

KARACHAGANAK SUSTAINABILITY REPORT

2020



CONTENTS

INTRODUCTION

Letter from General Director.....	3
About this Report.....	4
Material topics and Stakeholder engagement.....	6
Operations and Development Projects	10

2

CORPORATE GOVERNANCE

Governance structure and Management approach.....	31
Business conduct	36

30

KPO IN NUMBERS

Our Sustainability Principles	21
Our Sustainability Metrics.....	22

20

SOCIAL IMPACT

Occupational Health.....	39
Safety.....	46
Emergency response	57
Asset Integrity.....	59
Security	62
People and skills.....	64
Community engagement	72

38

ENVIRONMENTAL IMPACT

Environmental Protection Measures Plan	77
Sanitary Protection Zone.....	80
Environmental monitoring.....	82
Reduction of air emissions	86
Energy efficiency.....	91
Water use and disposal.....	95
Management of waste.....	98
Biodiversity.....	102

76

ECONOMICAL IMPACT

Supply chain.....	105
Local Content development.....	106
Supporting social infrastructure.....	108

104

ABOUT THIS REPORT

This Report is the thirteenth sustainability report issued annually by Kazakhstan Branch of Karachaganak Petroleum Operating B.V. (further as KPO). Traditionally, the Report outlines our 2020 performance through the prism of three pillars of sustainable development: social, environmental, and economic. Furthermore, here we disclose our management approach, social partnerships and environmental initiatives implemented through engagement with key stakeholder groups.

KPO is committed to the principles of its Sustainable Development Charter. These principles meet the widely acknowledged definition of Sustainable Development as "development that meets the needs of the present without compromising the ability of future generations to meet their needs".

110

APPENDICES

GRI Index.....	111
Verification Report.....	120
Glossary.....	122
Feedback form.....	125



SUSTAINABILITY REPORT

INTRODUCTION

- Letter from General Director.....3
- About this Report.....4
- Material topics and Stakeholder engagement6
- Operations and Development Projects.....10

LETTER FROM GENERAL DIRECTOR GRI 102-14



Dear readers,

It is my great pleasure and honour to present to you the 13th issue of the KPO Sustainability Report of the Karachaganak Petroleum Operating B.V. Kazakhstan Branch, covering 2020.

I have recently joined KPO and already feel excited about the sustainability activities that KPO has been carrying out over the past years.

2020 has definitely been a shaking experience, as it caused a massive transformation for the society as a whole, the industry and our Company due to the COVID-19 pandemic. I am proud to say that KPO was able to manage and control the crisis in an early stage and maintained operations at an outstanding level, resulting in further sustainability improvements.

Among the 2020 achievements, I would like to highlight KPO's continuous improvements in areas such as Safety and Occupational Health, Environmental protection, community engagement and medical support. Also, the local content progress in staff and in goods, works and services, and particularly, in production and development should be highlighted: good examples can be found in the Karachaganak Gas Debottlenecking Project, the 4th Gas Injection Compressor Project and the Karachaganak Expansion Project 1. Further key improvements were made in the area of process safety and asset integrity at our production facilities. Here, Unit-3 should be highlighted. The performance of our personal safety and road safety was also enhanced.

In terms of environmental emissions, KPO is a world-class operator. Yet, further progress must be made considering the recent changes in the national legislation, as well as society's expectations.

In the oil and gas industry, we must never allow ourselves to become complacent, taking comfort in achieved metrics, but must continue to strive for leaving a sustainable legacy for our earth and future generations through leadership, innovations and co-operation.

I very much look forward to continuing and enriching KPO sustainability practices and being able to share our experience with all our stakeholders in an open and transparent manner.

Allow me to greet you wholeheartedly and present this 13th edition of the KPO Sustainability Report – I trust that you find these pages very informative and useful in understanding modern-day Karachaganak.

Yours truly,

Giancarlo Ruii
KPO General Director

ABOUT THIS REPORT

Our mission

Mission of the Karachaganak Petroleum Operating B.V. (further as KPO) is to develop the Karachaganak Field in an environmentally and economically sound manner while simultaneously creating the socio-economic development opportunities for local communities.

To support the achievement of our mission, we continue embedding sustainable development thinking into the way we do business. This means that in all our activities we shall:

- look to minimise impacts and maximise opportunities linked with its presence;
- consider the consequences of our decisions in the long-term;
- engage our stakeholders in a constructive dialogue;
- incorporate strong governance and transparency.

Report scope and boundaries

GRI 103-1, 102-1, 102-50, 102-51, 102-52

The boundaries of the KPO Sustainability Report relate to all Company operations in the area of the Karachaganak Oil & Gas Condensate Field and export pipeline systems: Karachaganak-Orenburg Transportation System (KOTS) and Karachaganak-Atyrau Transportation System (KATS).

The Sustainability Report is for the 2020 calendar year. This document presents an overview of our performance in 2020 and plans for the following 2021 year. In order to demonstrate our sustainability commitments, the data disclosed in the Report is presented in comparison with previous years. Our material topics are reflected in the Contents of the Report and listed in the relevant chapter. Following the established practice, we disclose both our achievements and issues. This Report has been endorsed by the KPO Directors' Committee and reviewed by the Operators' Sustainability Sub-Committee.

Our previous Sustainability Report for 2019 was issued in September 2020. The archive of all our issued sustainability reports is available on our website at www.kpo.kz/en/sustainability. Besides, our reports are posted on the GRI website www.globalreporting.org and at the Corporate Register web database, one of the largest global online directories for corporate responsibility reports, available at www.corporateregister.com.

On behalf of its shareholders, KPO is an Operator of the Karachaganak Oil & Gas Condensate Field and was incorporated in the Netherlands in 1998 as a branch in Qazaqstan. Currently, the KPO is owned by Shell (29.25%), Eni (29.25%), Chevron (18%), Lukoil (13.5%) and NC KazMunayGas (10%). KPO acts in accordance with the Final Production Sharing Agreement (FPSA) signed between the shareholders and the Government of the Republic of Qazaqstan. **GRI 102-5**

Funding for the Branch is provided by the shareholders, and all capital assets constructed or purchased by KPO are not depreciated, depleted or amortized given the retained right to use the assets by the shareholders as per the FPSA. The FPSA does not foresee capitalisation in terms of debt and equity. Accordingly, no sales and results are recorded in the financial statements of KPO. Revenues from the KPO activities are shared between the Government of the Republic of Qazaqstan and the shareholders, who solely report about their financial accounts, including revenues, net sales, capitalisation, etc. in their own financial reports. **GRI 102-7**

Applicable Global Reporting Initiative Standards

GRI 102-54

Our goal is to ensure the appropriate level of transparency and reliability in our sustainability report, as required by the GRI Standards.

This Report has been prepared in accordance with the requirements of the GRI Standards in the 'Core' option, and provides disclosure of a number of indicators related to our most significant material topics. We also apply some of the GRI G4 Oil & Gas Sector Disclosures in the Report.

KPO has been reporting on its sustainable development since 2009. Earlier publications were prepared in accordance with the GRI Guidelines 3. In the period from 2013 through 2016,

KPO reports were issued in accordance with the Fourth Guideline of the Global Reporting Initiative (GRI G4), meanwhile KPO was one of the first companies in Qazaqstan to have applied the requirements of the GRI G4. The publications for 2017, 2018 and 2019 were issued in accordance with the requirements of the GRI Standards.

Independent assurance **GRI 102-56**

KPO applied to Ernst & Young (EY) for independent assurance of the 10 selected disclosures in this Report according to international GRI Standards in the 'Core' option. EY assurance letter of selected disclosures is presented in the body of the Report on pp. 120-121.

MATERIAL TOPICS AND STAKEHOLDER ENGAGEMENT

MATERIAL TOPICS GRI 102-44, 102-46, 103-1

The KPO Sustainability Report is one of the important tools for building effective communication with stakeholders. The aim of this document is to raise awareness of stakeholders about material topics that impact both the organization and its stakeholders, and how they are resolved through engagement of the two.

KPO has been reporting to external stakeholders about its sustainable development since 2008. While working on this report we rely on extensive experience of our Parent Companies and follow the requirements of the recognized best practices in non-financial reporting.

The Sustainability reporting process involves exchange of information, collection of data and interdisciplinary communication both internally and externally.

For a number of years, we have identified a number of topics material for us and continue sharing their progress dynamics. In 2020, all the material topics previously covered in this report remained relevant. Figure 1 outlines all the topics.

We are guided by the Standards of the Global Reporting Initiative (GRI) as an instrument for defining boundaries of our material topics. The most critical Key Performance Indicators are disclosed compared to those of the International Association of Oil and Gas Producers (IOGP). We report on the applicable GRI standards taking into account management approaches and Key Performance Indicators of the Company. At the same time, risk and opportunities assessed, as well as set goals are quantified in comparison with achievements of previous periods.

Regardless of Standards' requirements, we do our best to provide more detailed information about the Company's activities and material topics in sustainable development. Therefore, the information presented in the Report goes far beyond the GRI indicators.

Considered in the Report material topics tend to address issues related to the economic, environmental and social impacts of KPO's activities generally, as well as separately in the process of implementation of particular production operations. The Company's interaction manifests both internal and external. The significance of material topics and their linkage between KPO and its stakeholders can be seen at the figure 2.

The topics disclosed for the reporting period are tracked annually in the process of multilateral interaction with the our Parent Companies, the PSA LLP Authority, various regulatory bodies, contractors, business partners, employees, trade unions, local communities and the media. The stakeholders raise their issues at various sessions, from meetings of the Village Councils to forums, conferences, public hearings, open days, audits, and social surveys and by direct addressing them to the Company. GRI 102-43

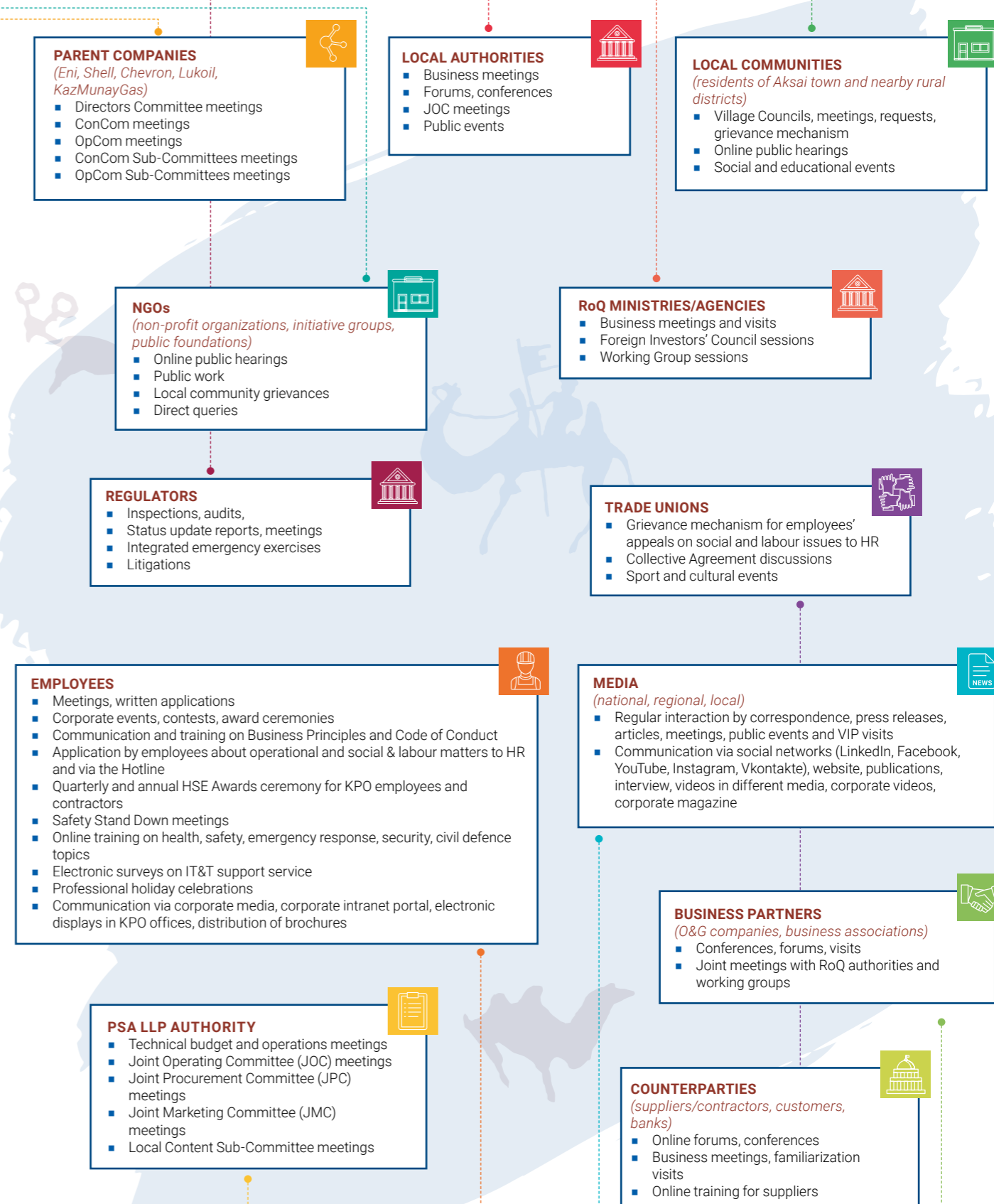
As part of the Report's preparation, we aim to continuously raise public awareness of the material topics disclosed in the Report, both internal and external. Inside the printed copies of our Sustainability Reports for the last three years, there are loose-leaf feedback forms for readers to fill in. We have also placed an online feedback form on our website.

