (p.52), Performance Data (p.93)	-
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	Responsible Production (p.46-47), Performance Data (p.93)	-
Innovation, R&D and Digitalization			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Sustainability Management (p.28), R&D, Innovation and Digital Transformation (p.56-71)	-
	103-2 The management approach and its components	R&D, Innovation and Digital Transformation (p.56-71)	-
	103-3 Evaluation of the management approach	R&D, Innovation and Digital Transformation (p.56-71)	-
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and supported services	R&D, Innovation and Digital Transformation (p.56-71)	-
	203-2 Evident indirect economic impacts	R&D, Innovation and Digital Transformation (p.56-71)	-
Social Gender Equality			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Sustainability Management (p.28), Our Energy for Equality is Endless (p.18-21), Community Development (p.86-87)	-
	103-2 The management approach and its components	Our Energy for Equality is Endless (p.18-21), Community Development (p.86-87)	-
	103-3 Evaluation of the management approach	Our Energy for Equality is Endless (p.18-21), Community Development (p.86-87)	-
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	Talent Management (p.34)	-
GRI 404: Training 2016	404-1 Average hours of training per year per employee	Talent Management (p.37), Performance Data (p.94)	-
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	Corporate Governance Approach (p.24)	-
GRI 406: Non-Discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	No such cases have been occurred.	-
Occupational Health and Safety			
GRI 403: Occupational Health and Safety 2018	403-1 Occupational Health and Safety Management System	Sustainability Management (p.28), Talent Management (p.40-43)	-
	403-2 Damage Description, Risk Evaluation and Case Examination	Talent Management (p.40-43)	-
	403-3 Occupational Health Services	Talent Management (p.40-43)	-
	403-4 Worker Engagement in OHS Processes, Consultancy and Communication Methods	Talent Management (p.40-43)	-
	403-5 Employee OHS Trainings	Talent Management (p.40-43), Performance Data (p.94)	-
	403-6 Supporting Occupational Health	Talent Management (p.40-43)	-
	403-7 Protection and Prevention from OHS Impacts due to Business Relations	Talent Management (p.40-43)	-
	403-9 Work-related Injuries	Talent Management (p.40-43), Performance Data (p.94)	-
	403-10 Occupational Diseases	Talent Management (p.40-43), Performance	-

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