Fig. 1. Material topics of KPO sustainable development GRI 102-47, 102-44, 102-46



Fig. 2. KPO engagement with stakeholders in 2020 GRI 102-40, 102-42, 102-43, 102-44

Material topic	Parent Companies	PSA LLP	Employees	Local authorities	RoQ Ministries / Agencies	Regulators	Counterparties	Business partners	Media	Local communities	NGOs	Trade Unions	TOTAL
COVID-19 and its impact on the Company's activity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12
Corporate governance and management approach	✓	✓	✓										3
Labour protection, safety & asset integrity	✓	✓	✓	✓	✓	✓	✓	✓				✓	9
Technologies and innovations	✓	✓			✓		✓	✓					5
Management systems (compliance with ISO14001, 45001, 50001 and 9001 (contractors))	✓		✓			✓	✓				✓		5
Emergency preparedness	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	10
Protection of health	✓	✓	✓	✓	✓	✓	✓					✓	8
Employment and compensation	✓		✓	✓	✓	✓				✓		✓	7
Professional development & training of staff	✓	✓	✓			✓						✓	5
Social, cultural & gender diversity, equal opportunities	✓		✓				✓			✓		✓	5
Industrial (Labour - Management) relations including contractors	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	11
Freedom of association and collective bargaining	✓		✓									✓	3
Security practices	✓		✓			✓	✓		✓			✓	6
Respect for Human Rights by security services	✓		✓				✓						3
Anti-corruption	✓		✓		✓		✓	✓	✓		✓		7
Protection of the environment	✓		✓	✓	✓		✓		✓	✓	✓		8
Environmental compliance	✓	✓	✓	✓	✓	✓			✓	✓	✓		9
Community Relations: impact assessment & mitigation	✓			✓					✓	✓			4
Grievance mechanisms: impacts on local communities, labour practices, environmental topics	✓		✓	✓						✓	✓	✓	6
Procurement practices and supply chain	✓	✓					✓	✓					4
Increase of local content in staff	✓	✓	✓	✓	✓	✓	✓			✓			8
Local content development and its share in procurement of goods, works and services	✓	✓		✓	✓		✓		✓				6
Social infrastructure projects, sponsorship and charity	✓	✓	✓	✓	✓				✓	✓			7
Supply of electrical power to regional network	✓	✓	✓	✓					✓	✓			6
Transparency of payments to the government (EITI)	✓	✓		✓	✓	✓			✓		✓		7



STAKEHOLDER ENGAGEMENT GRI 102-42, 102-43

Success of sustainable development depends on effective dialogue of business and its stakeholders. We are bound with our stakeholders by multiple ties and are interested to hear their opinions.

The COVID-19 pandemic has significantly affected both the processes of interaction with stakeholders in terms of the dynamics of contacts and, accordingly, the volume of feedback received. In 2020, due to the limitations imposed by the COVID-19, engagement with many stakeholders was held online; some planned activities could not be implemented. Overall, the Company has successfully fulfilled all its operational plans including implementation of the expansion projects.

Given the scale of the KPO's activities, our stakeholders are a large number of diverse groups and organizations. The most significant groups of stakeholders and ways of interaction in 2020 are presented on the figure 2. The topics, which involved

most stakeholder groups, are the COVID-19 and its impact on the KPO activities, health and safety, emergency response, asset integrity, industrial relations, environmental protection and compliance with environmental requirements.

Our interaction with stakeholders is an integral part of the Company's activities. It is planned, documented and carried out in accordance with the legislation and internal policies. KPO departments determine their stakeholders on their own, and share their experience of engagement in this Report.

Feedback on the the issued Sustainability Reports is obtained using different channels, including telephone and e-mail communications through Sustainability@kpo.kz address, as well as KPO's official website www.kpo.kz. All received comments and suggestions are reviewed in preparation of the next Report.

OPERATIONS AND DEVELOPMENT PROJECTS

OVERVIEW GRI 102-3, 102-4, 103-1, 06-1

The Kazakhstan Branch of Karachaganak Petroleum Operating B.V. (KPO) is an international oil and gas condensate company that carries out production and exploration of hydrocarbons in West Qazaqstan region of the Republic of Qazaqstan. On behalf of its parent companies Shell, Eni, Chevron, Lukoil and KazMunayGas, KPO is an operator of the Karachaganak Field, one of the world's largest oil and gas condensate fields in north-west Qazaqstan.

The Karachaganak oil and gas condensate field (KOGCF) covers an area of over 280 km² and is located in a remote environment with extreme continental climate. Karachaganak is a unique field with complex operating conditions. The field is some 1,600 m thick and very complex and unique with its top at a depth of around 3,500 m. The extracted hydrocarbons contain up to 4.5% of highly toxic and corrosive hydrogen sulphide (H₂S), as well as carbon dioxide (CO₂) which can be highly corrosive in certain conditions.

According to the latest Reserves Re-Determination Report for the Karachaganak field (accepted by the RoQ State Reserves Committee (GKZ) on 17.11.2017), it is estimated that the Karachaganak Field contains some 13.6 billion barrels of liquids and 59.4 trillion cubic feet of gas, of which approximately 13.6% of liquids and 12.9% of gas have been recovered as of 2020 **06-1**

The Company annually invests the funds in the application of leading-edge technologies to maximize sustainable economic value and minimise environmental impact. The total investment in the development of the Karachaganak oil & gas condensate field since the signing of the FPSA in 1997 to 31.12.2020 has totalled over USD 27 bln. As of end 2020, 4,368 people worked in the KPO organisation. **GRI 102-7**

KPO FACILITIES GRI 102-7, 102-4

Hydrocarbon production and processing occurs at the three major interconnected units: the Karachaganak Processing Complex (KPC), Unit 2 and Unit 3. Approximately 2,000 kilometres of pipelines make up the infield system linking the major facilities and allowing efficient flows of production from the wells and among the units. Amongst the facilities, there is an Early Oil Production Satellite (EOPS) and Eco Centre. An overall view of the facilities is graphically presented on the figure 3.

The transportation system operated by KPO includes the main export route for stabilised liquid hydrocarbons – Karachaganak – Atyrau Transportation System (KATS) with two pumping stations: one at KPC and the other at Bolshoi

Chagan, and a receiving and storage facility in KPO Terminal in Atyrau. The other export route is the Karachaganak – Orenburg Transportation System (KOTS), which is used by KPO for transporting gas to Orenburg Gas Plant in the Russian Federation.

As of end 2020, 114 producing and 19 re-injection wells were online at Karachaganak, from a total well stock of 467 wells. In 2020, KPO well stock was increased by one new horizontal well compared to the previous year (467 wells in 2020 vs 466 wells in 2019). The COVID-19 pandemic has forced a temporary suspension of drilling activities and lead to the lower increase in well stock.

Fig. 3. Karachaganak facilities and products

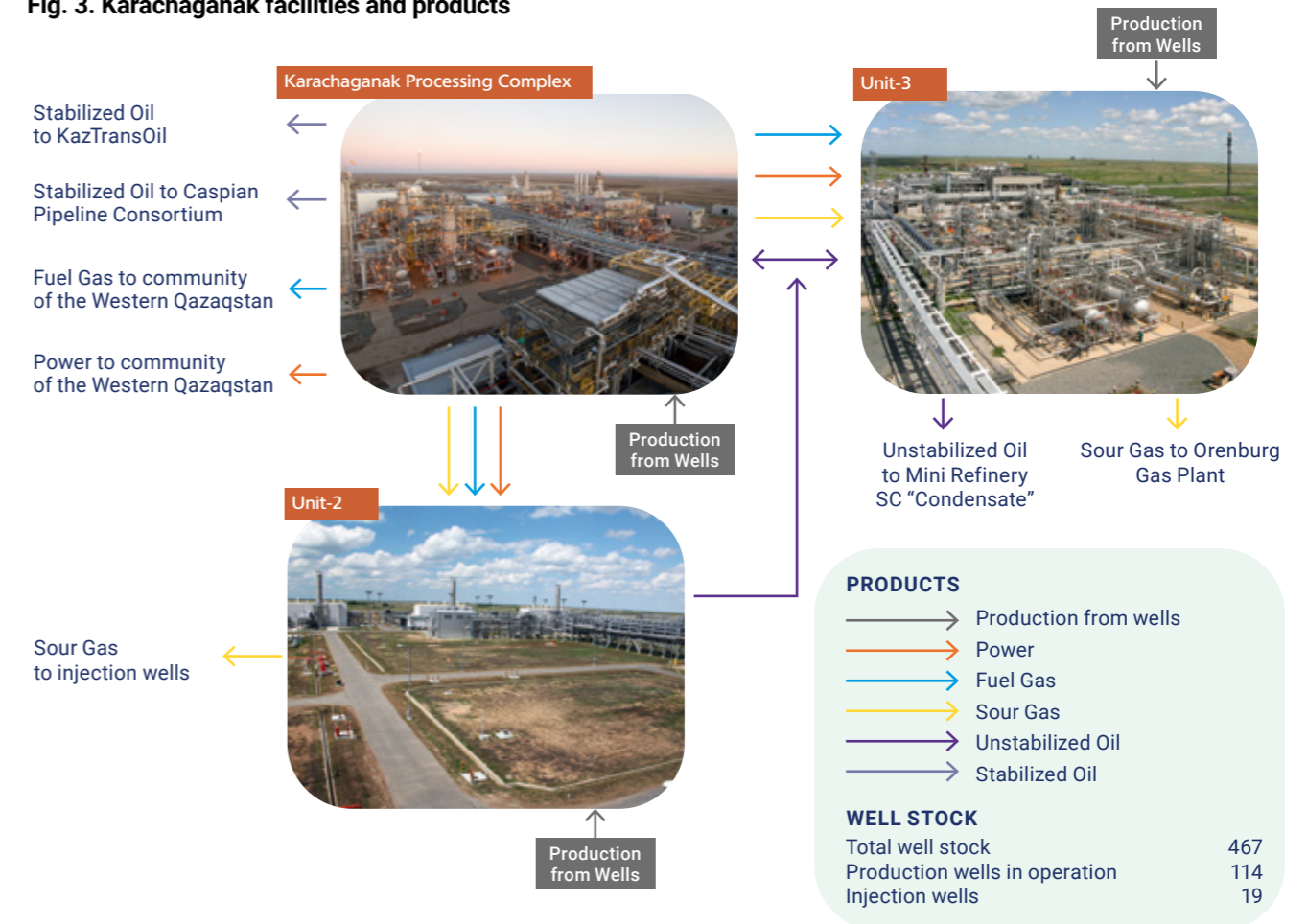
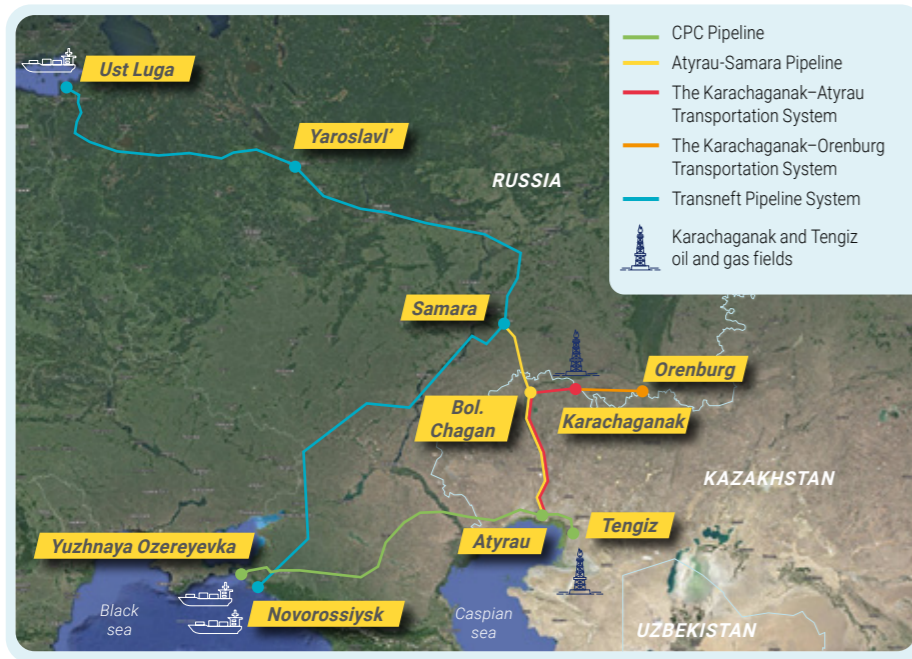


Fig. 4. KPO export routes GRI 103-1



OUR PRODUCTS AND EXPORT ROUTES GRI 102-2, 102-6

KPO extracts and processes stabilised and unstabilised liquid hydrocarbons, raw gas and fuel gas. The majority of hydrocarbons produced in the Karachaganak Field are exported to maximize net sales revenues.

In 2020, around 99.8% of liquid production was sold as stabilised oil to the Western markets via the following routes:

- the Caspian Pipeline Consortium (CPC) pipeline,
- the Atyrau – Samara pipeline and further through the Transneft system.

The CPC pipeline delivers KPO oil to the Black Sea port of Novorossiysk (Yuzhnaya Ozereyevka), whereas the Atyrau-Samara pipeline is used to deliver oil to the Ust-Luga port in the Baltic Sea (see Fig. 4). The main export route for oil is the CPC – the pipeline with a highest netback cost. The Atyrau – Samara route is used as an insurance backup.

In 2020, KPO exported a record total 10.86 mln tonnes of stabilised oil, out of which 10.51 mln tonnes were sold through CPC. To maximize revenue, nearly 0.34 mln tonnes of oil were exported via the Atyrau-Samara pipeline, of which 0.19 mln tonnes were diverted from CPC to sell at a higher netback

price. During the reboilers' washing at KPC, liquids were delivered to Condensate SC's refinery.

The gas produced from the Karachaganak Field is:

- re-injected into the reservoir to maintain reservoir pressure,
- sold as raw gas to KazRosGas LLP under the long-term Gas Sales Agreement,
- sweetened (i.e. cleared from H₂S) to generate electricity for KPO facilities including Gas Turbine Power Plant and for local power distribution companies.

In 2020, KPO sold 8.9 bln m³ of raw gas to KazRosGaz for processing at the Orenburg Gas Plant. Considering the commissioning of the new 26" gas pipeline from KPC to Unit-3, the winter trial run for determining maximum throughput capacity of sour gas pipelines from Karachaganak to Orenburg Gas Plant was performed in December 2020.

From 17 September 2018, KPO ceased the delivery of unstabilised condensate to Orenburg in connection with completion of the Delinking Project. This allowed a revenue increase thanks to diversion of liquids from Orenburg to the CPC route and to the "Condensate" SC refinery.

OPERATIONS AND SALES IN 2020 GRI 102-2, 102-7

In 2020, KPO produced 143.9 mln barrels of oil equivalent (BOE) in the form of stable and unstable liquids and gas. Gas production in 2020 reached 20,2 mln m³. To maintain

reservoir pressure, KPO re-injected ~ 10.4 bln m³ of gas into the reservoir, a volume equivalent to about 51,3% of the total gas extracted.

Tab. 1. Production in 2020

Description	Unit of meas.	2020	2019*	2018
Total Production (gas injection exclusive)	Mboe	143.9	137.9	147.5
Total equivalent stable oil	Kt	10,941	10,147	10,953
Total gas production	Mscm	20,214	18,614	18,913
Gas Injection into a reservoir	Mscm	10,362	8,710	8,589
Sweet Gas for internal needs	Mscm	761	685.4	723.6

* Full turnaround year

Tab. 2. Sales in 2020

Description	Unit of meas.	2020	2019	2018
Total Sales	Mboe	139.4	134.7	143.5
Stable Liquids <i>Oil and stabilised condensate to CPC and Atyrau-Samara</i>	kt	10,857	10,160	10,365
Unstable Liquids <i>Unstabilised condensate to Orenburg Gas Plant and Condensate SC's refinery*</i>	kt	24	9.9	615
Raw Gas <i>to Orenburg Gas Plant</i>	Mscm	8,986	9,113	9,493
Sweet Gas <i>to the West Qazaqstan Oblast to generate electricity for community</i>	Mscm	90	89	95

* From September 2018 condensate deliveries to Orenburg Gas Plant were stopped. Condensate supply was made to the SC "Condensate" refinery only.

POWER GENERATION

For production needs within the Karachaganak field, KPO generates electrical power at its own Gas Turbine Power Plant (further as GTPP). Generated power is transmitted to the own production units throughout the Field, which include Karachaganak Processing Complex, Unit-2, Unit-3, Gathering system, Eco Centre, Pilot Camp, and the Karachaganak – Atyrau transportation system covering the oil pumping station in Bolshoi Chagan and block valve stations 1-26.

Four turbines, three of which are dual-fueled, are installed and operating at the KPO Gas Turbine Power Plant. In addition, KPO supplies electricity for the needs of the Western Qazaqstan Oblast population with capacity of circa 42 MW in winter and from 27 to 42 MW in summer.

In 2020, the GTPP completed minor inspection of gas turbine generators (GTG) #2 and #4 as well as inspection (overhaul) of turbine #2 combustors. The unplanned overhaul of GTG #4 has lasted from October to May 2020 due to the defect identified in the course of the scheduled inspection, which has resulted in a complete stator rewinding. The activities took longer than expected also due to the COVID impact and delays in spare parts supplies.

Power export to West Qazaqstan Oblast GRI 203-1

As part of the Karachaganak Field’s Final Production Sharing Agreement (Art.I, Section 1.1.), KPO generates and exports power to the West Qazaqstan Oblast.

KPO exports power to electricity suppliers such as AksaiEnergо LLP and Batys EnergоResursy LLP, who then supply the power to the end consumers in West Qazaqstan Oblast.

Throughout 2020, KPO exported power from 26 to 41 MW to the regional grid, while the total volume of power export to WQO equalled ~ 297 mln kW-h or 39% of the total volume. The power export in 2020 was 10% lower than in 2019 due to unplanned overhaul of the Gas Turbine Generator #4. Supply of power and fuel gas in 2018–2020 is presented in table 3.

Table 3. Supply of power and fuel gas, 2018–2020

Description	Unit of meas.	2020	2019	2018
Electrical power exported to West Qazaqstan, including:	mln kW-h	296.93	330.26	305.06
■ to AksaiEnergо LLP	mln kW-h	26.35	26.28	29.90
■ to Batys EnergоResursy LLP	mln kW-h	270.58	303.98	275.16
Use of fuel gas to generate power for West Qazaqstan, including:	mln m³	99.35	112.06	101.82
■ Own gas sales	mln m³	89.95	88.98	94.91
■ From third party supplier	mln m³	9.40	23.08	6.91

In 2020, KPO used mainly own gas for power generation. Purchases of gas from the third-party supplier to generate power for the WQO needs made circa 10.4% of the GTPP total gas consumption. Those purchases were made mostly during

the unstable operation of the Fuel Gas Sweetening unit at KPC (5-339 area) in February and March of 2020.

In the reporting year, the Company did not face production losses as the impact from external electrical grids.

TURNAROUND

The KPO Shutdown strategy is focused on optimisation of production and minimisation of cost by extending intervals between shutdowns and reduction of actual shutdown durations whilst ensuring safe continuous operations and regulatory compliance.

In 2020, Unit 3 was the only unit to have a full turnaround. The annual maintenance on the compression and dehydration systems at Unit 2 was deferred until April 2021, in order to minimise the number of personnel on site during the COVID-19 pandemic.

In addition to the regular HSE control activities and to the standard COVID regulations, prior to and during the Unit-3 turnaround, KPO implemented a number of extra COVID mitigation actions to minimise health risks to staff onsite and to reduce the chance of an outbreak, which could affect KPO’s performance in due time. These mitigation actions included the following:

- Reduction of scope, such that staff numbers required were minimised.

INDUSTRIAL WASTEWATER MANAGEMENT

Managing the produced and industrial effluent water is one of the main challenges faced by KPO in the Karachaganak Field.

KPO’s water management strategy consists of implementation of a portfolio of interconnected projects aimed at removal of production restrictions in terms of produced water handling as well as ensuring personnel safety, asset integrity and environmental compliance.

In 2020, two projects out of the four planned were fully completed. In 2021, refinement and implementation will continue including development of a detailed design for a new improved caustic neutralisation unit (CNU). Due to

- Additional and larger meeting rooms to improve social distancing during many face-to-face meetings that were required at the turnaround.
- Our contractors have minimised sharing of accommodation by their staff.
- KPO required that all staff completed an extra PCR-test on day 7 after coming on-shift. This was aimed at identifying, as early as possible, any asymptomatic staff working at Unit 3.

As a result, no positive tests were recorded at Unit-3.

A total of just over 185,000 man-hours were registered during the turnaround: these were completed with zero reportable cases. Other key HSE statistics included Level III HSE inspections – 723 inspections held with 178 findings.

Overall, the turnaround was delivered ahead of schedule, with 99% of planned scope being executed.

the COVID-19 pandemic’s impact on the project, the CNU start-up was postponed from 2022 to 2023.

Project delivery on replacement of induced gas flotation vessels and a tilted plate separator required for treating process effluents from oil is expected by the end of 2022. At the moment of this Report’s preparation, the pandemic impact was insignificant; the activities are ongoing as per the plan with a sufficient flexibility in case of possible schedule variance. The vessels’ replacement is a primary input to asset integrity while the new facilities will have higher capacity important for pursuing KPO water management strategy.

Tab. 4. Industrial wastewater management projects in 2020 GRI 303-2

Project	Business driver	Status	Note
Construction of a new 10-inch wastewater injection line;	<ul style="list-style-type: none"> Debottlenecking; Production sustainability. 	Successfully executed	More details are given further in Case Study 1
Removal of H ₂ S from the waste water at Unit 3	Environmental compliance	Successfully executed	Jump over line for diverting the Unit 3 industrial wastewater to KPC was commissioned fitted with the H ₂ S removal technology
Start-up of a modified gasoline demercaptanization unit	Safe operations	Partially executed	Implementation of the project will allow a 30% reduction of the spent caustic soda formation and its supply to the industrial waste treatment unit, mitigating the risks for personnel. Due to the COVID pandemic in 2020, the project start-up was postponed to the first half of 2021.
Workover of the two water injection wells	Production maintenance	Partially executed	Workover of the two absorbing wells was agreed to perform in a successive order, not simultaneously, so that experience and data obtained in the first well workover will lay a foundation for the maximum efficiency on the second well. Workover of the second well is scheduled for mid- 2021.

CASE STUDY 1

CONSTRUCTION AND COMMISSIONING OF NEW INJECTION PIPELINE FOR INDUSTRIAL WASTE WATER

Context / short description:

The existing 6-inch wastewater injection line was a bottleneck for production enhancement. Being a single pipeline used for sending industrial effluents for injection to deep subsurface Polygon 2, this line was non-piggable and had pit corrosion traces. Cumulatively, that created risks to production sustainability and limited the overall synergy of other water management projects.

Goal:

Unlocking full potential of projects aimed at removing production restrictions, taking into account predicted peak volumes of associated produced water, as well as improving integrity of KPO operations in whole.

Solution / actions:

Construction of a new 10-inch industrial wastewater injection line using line pipes available at the Company's warehouse, thanks to which the project was implemented in the shortest possible time.

Result:

Implementation of the project has allowed to:

- Fully unlock the potential of short-term projects aimed at enhancement of capacities of the existing industrial wastewater re-injection network.
- Increase in the total capacity of wastewater treatment at the Field units (compared with 2019, current by 30% and expected by 50% upon completion of the other debottlenecking projects) and remove wastewater treatment limitations to liquids production.
- Reduce potential asset integrity risks associated with the existing 6-inch wastewater injection line.

Ultimately, the new industrial effluents injection pipeline is aimed at sustaining the production process upon the end of the service life of the old 6-inch injection line in 2027.

TECHNOLOGIES IN DRILLING

In 2020, KPO continued working on minimization of a negative impact from drilling and well services operations on the environment. As previously, we continued our path towards zero emission ambition and applied measures listed below to reduce greenhouse gas (GHG) emissions, and consumption of water and resources:

- Application of oil-based completion and stimulation displacement fluid instead of water.
- Post-stimulation milling of downhole hardware (balls and baffles), which previously was done with coiled tubing unit and fluid displacement motors, is now replaced with wireline milling/ wireline shifting of frac sleeves with the use of electrical devices, hence no contaminated fluid to dispose and no flaring.
- Use of highly efficient environmental friendly burners that minimize fall-out, where flaring is inevitable.
- Use of High Gas Volume Factor (HGVF) pumps during wells kick-off and clean up to reinject produced hydrocarbon in high-pressure production line instead of burning them on the flare during the clean-up phase of a new or worked-over well.
- Evaporation of produced water.

FIELD DEVELOPMENT PROJECTS

As the Contractor to the Republic of Qazaqstan, KPO has an obligation to conduct all operations necessary to carry out the development and production of petroleum in the contract area in accordance with International Good Oil Field Practice¹.

Following the completion of the Karachaganak Phase II Initial Programme in 2003, KPO has been funding and implementing the Phase II Maintenance Programme (Phase II M). This phase includes the further activities, such as drilling of new development wells, undertaking workovers on existing wells, upgrading production facilities and other projects required to maintain a high production level for the benefit of the Republic of Qazaqstan.

KPO continuously works on developing technology and innovations aimed at improving well operations performance. In these terms, the following was achieved throughout the year 2020:

- The new design horizontal gas injector well was delivered in 2020. It is theoretically capable to provide higher injection rates above 6 Mscm/d;
- One new oil producing well was provided to enhance production;
- New drilling technologies have been applied for the first time in the field, such as RFID activated circulation valve, which helped improving overall performance and efficiency of drilling operations.
- To achieve high quality of zonal isolation KPO engineers and our cementing contractor used a special light-weight cement slurry that was designed in 2019. The light slurry technology enables additional improvement opportunities allowing significant reduction of well construction time and cost.

In 2014, in order to avoid the increasing gas-oil-ratio causing the existing facilities to become gas constrained, KPO developed a programme of production Plateau Extension Projects (PEP). The Plateau Extension Projects are comprised of:

- KPC Gas De-bottlenecking project aimed at increasing the overall KPC gas processing by expanding the gas handling capacity;
- 4th Gas Reinjection Compressor project aiming to increase the annual daily average volume of gas re-injected into the reservoir and improve reservoir pressure support;
- 5th Trunkline and Gas reinjection wells project upgrading the injection network capacity downstream of Unit 2 through installation of a new trunk line, and drilling and completion of new gas injection wells.

¹ International Good Oil Industry Practices means the good, safe and efficient operations and procedures commonly employed by sensible and diligent operators in the international petroleum industry, mainly regarding aspects related to the use of adequate methods and processes for obtaining maximum economic benefit in the final recovery of reserves, for minimizing losses, for operational security and for environmental protection. This definition is given in the «Agencia Nacional de Hidrocarburos, Hydrocarbon Exploration and Production Contract No. 09 OF 2008, la Cuerva».

PEP projects portfolio was maturing and developing over the years, resulting in start-up of the 5th Trunkline and Gas reinjection wells project in December 2019 with first of the three injection wells.

In 2020, the development projects continued progressing with notable achievements despite a challenging global environment caused by COVID-19 pandemic and all the associated limitations that were imposed on all business activities, such as procurement delays, Force Majeure declared by some vendors, limitations imposed on travelling for the projects execution team, limited presence on site, foci of pandemic among the personnel, and many others.

Extensive scope of work has been carried out on KPC Gas Debottlenecking project, namely Drizo and dehydration units, substation and piperacks have been completed achieving the mechanical completion. Pipeline and tie-in 108 went into operation in September 2020 mitigating loss of production due to Unit-3 turnaround. In March 2021, the project has been successfully completed. The start-up activities are ongoing with a plan to handover to Operations in Q3 2021.

The 4th Gas Reinjection Compressor project has made a significant progress during the year. Compressor unit has been installed on foundations and erection of compressor building is nearing completion. Construction of an 8.5 km pipeline from Unit 2 to KOTS has been completed. Piping erection, electrical and instrumentation works are progressing rapidly. The project is expected to reach mechanical completion followed by commissioning activities and start-up by Q4 2021.

Karachaganak Expansion Project

KPO continues development of the Karachaganak field via the Karachaganak Expansion Project Phase 1 (KEP1), scheduled in a phased manner. The KEP1 project will create additional value for the Karachaganak Parent Companies and the Republic of Qazaqstan by maintaining the stabilised liquid plateau through the provision of additional wells, process facilities and gas reinjection to manage the increasing gas oil ratio (GOR) of the field.

In December 2020, the Karachaganak Parent Companies have signed the agreement sanctioning the KEP1A Project. That was another major achievement representing a new milestone in the continued development of the Karachaganak Field, building further on the achievements of Karachaganak Gas Debottlenecking Project (KGDBN) and the Fourth Injection Compressor (4IC) Project. One of the KPO's key priorities in execution of KEP1A is maximizing the Local Content aimed at

growing the local contractors' competitiveness. The project will also create job opportunities for Qazaqstani workers.

The KEP1A 5th Gas Injection Compressor (GIC) Project represents the first phase of the KEP1 scope and comprises of the 5th Injection Compressor and other associated facilities. The 5th GIC Project pursues the opportunity to utilise the available dehydration capacity installed by KGDBN in the Karachaganak Processing Complex to increase gas re-injection capacity and integrate its scope within existing systems, utilities and facilities. The integration philosophy creates synergies and reduces CAPEX exposure. In 2021, the project is scheduled to carry out Early Works, to initiate long-life items procurement and to start mobilisation of the engineering, procurement and construction contractor.

The 6th Trunkline and 3 Injection Wells Project, which was decoupled from the KEP1A programme in March 2020 as a result of a Subsurface Technical Review, has the objective to maximise liquid recovery by increasing the field injection area. The project will re-distribute injection gas into South West Frank area of the field for pressure support of nearby low Gas-Oil-Ratio wells and better reservoir management.

In November 2020, the 6th Trunkline project has successfully passed Value Assurance Review 3, and the Engineering & Procurement for flowline and trunkline scope has been started in Q1 2021.

DIGITAL TRANSFORMATION PROGRAMME

KPO see the digital transformation as a key lever of business to simplify and enhance processes and organization.

As part of the 'Digital Qazaqstan' Programme, KPO has developed a plan of its technological modernization and digitization. Our Digital Roadmap initially foreseen 11 different themes relevant to macro fields of interest, with some 30 different digitization projects. Digital roadmap will allow KPO minimize the paper-intensive processes and maximize the digital workflows. In the long-term, digitization is expected to be followed by further development.

In 2020, KPO has mainly focused on the following projects:

- Streamlining of documentation including massive introduction of digital signatures. Over 1200 digital signatures were issued to KPO managers and staff aimed at facilitating business processes including when working remotely.
- Production optimization through implementation of the Facilities KPI Monitoring system, update of DINO software, execution of a pilot project for exception based surveillance and initiation of the wells telemetry project. The aim is to increase the hydrocarbon production by raising system efficiency and facility utilization to exploit its potential.

- Critical equipment monitoring with the implementation of enhanced performance based condition monitoring on rotating equipment in order to increase rotating equipment availability and decrease the maintenance cost and duration, allowing focusing only on needed intervention.
- Warehouse Management including implementation of a barcoding system and update of EWM software; the aim is to increase efficiency in Warehouse management and stock reduction.
- E-Procurement with the definition, set up and implementation of a common electronic procurement platform for the major O&G companies in Qazaqstan supported by the PSA Authority. The project targets creation of the more efficient platform with transparent process and direct sharing of data with parties involved in the authorization process.

Besides, in liaison with the KAZENERGY Association, KPO has supported the Student Digital Fest contest having engaged students from major universities in Qazaqstan. The final stage of the contest was completed in February 2020.



At the Karachaganak Processing Complex

OUR SUSTAINABILITY PRINCIPLES

KPO is guided by the 10 principles of sustainable development, which were established in the Sustainable Development Charter and align with 12 (out of 17) Sustainable Development Goals of the United Nations Organisation:

Fig. 5. Achievement of Sustainable Development Goals through principles of the KPO Sustainable Development Charter

1	Work to ensure that benefits are endured throughout the lifetime and beyond the duration of the Final Production Sharing Agreement	 
2	Where required, build capacity to facilitate benefits to society from our presence	 
3	Give balanced consideration to local, regional and national priorities as well as taking into account international policies and recommendations	
4	Engage with local stakeholders to understand their needs and the local context in which we operate	
5	Recognise the geography and timescale of our environmental, economic and social impacts	
6	Ensure our decision making is conducted in an inter-disciplinary manner	
7	Take into account the protection and/ or the enhancement of environmental resources	  
8	Recognize gender and ethnicity issues	 
9	Incorporate strong governance and transparency and aspire to influence external governance processes	
10	Report to our external stakeholders a full and honest review of performance in an annual sustainability report	

KPO IN NUMBERS

Our Sustainability Principles	21
Our Sustainability Metrics	22

KPO SUSTAINABILITY METRICS

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
Parent Companies' shares	NA						
Eni		%	29.25	29.25	29.25	29.25	29.25
Shell		%	29.25	29.25	29.25	29.25	29.25
Chevron Corporation		%	18	18	18	18	18
LUKOIL		%	13.5	13.5	13.5	13.5	13.5
NC KazMunayGas		%	10	10	10	10	10
Parent Companies' Investment by year end	201-1	bln USD	27	26	24.4	23.2	21.9
Taxes and payments to RoQ Government (Extractive Industries Transparency Initiative)		bln USD	0.971	1.6	1.9	0.746	0.369
Aggregate investment into social infrastructure of West Qazaqstan Oblast		bln USD	427	400	368	343	311
Overall KPO's Local Content share in goods, works and services		bln USD	8.29	7.7	7	6.5	6.1
OPERATIONS	102-2						
Estimated proved reserves & production	OG-1						
Liquid hydrocarbons		bln barrels	13.6	13.6	13.3	13.3	13
Gas		Trln cubic feet	59.4	59.4	60.23	60.23	57
Recovered		%	13	13	12	12	12
Production	102-2, 102-7						
Total Production		Mboe	143.9	137.9	147.5	145.8	139.7
Total equivalent stable oil		Kt	10,941	10,147	10,953	11,247	10,466
Total gas production		Mscm	20,214	18,614	18,913	18,924	17,659
Gas Injection		Mscm	10,362	8,710	8,589	9,289	8,040
Sweet Gas (used for internal needs)		Mscm	761	685.4	723.6	739.5	605.4
Electrical power supply to West Qazaqstan Oblast	203-1	KWh	296.93	330.26	305.06	307.64	294.1
Sales	102-2, 102-7						
Total Sales		Mboe	139.4	134.7	143.5	142.3	137
Stable Liquids		kt	10,857	10,160	10,365	10,715	9,697
Unstable Liquids (from 2019 deliveries to JSC Condensate only)		kt	24	9.9	615	657	898

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
Raw Gas to Orenburg Gas Plant		Mscm	8,986	9,113	9,493	8,782	8,934
Sweet Gas as energy to the WQO community		Mscm	90	89	95	97.7	50.8
Drilling	102-7						
Total well stock		number	467	466	462	441	412
Producing wells		number	114	110	114	115	119
Re-injection wells		number	19	18	17	17	17
Wells brought in production		number	4	4	5	5	7
Drilling rigs in operation		number	1	1	2	2	3
Turnover (shutdown)							
KPC		coverage	partial	full	partial	partial	full
Unit 2		coverage	partial	full	partial	partial	full
Unit 3		coverage	full	full	full	full	full
KOTS network		coverage	partial	full	partial	partial	full
OCCUPATIONAL HEALTH & SAFETY							
Safety	GRI 403-9						
Lost Time Incidents (LTI)		frequency	0.06	0.06	0.29	0.08	0.17
Road Traffic Incidents (RTI)		frequency	0	0.02	0.03	0.05	0.02
Total Recordable Incident Frequency (TRIF)		frequency	0.18	0.28	0.5	0.11	0.24
Fatality Frequency		frequency	0	0	0.04	0	0
Occupational health	403-10						
Absenteeism rate		frequency	736	691	718	713	605
Occupational diseases		frequency	0	0	0	0	0
Loss of Primary Containment	OG-13, 403-2						
Tier 1		number	0	0	1	2	0
Tier 2		number	1	1	0	1	2
Tier 3		number	17	14	15	8	18
Significant spills	306-3	number	0	0	0	1	0

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
Analysis of HSE Cards by type of observation	102-11, 103-3, 403-2, 403-4						
Hazard		number	10,856	13,782	12,387	10,777	6,892
Good practice		number	10,357	9,793	10,804	6,698	4,434
Suggestion		number	1,806	2,242	2,108	1,263	610
Unsafe act/behaviour		number	2,559	3,525	3,376	2,634	1,669
Near miss		number	27	61	27	23	22
Emergency response	103-3						
Integrated Emergency Response Exercises (I,II,III levels)		number	2	2	3	6	1
Emergency Response Exercises (III level)		number	2	0	0	0	0
Emergency Response Exercises (II level)		number	1	5	5	2	2
Emergency Response Exercises (I level)		number	80	129	126	126	125
Security	103-2, 103-3						
Illegal tapping		number	0	0	0	0	0
Training on Human Rights and Security Principles for security contractors	410-1	% of staff	100	100	100	100	100
COMPLIANCE & GRIEVANCES							
Code of Conduct & Anti-corruption awareness training	205-2	%	99	99	95	89	77.4
Employee grievances & applications	102-17, 103-2, 103-3	number	102	99	37	27	35
EMPLOYEES							
Employees based on geographical location	102-8, 103-1						
Aksai		%	93.9	93.4	94	94.2	94.8
Uralsk		%	4	4.5	4	3.8	2.8
Nur-Sultan		%	0.6	0.6	0.8	0.8	0.9
Bolshoi Chagan		%	0.9	0.9	0.6	0.6	0.9
Atyrau		%	0.6	0.6	0.6	0.6	0.6
Number of employees	102-7, 102-8	number	4,368	4,532	4,493	4,421	4,339
Nationals		number	4,133	4,202	4,140	4,056	4,039
Expats		number	235	330	353	365	300

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
Employees by type of employment	102-8						
KPO direct employees		number	3,063	3,137	3,130	3,134	3,156
Staff hired via local agencies		number	1,070	1,065	1,010	922	883
Parent Companies' staff		number	232	325	345	344	255
Staff hired via expatriate agencies		number	3	5	8	21	45
Employees by gender	102-8						
Men		number	3,148	3,277	3,261	3,222	3,131
Women		number	1,220	1,255	1,232	1,199	1,208
Local employees by age	401-1						
Between 20-30		number	431	437	458	486	793
Between 30-40		number	1,627	1,573	1,553	1,534	1,360
Between 40-50		number	1,153	1,099	1,074	1,040	1,055
Between 50-60		number	1,007	964	938	890	789
Above 60		number	179	129	60	106	42
Dynamics of local staff turnover	401-1	%	1.1	1.7	1.8	2.7	1.9
Released employees		number	167	179	135	148	165
Newcomers		number	97	244	221	166	118
Temporary employees	102-8	number	120	138	125	91	84
Voluntary dissolution of employment		number	43	42	24	45	18
Local Content in staff	202-2, 103-3						
Management		%	83	79	77	76	80
Professional and supervised workers		%	97	96	95	95	96
Personnel trained at certified programmes of International Qualifications	404-2						
CIPS International diploma, the certified programme of Chartered Institute of Procurement and Supply		number	10	15	11	16	51
Emergency response training course MEMIR by OPITO standard		number	0	19	43	43	47
Well control/well pressure control during gas, oil and water shows (IWCF)		number	13	59	39	44	32
Non-destructive testing certification (NDT)		number	3	33	30	9	25
International certificate in health, environment and safety (NEBOSH)		number	12	11	0	12	0

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
OPITO Expert competency assessment		number	0	15	0	0	0
Certified internal auditor (CIA)		number	3	2	0	0	0
International Financial Reporting Certification (ACCA)		number	3	0	0	0	0
API Technical Standards Certification (American Petroleum Institute)		number	6	0	0	0	0
Master of Business Administration		number	1	0	0	0	0
Average number of training hours per course completed by nominated employees	404-1	average hours					
Professional courses		average hours	59.32	42.96	33.64	37.4	43.8
Language courses		average hours	42.89	55.49	62.62	62.9	40
Certified programmes		average hours	412.99	43.49	32.09	27.9	27.2
Technical & HSE courses		average hours	12.99	12.79	6.62	6.7	6.7
KPO Scholarship Programme	404-2	USD	37,639	82,332	97,969	104,000	74,346
Employees		number	9	19	20	20	15
Employees children		number	20	39	37	40	31
Total		number	29	58	57	60	46
Trainees	102-44						
Students Placement Programme		number	106	313	299	363	485
Youth Placement Programme		number	1	33	20	10	10
Employed		number	2	6	10	0	0
ENVIRONMENTAL PERFORMANCE							
Expenses for implementation of the Environmental Protective Measures Plan	103-2, 102-44	thous. KZT	11,580,444	9,677,175	7,604,066	9,418,997	6,294,270
within the Karachaganak Field		bln KZT	11.06	9.64	7.6	9.39	6.26
on the KPC-Bolshoi Chagan-Atyrau export condensate pipeline (Western Qazaqstan)		mln KZT	362.5	11.12	9.3	13.4	9.5
on the KPC-Bolshoi Chagan-Atyrau export condensate pipeline (Atyrau Oblast)		mln KZT	157.5	22.4	26.25	20.59	26.7

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
Gas utilization	OG-6	%	99.92	99.91	99.94	99.92	99.84
Delivery to Orenburg Gas Plant		%	44.45	49.19	50.19	46.41	50.59
Gas injection		%	51.26	47.02	45.41	49.09	45.53
Fuel gas		%	4.21	3.70	4.33	4.42	3.71
Flared associated gas		%	0.08	0.09	0.06	0.08	0.16
Flared associated gas		mln m ³	15.27	16.76	11.95	15.61	28.63
Air emissions	305-7						
Permitted volumes of pollutants' emissions		tonnes	17,527	18,544	19,986	26,538	21,876
Actual volumes of pollutants' emissions		tonnes	7,591	7,597	7,759	8,569	11,421
Emissions rate per unit of production		tonnes per 1k tonnes of produced HC	0.26	0.29	0.28	0.31	0.44
Total GHG emissions	305-1	tonnes of CO ₂ equivalent	1,821,604	1,870,324	1,893,447	1,928,700	1,870,041
Specific GHG emissions (CO ₂ +CH ₄ +N ₂ O (CO ₂ e))	305-4	tonnes per 1k tonnes of produced HC	62	64	69	69	72
Specific GHG emissions (CO ₂) IOGP international data		tonnes per 1k tonnes of produced HC	123	130	130	133	129
Specific GHG emissions (CO ₂) IOGP European data		tonnes per 1k tonnes of produced HC	88	84	83	83	88
Reduction of GHG emissions	305-5	tonnes of CO ₂	251	464	307	447	337
GHG reduction using High pressure separator		tonnes of CO ₂	10	367	236	364	278
Energy consumption	302-1	tonnes of coal equivalent	1,067,135	1,021,946	1,040,603	1,051,285	971,700
Fuel gas		tonnes of coal equivalent	1,063,251	1,018,625	1,037,274	1,048,142	967,129
Electric power		tonnes of coal equivalent	767	891	825	848	1,333
Diesel fuel		tonnes of coal equivalent	1,498	932	1,058	911	1,811
Gasoline		tonnes of coal equivalent	220	249	271	316	291
Heating		tonnes of coal equivalent	1,399	1,249	1,175	1,068	1,136
Water consumption	303-3	m ³	470,601	527,853	515,141	538,464	468,939
Technical water		m ³	388,172	434,397	420,777	447,774	378,854
Potable water		m ³	82,429	93,456	94,364	90,690	90,085

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
Effluents							
Discharge of treated wastewater	303-2	m ³	761,119	701,128	735,152	649,197	481,709
Reuse of treated wastewater	2016 303-3	m ³	18,313	38,545	18,241	50,476	48,023
Discharged wastewater with contaminants							
Limit for discharges	303-4	tonnes	54,244	66,653	76,802	57,281	57,279
Actual discharges		tonnes	46,006	39,683	42,280	32,933	17,097
Within the MPD Limits		tonnes	45,961	35,732	39,695	28,791	16,940
Excess discharge		tonnes	45	3,951	585	4,142	157
Waste generated							
Non-hazardous waste	306-3	tonnes	2,717	2,955	5,064	1,597	840
Hazardous waste		tonnes	29,378	53,482	44,916	52,293	31,944
Waste generated, treated, disposed & recycled							
Waste incinerated	306-3, 306-5	tonnes	772	955	737	930	722
Waste treated		tonnes	18,247	31,610	27,218	26,225	32,949
Waste reused and recovered to process stream		tonnes	2,762	6,256	5,979	6,411	4,558
Disposed and buried at waste disposal facilities		tonnes	12,665	27,843	22,547	25,349	55,252
Waste handed over to the third party for further recycling, use, incineration and burial		tonnes	5,500	6,929	6,591	4,681	4,520
Waste accumulated at the end of year		tonnes	341,419	340,781	323,328	309,676	291,459
SOCIAL PERFORMANCE AND ECONOMIC IMPACT							
Community engagement							
Public hearings	103-2	number	4	10	10	9	7
Village Councils meetings		number	10	6	13	3	18
Community grievance							
Gas odour complaints	103-2	number	7	17	42	11	31
Resettlement complaints (Berezovka, Bestau villages)			198	218	267	396	66
Social infrastructure			9	0	0	3	5
Investments into Local Community Development Programmes							
Health	413-1	thousand USD	28,090	42,319	49,199	-	50,000
Education		thousand USD	3,536	-	-	-	45,000

Parameter / Indicator	GRI disclosure	Unit of meas.	2020	2019	2018	2017	2016
Charity		KZT, mln	15	0.389	25	0.15	-
Sponsorship		KZT, mln	-	98	40	35	45
Investments into Social Infrastructure in the region of presence							
Social Infrastructure Investment in WQO/Uralsk	203-1	KZT, mln	10,458	3,030	13,561	2,778	5,995
Completed social projects in WQO/Uralsk		number	6	3	26	11	11
Social Infrastructure Investment in Burlin District/Aksai		KZT, mln	0	-	2,338	1,729	3,704
Completed social projects in Burlin District / Aksai		number	-	-	5	5	6
Local Content share in total purchases of works, goods and services							
Total purchases of works, goods and services	204-1	mln USD	586.7	683.5	474	738	1,027
Share of local content		%	59.3	57	59.6	54.14	51.6
Share of local content goods in the total scope of goods, works, and services		%	33	30	35	25	15
'Qazakhstani tenders'		number	35	32	NA	NA	NA
Number of local companies received training		number	165	7	22	16	NA
Road map on OEM localization		number	4	NA	NA	NA	NA
Supply chain							
Companies registered at KPO Vendor database	102-9	number	439	434	405	434	400
Suppliers awarded with contracts and amendments		number	500	580	564	562	599
Local vendors		number, %	410 / 80%	418 / 72%	389 / 69%	364 / 65%	360
Foreign vendors		number, %	117 / 20%	162 / 28%	175 / 31%	198 / 35%	239
Contracts for supply of goods		number	800	1,037	982	753	890
Value of contracts for goods		mln USD	180	254.1	120.1	222	152
Contracts for provision of services		number	700	658	604	224	240
Value of contracts for services		mln USD	880	889.9	1095.6	893	955

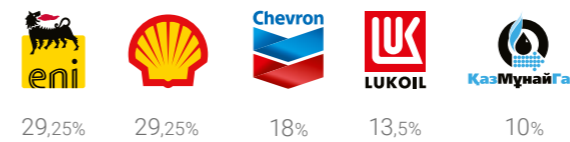
NA - not applicable

GOVERNANCE STRUCTURE AND MANAGEMENT APPROACH

GRI 102-18, 102-44

Karachaganak Petroleum Operating B.V. Kazakhstan Branch was established in 1997 as a Joint Venture to operate the Karachaganak Oil and Gas Condensate Field (further as Karachaganak Field or the KOGCF) in accordance with the Final Production Sharing Agreement (FPSA). **GRI 102-5**

KPO brings expertise from five international oil and gas companies (hereinafter referred to as the Contracting or Parent Companies, Shell replaced BG in 2016):



KPO established an integrated and effective system of governance, risk management, business planning, internal control and compliance, in order to achieve sustained organizational success. The integrated management system approach enables appropriate decision-making and provides adequate control mechanisms to ensure strategies, directions and guidance from senior management are carried out systematically and effectively.

ORGANISATIONAL STRUCTURE

KPO organisational structure was designed to enable KPO to meet its business objectives for the benefit of the Republic of Qazaqstan (the Authority represented by the PSA LLP) and the Contracting Companies by continuously assess current external environment.

KPO has two main governing bodies, the Joint Operating Committee (JOC) and the Joint Marketing Committee (JMC), which are formed by representatives of each of the five Contracting Companies and representation of the Authority under the FPSA. In particular, at JOC and JMC level, the Authority has one vote and the Contracting Companies, as a whole, have one vote. An affirmative vote on both sides is required for a decision.

In addition to the above, there has been established certain sub-committees dealing with specific matters. Graphical view of the full governance structure is given on figure 6. Functions of the committees and sub-committees were described in detail in the Sustainability Report 2018 (pages 33-34).

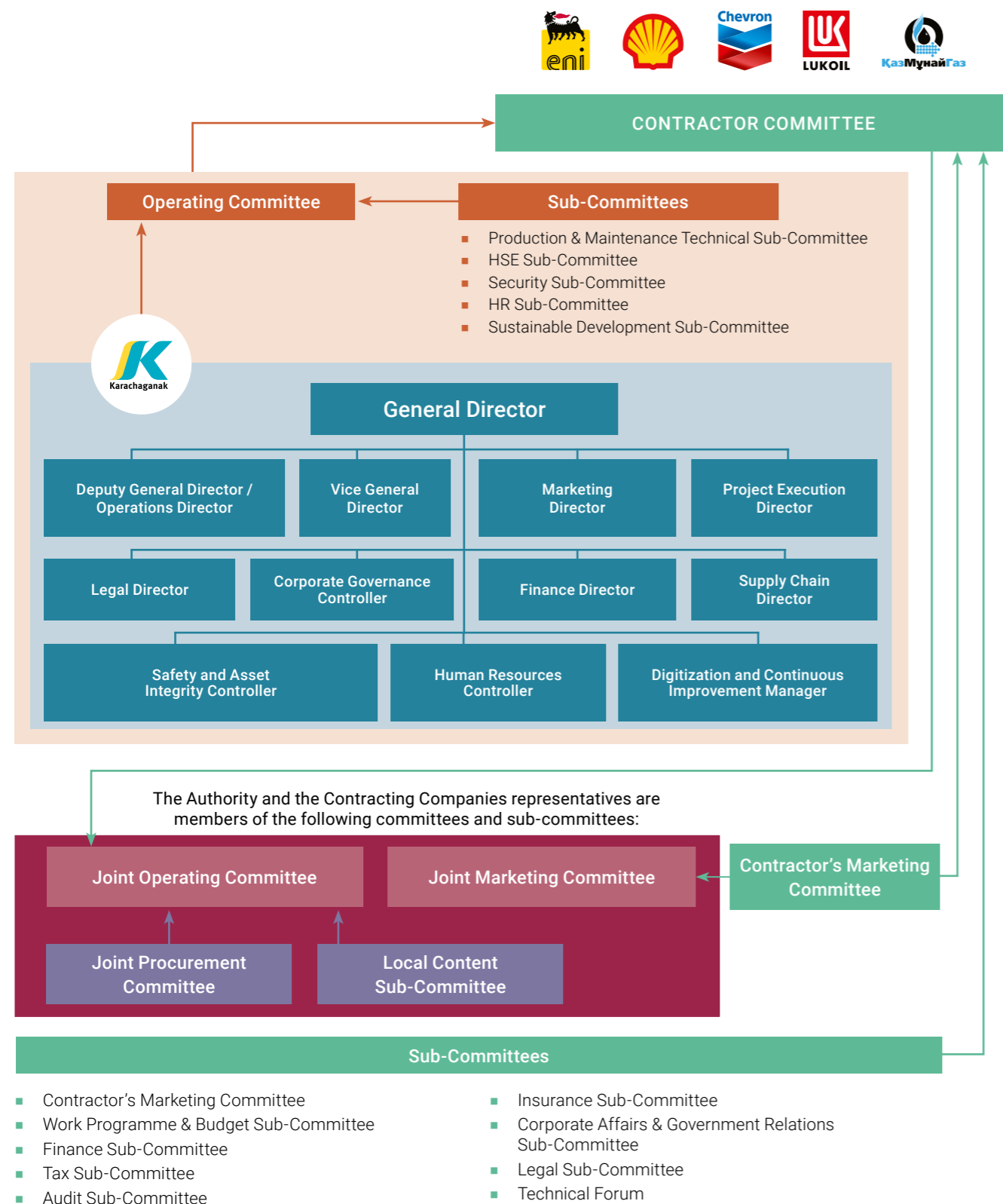


KPO office in Uralsk

CORPORATE GOVERNANCE

Governance structure and Management approach.....	31
Business conduct.....	36

Fig. 6. Karachaganak venture senior management structure (as of 01.04.2021) GRI 102-18, 102-44



Note: The Authority of the Republic of Qazaqstan is represented by PSA LLP

KPO MANAGEMENT SYSTEMS GRI 103-2

In all aspects of its activities and in accordance with the FPSA, KPO operates to internationally recognized standards, which are implemented through a number of policies, procedures and appropriate best practices embedded in KPO's management systems.

In respect of sustainable development, KPO management systems address sustainable development matters and issues as shown in the following table:

Tab. 5. Management systems relevant to sustainable development GRI 103-2

Sustainable Development	Corporate Governance	Operations	Health, Safety, Security, Environment & Asset Integrity	Social Performance	Ethics & Compliance
<ul style="list-style-type: none"> KPO Sustainable Development Charter 	<ul style="list-style-type: none"> Karachaganak Corporate Management System Manual; Corporate Governance Controllership Management System. 	<ul style="list-style-type: none"> Management System Manual for Operations Directorate; Marketing Directorate Management System; Finance Directorate Management System; KPO Competency Management System Policy. 	<ul style="list-style-type: none"> Health, Safety and Environmental Policy and Rules; KPO HSE Annual Improvement Plan; Occupational Health and Health Promotion Policy; Energy Management System Manual and KPO Energy Policy; Security Management System Framework. 	<ul style="list-style-type: none"> Local Content Policy Nur-Sultan Office Controllership and JOC Secretariat Management System; KPO Social Performance Policy and Standards; KPO Sponsorship and Donations Policy; HR Management System Manual; Social Projects Department Management System. 	<ul style="list-style-type: none"> KPO Code of Conduct; Conflict of Interest Policy; Compliance Assurance Policy.

INTEGRATED HSE MANAGEMENT SYSTEM GRI 103-1, 103-2, 403-1, 403-7, 403-8

KPO managers HSE issues through its Integrated HSE Management System, which is certified against the ISO 14001:2015 (Environmental Management System), ISO 45001:2018 (Occupational Health and Safety), and ISO 50001:2018 (Energy Management).

In 2020, KPO had passed through the re-certification process and successfully obtained all these ISO certificates. This achievement demonstrated that COVID-19 has had no impact on the certification process and on the KPO's HSE commitment.

KPO employees and contractor staff work intensively towards maintaining these processes. Continual improvement and commitment is KPO's priority in ensuring the health and safety of the workforce with minimum impact to the environment.

The KPO HSE requirements are extensively communicated and included in the specific contract schedule of all the contracts. Relevant procedures are in place to mitigate the potential risks and ascertain KPO's activities are safely implemented.

Each year KPO undertakes a range of HSE programmes, trainings, initiatives and campaigns. These include but are not limited to HSE inductions, job specific HSE training, and various other HSE programmes, such as Safety Leadership and Culture Programme, HSE Card, HSE Award Incentive Scheme, Health Risk Assessment, Environmental Culture and Awareness Enhancement Programme, and other. In 2020, KPO held six corporate audits and 22 HSE audits.

MANAGING RISKS GRI 102-15

Petroleum operations must be carefully managed with respect to people, the environment, and assets. As a responsible O&G operator, KPO makes particular emphasis on managing business risks, which include, but are not limited to:

- Personnel safety: potential emissions of hydrogen sulphide (H₂S);
- Road traffic incidents – loss of vehicle control;
- Asset integrity failure;
- Environment: potential spills, generation of waste, and emissions to air, withdrawal of emissions permit;
- Lack of clear long-term strategy;
- Political and social stability;
- Loss of monetization opportunities for gas and liquids products;
- Ethics & Compliance of our own personnel, our contractors, and subcontractors;
- Attracting and retaining qualified local Qazaqstani personnel;
- Cost Recoverability;
- Exposure to major cyber security incidents.

Within KPO, a formal Risk Management process is in place to identify and effectively manage business and process safety risks. The Risk Management Procedure and Framework define and describe this process, as well as roles and responsibilities across the Company.

Corporate Governance Controllership is responsible for development of a risk management system and for maintaining the Corporate Risks Register. The Corporate Risk Register contains a list of potential risks, as well as relevant action plans aimed to mitigate those risks.

Key Process Safety risks feature into this process with the Barrier Model containing all detailed process safety risks, which is under management of Safety & Asset Integrity Controllership and regulated with the Risk Management Framework.

In 2020, we initiated the change in our risk management approach towards further integration. This approach is aimed at synchronizing business goals and targets with business risks on each level of the organisation.

All business risks are reported through Corporate Risks Register to and reviewed in the KPO Risk Committee meetings participated by KPO senior management. After each Risk Committee meeting, the Corporate Governance Controller provides to ConCom the Corporate Risk Register Report, outlining the details on the KPO's top risks. **GRI 102-33**

Detailed disclosure on measures for reduction of key specific risks related to social, environmental and economic material topics is provided in the relevant chapters of this Report.

ASSURANCE GRI 103-3

KPO utilises audit as one of the tools to provide assurance. The KPO Internal Audit Department arranges internal and independent assurance designed to add value by supporting KPO in achieving its business objectives through a systematic and disciplined management approach. This approach helps evaluate and improve the effectiveness of risk management, control, and governance processes.

KPO implements its annual audit plan, which includes topics, such as effectiveness of business processes and HSE management systems, compliance with laws, regulations and internal procedures, reliability of financial and management reporting, and follow-up of audit actions. In addition, KPO Parent Companies conduct an annual audit to provide additional independent assurance to the areas of risk management, control, and governance. The results of the audits are reported to KPO management and Parent Companies at the Audit Sub-Committee.

Another tool that KPO utilises is Value Assurance Review. This tool is applied to all KPO development projects and is a scalable process assisting project leaders to optimise the value of investments for the venture. Besides, Value Assurance Reviews, functional technical reviews, peer assists and workshops are held to assure projects go through the necessary stages from 'identification' to 'operation'. Parent Companies' representatives are involved in value assurance for larger capital projects, whilst for smaller projects the value assurance is performed within KPO.

In addition, assurance of effectiveness of the KPO's Control Framework and compliance with the RoQ laws is provided through ISO certification including surveillance audits performed for Environmental Management System (ISO 14001:2015), Occupational Health and Safety (ISO 45001:2018), and Energy Management (ISO 50001:2018).

EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE GRI 102-13

KPO supports the Extractive Industries Transparency Initiative (EITI) in order to ensure transparency of incomes and overall chain of value creation in the management of the natural resources of the Republic of Qazaqstan (RoQ).

In 2020, KPO paid taxes in the amount totalling US\$ 971 bln (at the exchange rate of KPO SAP accounting system) according to the EITI submission requirements. This data is reported in

the 16th National Report on Implementation of the Extractive Industries Transparency Initiative for 2020.

KPO has been solely submitting the EITI reports on its tax obligations to the RoQ authorised bodies since 2014.

One can see the history of KPO payments from 2014 through 2020 in table 6.

Tab. 6. Taxes and mandatory payments paid by KPO to the RoQ Budget in 2014–2020 (in US\$)

2014	2015	2016	2017*	2018	2019	2020**
2.1 bln	1.2 bln	0.369 bln	0.746 bln	1.9 bln	1.6 bln	0.971 bln

Notes:

* The difference in the amount of 897 mln, which was disclosed in the KPO Sustainability Report 2017, is explained with reflection of the return amount in post data reconciliation between taxpayer and recipient.

** Starting from 2020, while converting from Qazaqstani Tenge into US Dollars KPO has applied the exchange rate as of the date of payment according to its internal SAP accounting system, and not the exchange rate of the National Bank at the end of a reporting year.

Data about taxes paid by KPO to the state budget is publicly available at <http://egsu.energo.gov.kz> (section 'Final Report on tax and non-tax payments / incomings from payers of oil & gas and mining sectors of the Republic of Qazaqstan').

BUSINESS CONDUCT GRI 102-16

KPO BUSINESS PRINCIPLES

KPO conducts its business based on KPO Business Principles introduced in 2019.

Our Business Principles govern how we conduct our business and set high standards of performance and ethical behaviour. We also expect all of our stakeholders, including contractors and suppliers, to respect and adhere to these Business Principles.

The full KPO Business Principles and a short video are available on our website.

CODE OF CONDUCT GRI 103-2

The KPO Compliance Framework regulates and provides guidance on all aspects of compliance throughout the Company. Code of Conduct is the fundamental document, which establishes the core ethical principles, values and behaviours in the process of working inside and outside of the Company and when contacting with vendors, suppliers or other counterparties.

Our Code of Conduct is read in conjunction with our Business Principles and gives KPO staff more detailed guidance on how to apply Business Principles and the standards and behaviours required of our staff. It covers areas including international trade, health and safety, communications and gifts and hospitality. The copy of Code of Conduct is available on our website.

Fig. 7. KPO Business Principles



Awareness training on the Code of conduct and anti-corruption GRI 205-2

KPO insists on creating a fair and equitable business environment where the ethical business principles in the KPO Code of Conduct are the foundation for all its relationships.

All new starters in KPO receive an introductory training course on the Code of Conduct. Besides, each KPO employee is required, on an annual basis, to make a Compliance Declaration acknowledging their familiarisation with their personal compliance obligations. The Code of Conduct and other ethical compliance policies and practical tests are available on the KPO intranet for each employee.

Due to the Covid-19 situation, the Compliance Department rapidly switched from face-to-face trainings to virtual trainings, successfully organizing several distance-training sessions for those KPO employees, who were supposed to be trained face-to-face.



Hotline and other compliance measures GRI 102-17, 103-3

To support the Company's legal compliance programme, KPO has a toll-free, anonymous and confidential Hotline in place since 2012.

The Hotline provides an important tool for KPO's employees, contractors and stakeholders to ensure a fair and safe working environment. The topics may include discrimination, sexual harassment, conflicts of interest, safety or environmental violations and/or improper financial practices or bribery. The caller can report on the alleged misconduct either by telephone or by completing an online report form. The report is then sent to the Compliance Department for review and to determine the appropriate actions. In some cases, employees can report concerns directly to the Legal Directorate.

In 2020, KPO Compliance Department received 102 new reports. All of the reports were duly considered and the appropriate actions taken. Most of the complaints related to workplace relation matters, whereby 93 complaints were addressed and closed in accordance with the KPO's Compliance Investigation Procedure and/or Discipline Handling Procedure, depending on the nature of report.

The Compliance investigation team duly investigate the received reports and, in case the allegations are substantiated, consequence management actions are identified and carried out.

KPO has been currently implementing a new investigation procedure to enhance the management of the received reports and of the consequence management actions.

OCCUPATIONAL HEALTH

KPO continues to work on the implementation of all possible measures to ensure Occupational Health at worksites and promote a healthy lifestyle. Due to COVID-19, we had to adjust our plans with respect to certain programmes and routine activities. **GRI 103-1**



Tab. 7. Our targets in health protection **GRI 103-2**

Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
Continue with the implementation of the Workplace Health and Well-being programme, which include: <ul style="list-style-type: none"> Stress Resilience Programme; Employee Assistance Programme; "Something is wrong with me" Employee Mental Health Support Programme. 	Partially completed	<p>Stress Resilience Programme: several offline sessions had been held before the pandemic broke out. The programme was subsequently suspended, although the facilitators were able to conduct online sessions.</p> <p>Preparations for the Employee Assistance Programme had been ongoing: the tender was held and the contract for services was effectively signed.</p> <p>The programme "Something is wrong with me" was postponed to 2021 as the staff had been overloaded during the COVID-19 pandemic.</p>	Continue with the implementation of the Workplace Mental Health and Well-being including: <ul style="list-style-type: none"> Stress Resilience Programme, which will be resumed in full once all COVID-19 restrictions have been lifted. Online sessions will be used more often. Employee Assistance Programme; "Something is wrong with me" Employee Mental Health & Well-being Programme.
Continue with the setting up of the Committees for the "Care for People" Programme in other departments of the Company	Not completed, revised	Due to the COVID-19 pandemic, the planned work was suspended. At the same time, regular inspections of sanitary and living conditions at the facilities of contractors were carried out within this programme.	Proceed with routine and unscheduled inspections of sanitary and living conditions at the contractors' facilities
Based on the results of the pilot project, implement a Fatigue Risk Management Programme in other departments of the Company	Postponed to 2021	We could not fulfil the tasks set for 2020 due to the COVID-19 pandemic. We had been working on the reduction of employee fatigue risks as part of adaptation to pandemic and quarantine conditions.	Implement the Fatigue Risk Management Programme in other departments of the Company
<ul style="list-style-type: none"> Implement the Global Challenge Programme; Arrange the Health Days with the participation of specialists. 	Not completed	Actions planned for this task were not implemented due to the COVID-19 pandemic.	Consider changing the concept of this programme in the context of current restrictions
Complete the programme for installation of automated external defibrillators (AEDs) programme	75% completed	<ul style="list-style-type: none"> First Aiders were trained in the use of the AED. The first four AEDs have been installed in the facilities and buildings with the largest number of employees located farthest from the KPO sick bays. Ten more defibrillators have been ordered and are expected to be delivered in 2021. 	Install 10 AEDs
Introduce an Electronic Pre-shift Medical Examination System (EPMES)	New task; 25% completed.	<ul style="list-style-type: none"> A pilot project has been completed, which includes the installation of two EPMES hardware and software systems in KPC and Pilot Camp sick bays. EPMES test has been launched. 	Purchase five units and install them at all KPO sick bays

SOCIAL IMPACT

Occupational Health.....	39
Safety	46
Emergency response	57
Asset Integrity	59
Security.....	62
People and skills	64
Community engagement	72

Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
Consider hiring an expert to help with the implementation of International Occupational Hygiene standards.	Cancelled	No action is taken due to the COVID-19 pandemic. This task has been cancelled and is not further considered.	
Conduct an audit of the implementation of the Legionnaires' disease risk reduction plan	Partially completed	The planned audit was cancelled due to the COVID-19 restrictions.	Consider conducting an audit of the implementation of the Legionnaires' disease risk reduction plan taking into due account the epidemiological situation

OCCUPATIONAL HEALTH SERVICES GRI 403-3

The Occupational Health function in KPO is carried out by Occupational Health and Hygiene Section. It includes a certified Occupational Hygiene laboratory, as well as an Occupational therapist and feldshers. The roles of the section include, but are not limited to:

- Health risk assessment,
- Occupational hygiene monitoring,
- Food and drinking water safety control,
- Medical examinations to determine fitness for work,

- Clinical examination of employees,
- Promotion of a healthy lifestyle (health awareness).

Occupation Health & Hygiene Section's activity is guided by a number of procedures. Occupational health & hygiene specialists regularly undergo advanced training, including training as per international standards. The quality of service is also assessed by periodic audits by the Partner Companies and as part of ISO 45001 certification audits.



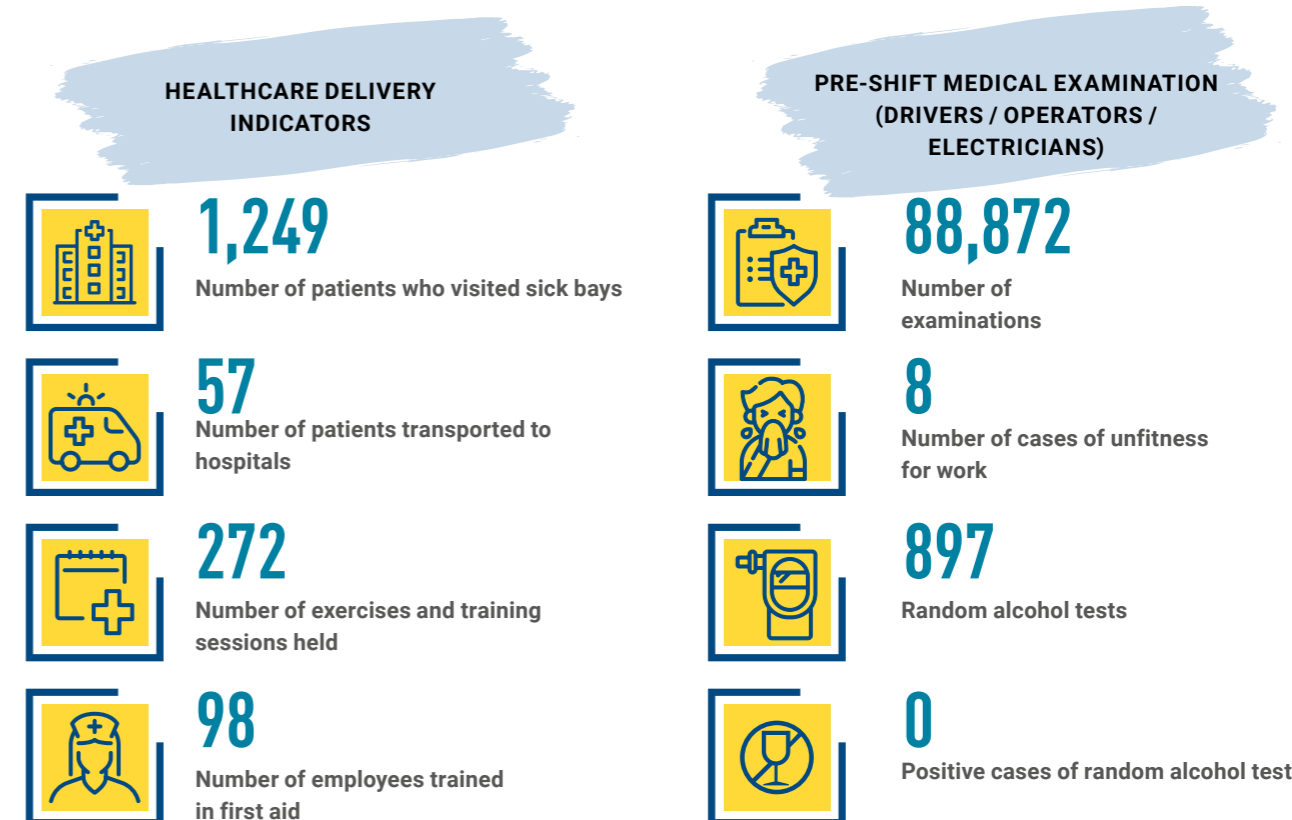
Employees of KPO Health department

IMPROVING THE QUALITY OF EMERGENCY CARE GRI 103-3, 403-3

The 2020 HSE Improvement Plan included measures to improve medical evacuation capabilities (Medevac). In September 2020, KPO and the contractor, Astana Business

Aviation Company, signed a joint Medical Evacuation (MEDEVAC Helicopter) Plan.

Fig. 8. Medical support indicators, 2020



Health Department activities during the COVID-19 pandemic GRI 403-2, 403-3, 403-6

In 2020, most of the Health Department's efforts were focused on controlling the spread of COVID-19, preventing employees from being infected en masse and keeping the production running. The work was carried out in two directions: inwardly within the Company and outwardly in the region as a whole by supporting the community.

The following measures were taken to prevent our workers from falling ill en masse:

- people were moved to remote work pattern in order to minimize the office footprint,

- social distancing rules and a mandatory mask regime were adopted at all KPO facilities,
- all employees were provided with personal protective equipment (disposable masks and gloves, hand sanitation products),
- a regular PCR testing programme was implemented for all employees with an immediate isolation of people tested positive and their close contacts. Between July and December 2020, about 28,000 PCR tests were conducted, with 1,329 company employees being monitored and 2,874 employees identified as close contacts of confirmed cases of COVID-19.

5. at the peak of the virus spread, an ‘Special Operators Group’ was set up from among the personnel of KPO Main Control Rooms. The group members had been designated to work by a specific work pattern and lodged at a third party accommodation block during their off work hours being isolated from the rest of the field staff and their families.
6. a quarantine centre was set up in one of the Czech Camp accommodation blocks for a mandatory 14-day quarantine by expatriate employees arriving from abroad. This facility helped to ensure the continued availability of expatriate employees. Further, this facility was subsequently refurbished into an inpatient clinic to provide the required medical care to KPO employees in case of illness, as well as to alleviate the burden on local hospitals in the Burlin District. The inpatient clinic has 50 single rooms and 5 intensive care beds. It is fully equipped with all the essential medical equipment and personnel. In 2020, 20 KPO employees were successfully treated there.
7. General Services Specialists, security guards and drivers received training on COVID-19 safety measures and compliance with sanitary and epidemic requirements.
8. KPO Occupational Hygiene Laboratory specialists carried out the disinfection in workplaces. Also conducted awareness sessions on measures to prevent COVID-19, training, audit and inspections at the facilities of KPO and contractors on the implementation of the sanitary and disinfection arrangements. Public Health officers, together with KPO General Services, regularly monitored the main protective measures against COVID-19 (wearing masks, social distancing, hand sanitizing, etc.) at catering facilities, offices, transport, and production facilities.
9. A COVID-19 Call Centre was established to consult the infected employees and their close contacts, as part of the measures aimed at preventing COVID-19. The Call Centre team included the Health Department’s staff members and volunteers from other departments.
10. An internal hotline #2525 has been launched since the summer of 2020, which can be contacted by any employee regarding the COVID-19. The team members have been contacting people with confirmed COVID-19 and monitoring their health on a daily basis. They also supported with PCR testing for KPO and contractors’ employees, maintained the database and tracked the incidence rate.
11. A dedicated COVID-19 page was launched on the KPO Intranet portal. It contains updated information on the COVID-19 situation in the Company, the country and the world; it also shares about preventive measures and provides answers to frequently asked questions about COVID-19.

Helping local community during the COVID-19 pandemic GRI 102-44

Considerable efforts were made by the Company to support the state healthcare system.

High-tech artificial ventilators from Drager, two ambulances based on Lada Largus, two PCR laboratories and consumables for those, 5,000 disposable anti-plague suits and medicines were purchased for Aksai Central Hospital. KPO General Services rented a two-story building for the COVID-19 treatment to the local communities. This building was converted into an infectious diseases’ isolation facility fit to all the relevant medical requirements. The building houses comfortable double rooms with all the necessary amenities. All patients and medical personnel are provided with three hot meals a day at the expense of the Company. In addition, KPO provided a one-story building for a quarantine hospital for citizens of the Republic of Qazaqstan crossing the border with the Russian Federation. KPO has received a lot of positive feedback about the functioning of the above facilities.

The Akimat of Burlin District highly appreciated the Company’s support, which was both timely and comprehensive amidst the conditions of the COVID-19 outbreak in the Burlin District.

Moreover, a total of 29 ventilators, 20 oxygen concentrators, 10 bedside monitors, 20 infusion pumps and 20,000 reagents for PCR analysis were purchased for Uralsk hospitals.

Aksai Hospital Intensive Care Unit Upgrade Project GRI 102-44, 203-1

Since the end of 2019, KPO has been implementing the five-year Aksai Hospital Intensive Care Unit Upgrade Project. The main goal of this social project is to improve the Aksai hospital’s capabilities in administering medical emergency response, surgical treatment and intensive care that would meet international standards. Upon the Project’s completion, the hospital will be able to apply for international accreditation.

The project consists of the two phases:

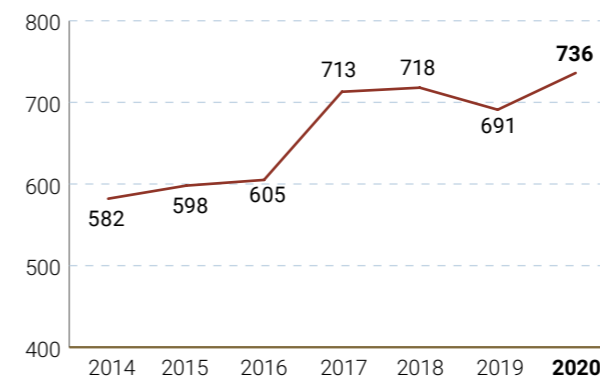
1. Upgrade of the existing units of Burlin Central Hospital in Aksai: admission unit, intensive care unit and surgery unit. It is planned to expand and renovate the admission unit, to replace the old equipment with the brand new ones, and to purchase an ambulance – a mobile intensive care unit.

MANAGEMENT OF ILL HEALTH GRI 403-3, 403-6

KPO employees are provided with voluntary medical insurance valid on the territory of the Republic of Qazaqstan. Health insurance covers a range of services, from outpatient care to inpatient care and reimbursement of medicines and dental services.

Since 2019, the insured workers have an option of choosing their health care provider, and unused insurance funds can be shared among family members.

Graph 1. KPO absenteeism rate, 2014–2020



2. Employ doctors, foreign specialists with medical accreditation in the Republic of Qazaqstan to train local specialists and transfer international expertise in medical emergency care and surgery.

By the end of 2020, the project’s positive impact had already been acknowledged in terms of actual health indicators, such as the surgical mortality rate, which had reduced from 34% in 2019 to 14% in 2020. New methods of anaesthesia had been introduced, which made it possible to minimize the time spent by postoperative patients in the intensive care unit from 8 to 2 hours, which significantly reduced the cost of treatment.

The success was hugely acclaimed by the hospital’s medical staff and the local communities through social media. The project is still ongoing.

Absenteeism monitoring GRI 403-3, 403-10

In 2020, due to the COVID-19 pandemic, the absence of KPO employees for health reasons slightly increased compared to previous years.

Note: KPO uses the following method to calculate the absenteeism rate:

- Absenteeism rate = actual number of days lost due to absence from work (due to illness) x 100/total number of employees. No information about the days of absence from the workplace for other reasons is available.
- KPO has adopted a methodology for calculating absenteeism by the number of employees (but not man-hours), since this methodology is a regulatory requirement.

Occupational diseases GRI 403-2, 403-3, 403-10

We at KPO are conscious that the oil and gas industry is an operation inherently and innately associated with a number of hazards, such as hydrogen sulphide, chemical reagents, noise and vibration, climatic factors, biological and psychosocial factors.

It is therefore our key priority to identify these hazards, assess their potential impact on our employees and mitigate the risks. Examples of this include health risk assessments, certification of units and facilities for working conditions, and Occupational Health Monitoring programme.

From 2017 to 2020, no occupational diseases have been registered at KPO.

In 2020, health risk assessment was carried out mainly upon request and included an assessment of the workplace ergonomics.

PROMOTION OF HEALTHY LIFESTYLE GRI 103-2, 403-6

In 2018–2019, KPO has implemented several Employee Mental Health and Well-being Programme tools to help workers improve quality of their life and work. KPO Stress Resilience programme launched in 2019 provides for direct interaction between the facilitator of the group and its members, therefore, in 2020, it was suspended during the initial COVID-19 quarantine. However, some participants found the opportunity to continue their sessions online! Their experience will, undoubtedly be used in the future, regardless of the situation with the pandemic.

In 2020, we had been preparing to introduce the Employee Assistance Programme. This programme intends online support and offline consultations. This programme was introduced in April 2021.

The programme "Something is wrong with me" was postponed from 2020 to 2021 due to the COVID-19 pandemic. This programme is similar to the programme introduced in Shell, one of KPO's Parent companies.

Fitness to work GRI 403-2, 403-3, 403-6

Since operation involves the exposure of workers to occupational hazards, it is very important to run medical examinations that help to determine fitness for work. In KPO, this service is provided by Contractor, which has all the permits for this type of activity.

In 2020, regular medical examinations were suspended due to the lockdown that started early April. At the same time, pre-employment medical examinations were carried out with the observance of precautionary measures. In September 2020, when the restrictions on the work of clinics were lifted, regular medical examinations of the Company's employees were resumed.

In addition to mandatory medical examinations for field workers, the Company arranges free wellness checks for office personnel. This screening helps to determine a person's health status and detect diseases at an early stage. The results of these examinations are not available to the employer and not used to determine fitness for work.

Care for People Programme

The COVID-19 pandemic has also had an impact on the implementation of the Care for People Programme. Despite this, we, together with other departments of the company, have conducted regular inspections of the sanitary and living conditions of contractors. This was certainly of great importance, especially given the tense environment at the Company with the increasing number of COVID-19 cases.

Fatigue Risk Management Programme

Many employees of the Company and contractors were forced to stay at work longer than provided for by their rotation schedule due to strict self-isolation rules and associated migration restrictions in most countries of the world. In addition, the majority of shift personnel were temporarily transferred to an extended shift pattern: 14/14 days instead of 7/7 or 28/28 days instead of 14/14 and so on. All this could not but have an impact on the fatigue risk. Various measures were used to minimize the consequences, including scheduled time off, a remote work, a shorter working day, and additional manpower mobilization.

OPERATIONAL CONTROL OF INDUSTRIAL FACILITIES GRI 403-3

KPO regularly monitors the Occupational Health and Hygiene at units and facilities. Table 8 shows the monitoring data for the last three years.

Tab. 8. Monitoring of physical factors in 2020

Occupational hazards	2018		2019		2020	
	No. of measurements	No. of non-conformances	No. of measurements	No. of non-conformances	No. of measurements	No. of non-conformances
Noise	400	93	440	114	398	110
Vibration	69	14	78	25	63	15
Electromagnetic fields	3,888	44	4,164	36	3,500	35
Electrostatic fields	2,129	0	2,322	0	1,737	0
Lighting	2,879	815	3,085	703	2,861	660
Microclimate	6,522	336	6,630	502	5,670	430
Workplace air	14,595	0	15,471	0	11,607	0
TOTAL	30,482	1,302	32,190	1,380	25,836	1,250

Noise exceedances are identified in production facilities, where the sources of noise are operating compressors, generators, material handling equipment, auxiliary equipment (ventilation units, air conditioners), etc. All these areas are used for non-permanent work, such as periodic taking of readings of measuring instruments and maintenance of equipment.

To minimize the impact of noise and protect the hearing organs of employees, since 2012, KPO has been operating a Hearing Conservation Programme, which includes informing employees about areas with high noise levels, providing PPE, "protection by time" or the minimum possible time to be spent in such areas including breaks, and timely maintenance of equipment. All production areas, which have noisy equipment, are marked with warning signs, equipped with noise maps, and work is performed with the obligatory use of PPE for ear protection.

KPO regularly upgrades lighting systems at its facilities. In 2020, KPO continued a phased replacement of fluorescent lamps to LED lamps that have more efficient light output.

Workplace attestation

Attestation of production facilities to evaluate working conditions was performed at Production Laboratory, Gathering and Drilling Rigs. Sixty-seven workplaces were evaluated. Corrective action plans were prepared following the outcomes of the attestation and submitted to the responsible persons for further actions.

SAFETY GRI 102-15

Health, safety and asset integrity are the key elements for successful development and operation of any oil and gas condensate field. As a socially responsible company, KPO utterly commits to support effective HSE culture where production leaks are entirely excluded and each employee comes back home safe and sound. GRI 103-1

During 2020, we have been carrying out awareness activities to prevent the COVID-19 spread; and they are

still ongoing. Almost all KPO departments were involved and multiple enforcement tools were used to implement the communication strategy against the COVID-19 spread: posters, public address messages, information signs, pop-up messages, individual Intranet page, Instagram posts, e-learning and videos were posted both on the Company internal and external resources including the YouTube channel and billboards along Karachaganak Field roads.



Tab. 9. Our targets in and safety GRI 103-2

Our targets in 2020	Status	Actions taken to implement targets in 2020	Targets for 2021
Implement the Safety Continuous Improvement Journey	New goal – 91% completed	The Plan was implemented through raising awareness on Golden Rules and Life Saving Rules, as well as consequences management, leadership and mentorship, incentive mechanism and presence of management at work sites.	Continue implementation of the Safety Continuous Improvement Journey
Conduct 100% HSE competency assessment of the front line supervisors in Operations Directorate	83.5% completed	Due to pandemic and reduction of personnel presence at work places, supervisors' competency assessment by 10 HSE elements was completed by 83.5 %.	Complete competency assessments by 10 HSE elements for KPC supervisors
Develop and implement HSE Communication Plan	New goal – completed	The Plan was developed; meetings for its implementation were held among the staff during the year. Planned events were carried out accounting for COVID-19 restrictions.	Implement HSE Communication Plan for 2021
Implement activities on the 2020 Road Safety Implementation Plan	Completed	14 out of 18 planned short-term actions in the Road Safety Improvement Plan were completed by 98%. See details in 'Road Safety' section below.	Implement Road Safety Improvement Plan
Update the Contractor HSE Performance Management Strategy and arrange training workshops	Completed	Contractor HSE Performance Management Strategy was reviewed and updated. Training workshops were held for key personnel engaged in contracts' management.	

HEALTH AND SAFETY PERFORMANCE GRI 103-3, 403-2, 403-9

We plan our health and safety activities by tracking our progress and monitoring the world events. We measure our success in health and safety by frequency of incidents over a set amount of work in man-hours. Our health and safety records are presented for the period 2012 – 2020 with a focus on 2020.

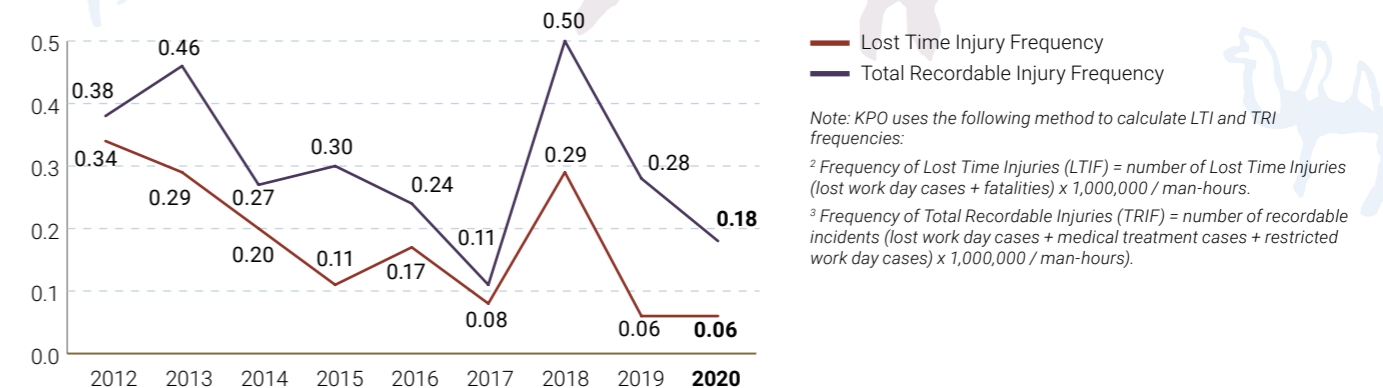
Graph 2 demonstrates Lost Time Injuries Frequency (LTIF)² and Total Recordable Injury Frequency (TRIF)³.

In 2020, KPO observed a certain decrease in total recordable injuries. The number of Lost Time Injuries remained the same

(2 injuries). In 2020, LTIF was 0.06 (no changes vs 0.06 in 2019) and TRIF – 0.18 (vs 0.28 in 2019). KPO investigates all incidents to avoid reoccurrence. In addition, we share lessons learned with our contractors and other interested parties and adopt safety improvement practices from other companies. GRI 403-9

Table 10 represents KPO LTIF versus contractors LTIF for the last three years. KPO and contractors' data are presented separately. To obtain a consolidated indicator, a calculation formula should be applied, and not just a summarized data used.

Graph 2. LTI and TRI frequencies: KPO and contractors, 2012–2020 GRI 403-9



Tab. 10. Lost Time Injuries frequency: KPO vs contractors, 2018–2020 GRI 403-9

Performance Indicators	2018	2019	2020
Lost Time Injury Frequency (KPO)	0.53	0.13	0.00
Lost Time Injury Frequency (contractors)	0.20	0.04	0.07

Table 11 represents KPO TRIF versus contractors' TRIF.

Tab. 11. Total Recordable Injury Frequency: KPO vs contractors, 2018–2020 GRI 403-9

Indicators	2018	2019	2020
Total Recordable Injury Frequency (KPO)	0.66	0.13	0.00
Total Recordable Injury Frequency (contractors)	0.44	0.33	0.22

Note: First Aid Cases are not included into calculations of occupational injuries.

KPO strives to make work places safe. Despite this, during 2020 there were six incidents, resulting in various injuries of contractors' employees.

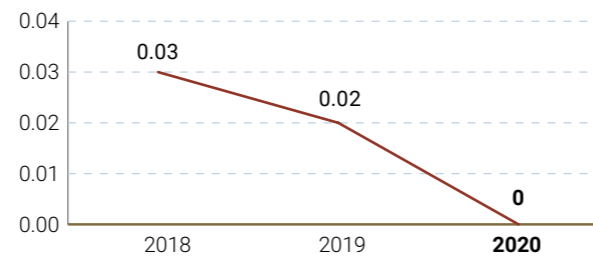
Tab. 12. Incidents in 2020 GRI 403-9

Injury Type	Description	Number
2 Lost Work Day Cases	Hand injury as a result of pinching	1
	Eye injury as a result of foreign body intrusion	1
4 Total Recordable Injuries, where employees returned to work after medical treatment (1) or were transferred to restricted work (3)	Hand injury (cut) by metal chips during waste segregation	1
	Feet injury as a result of pipe falling	1
	Injury (burn) of fingers as a result of heating liquid release	1
	Feet injury (sprain) as a result of ankle twisting	1
TOTAL		6

No severe Road Traffic Incident (RTI) was reported in 2020. The RTI frequency per 1 million km driven decreased from 0.02 in 2019 to zero in 2020. The zero RTI rate is associated with the implementation of a number of measures under the Road Safety Improvement Plan for 2020 (measures are described in the Road safety section).

In 2020, the kilometers driven by KPO vehicles amounted to 37.9 million km, compared to 42.7 million km in 2019. One of the reasons for decrease in kilometres driven is the restriction on travelling/transportation due to the COVID-19.

Graph 3. Frequency of severe RTI: KPO and contractors, 2018–2020 GRI 403-9

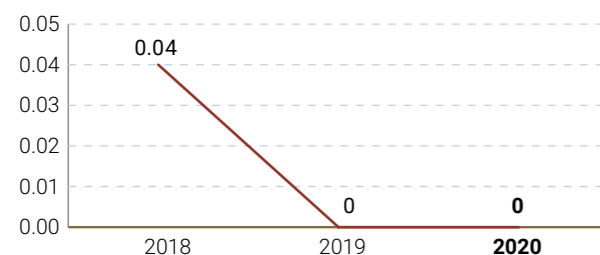


KPO RTIF calculation method: $RTIF = \text{number of RTI (severe)} \times 1,000,000 / \text{km driven}$.

Tab. 13. RTIF: KPO vs contractors, 2018–2020 GRI 403-9

Performance Indicator	2018	2019	2020
Road Traffic Incident Frequency (KPO)	0.00	0.00	0.00
Road Traffic Incident Frequency (contractors)	0.03	0.03	0.00

Graph 4. Fatality Frequency: KPO and contractors, 2018–2020 GRI 403-9



Note: Fatality frequency calculation method used by KPO: $\text{fatality frequency (per million man-hours worked)} = \text{number of fatalities} \times 1,000,000 / \text{man-hours worked}$. There was one fatal incident at KPO in 2018.

Tab. 14. Fatality Frequency: KPO vs contractors, 2018–2020 GRI 403-9

Performance Indicator	2018	2019	2020
Fatality Frequency (KPO)	0.00	0.00	0.00
Fatality Frequency (contractors)	0.05	0.00	0.00

In 2020, KPO and contractors' employees worked 34,225,582 man-hours: 21% of them (7,269,825 man-hours) worked by KPO employees and 79% (26,955,757 man-hours) by contractors' employees.

Tab. 15. Man-hours worked: KPO vs contractors, 2018–2020 GRI 403-9

Indicators	2018	2019	2020
Man-hours worked (KPO)	7,561,991	7,829,313	7,269,825
Man-hours worked (contractors)	20,417,110	27,339,092	26,955,757
Total	27,979,101	35,168,405	34,225,582

In 2020, two high potential incidents were recorded in KPO: one near miss and one incident with asset damage.

Tab. 16. High Potential Incidents⁴: KPO vs contractors, 2018 – 2020 GRI 403-9

Indicators	2018	2019	2020
High Potential Incidents (KPO)	2	3	1
High Potential Incidents (contractors)	5	8	1
Total	7	11	2

In 2020, 73 near misses were registered in the Company: of which 46 (63%) were identified through the Incident Notification Procedure, and 27 (37%) were identified through HSE cards. For each near miss same as for each incident, KPO performs a thorough investigation, identifies the immediate and root causes and develops recommendations to correct the shortcomings and prevent their recurrence.

Tab. 17. Near misses⁵: KPO vs contractors, 2018 – 2020 GRI 403-9

Indicators	2018	2019	2020
Near misses (KPO)	31	47	27
Near misses (contractors)	41	64	46
Total	72	111	73

⁴ High Potential Incident (HPI) - any unplanned or uncontrolled event or chain of events that could have resulted in injuries to be accounted.

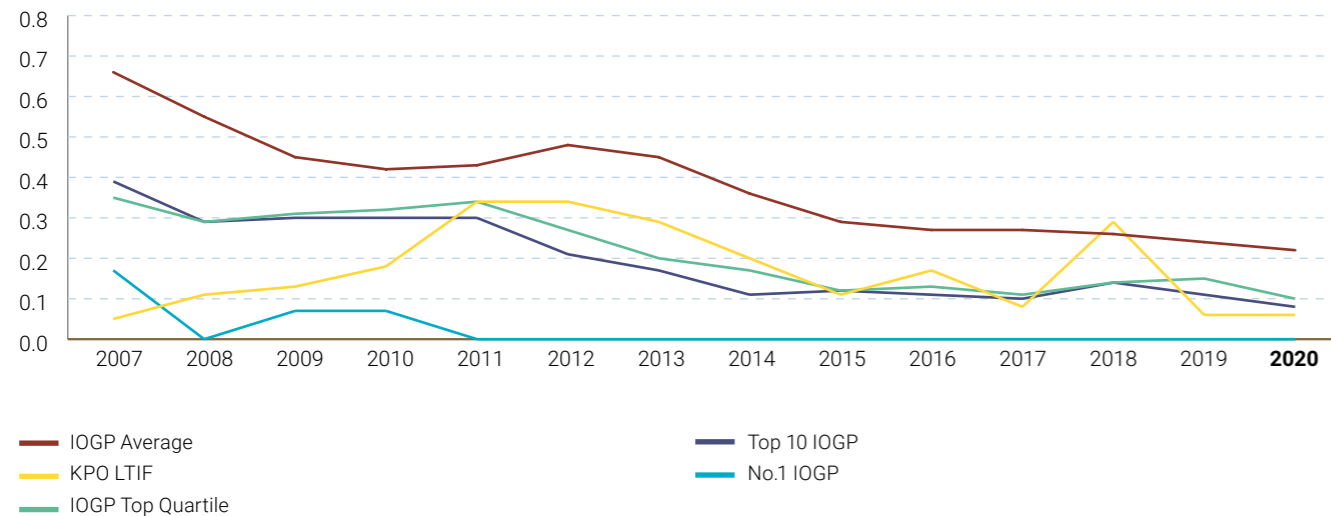
⁵ Near-miss - any unplanned or uncontrolled event or chain of events that could have resulted in injuries to be accounted for, asset damage, the environment, or an incident related to process safety, but such consequences, by coincidence, were avoided.

PEER COMPARISON GRI 103-3

Every year we review our key safety performance indicators against the other O&G producers' indicators reported by International Organisation of Oil and Gas Producers (IOGP). IOGP annually publishes HSE performance indicators on the website www.iogp.org.

In 2020, the number of Lost Time Injuries in KPO remained the same. If compared with other peer companies in 2020, KPO LTIF is better than the performance of IOGP 10 top and IOGP average (see graph 5).

Graph 5. KPO Performance versus IOGP, 2007 – 2020 GRI 103-3



HSE IMPROVEMENT PLAN FOR 2020 GRI 102-11, 103-3, 403-7

In HSE KPO follows the principle of precaution (or prevention) and mitigation of any negative impact of its activity on employees' health and the environment. To prepare an annual HSE Improvement Plan, KPO selects HSE activities that are not part of the daily work and aimed at further improvement.

While devising the Plan for 2020, the previous topic-based approach was applied in order to align it with the key performance indicators, as well as to achieve the goals set for improving the integrated HSE system.

To achieve a zero-injury rate and ensure asset integrity, the key topics for improvement were divided into four key 'focus areas':

- I. Leadership and Safety Culture;
- II. Risk Management and Asset Integrity;
- III. Environment and Energy Saving;
- IV. Transport (Road Safety).

The 2020 HSE Improvement Plan consists of 58 key actions and improvement proposals developed to ensure the implementation of each "focus area". The plan was completed by 80%, and 20% of the activities will be continued as a part of the plan for 2021. The COVID-19 with its restrictions has prevented to implement the planned activities in full.

In the following paragraphs, we present the activities of our Safety Continuous Improvement Journey and road safety. Environment protection, energy saving and risk management are presented in relevant chapters.

KPO golden rules and life saving rules

GRI 103-3, 403-1, 403-7

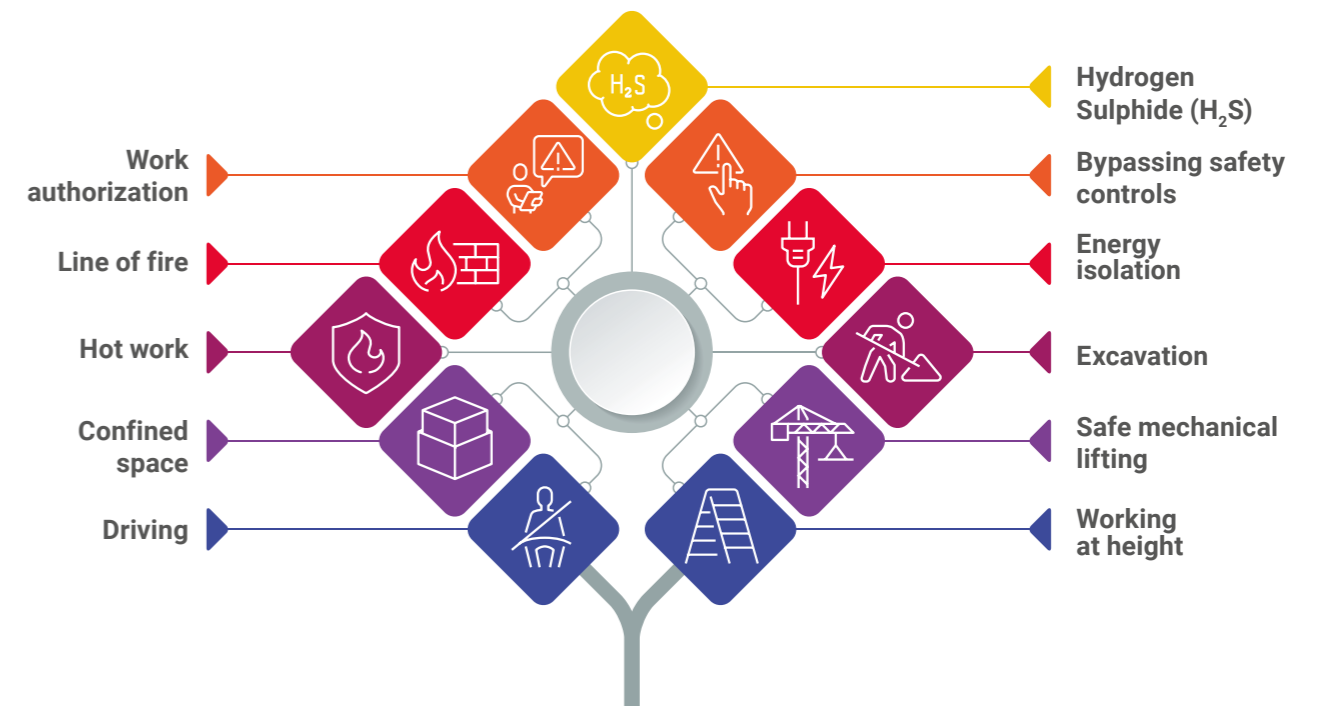
As part of the KPO HSE Policy on raising HSE cultural awareness and reducing incidents, KPO has three main Golden Rules (from 2017) and eleven Life Saving Rules (from 2019).

Golden Rules regulate the Company's approach to Health and Safety: comply with legal regulations, intervene if in danger and respect colleagues while engaging.

Life Saving Rules are based on rules of the International Association of Oil and Gas Producers – IOGP, and are created as part of standardization of global health and safety regulations among oil and gas industry organizations, as well as to improve sharing of knowledge, experience and lessons learned. These rules focus on 11 types of activities with highest potential risk.

These set rules are applied to all employees of KPO, contractors and sub-contractors and all assets and production facilities operated by the Company.

Fig. 9. Types of activities with high potential risk



Consequences management GRI 103-3, 403-1

KPO has an HSE Behavioral Accountability and Consequences Management Model ensuring systematic study of employee's behavior with either positive or negative consequences, and identifying appropriate reward or action.

Familiarization sessions with this model for KPO and contractor employees were initiated in 2020. The sessions were held in January and February 2020 and suspended afterwards because of the COVID-19 restrictions. For covering most of personnel working remotely, Corporate Safety Department developed and issued the e-guide for the HSE Behavioral Accountability and Consequence Management Model. In 2021, activities on raising awareness of the Company and contractor employees will be continued.

HSE Leadership and Coaching

In order to reinforce health and safety continuous improvement, great efforts of all involved enterprise divisions are required. Typically, teams under strong leadership achieve best results. In this regard, with the support of the Operator companies, KPO has developed an HSE Leadership and Coaching Programme, which was first implemented in the Project Execution Directorate and launched within the Operations Directorate at a later stage.

Management presence on work sites

For tracking the overall HSE performance and management interaction with employees at work sites, KPO practices HSE site tours at two levels: Management tours and Leadership tours engaging KPO Directors/Controllers, as well as Contractors' management.

In 2020, the total number of HSE Leadership tours amounted to 70 compared to the planned 60 (116% plan completion).

Road safety GRI 103-3, 403-9

With a target to ensure more sustainable road safety performance, KPO continues implementing its Road Safety Improvement Plan. In 2020, the Company completed 98% short-term activities of the plan including:

- Update of the HSE Policy with adoption of the road safety commitments;
- Implementation of a 'pool' vehicle system for the Aksai-based offices as part of the vehicle optimization and reduction of kilometres driven;
- Road Safety Stand Down involving top management of nine major contractors, where strict compliance with road safety rules, uncompromised approach to rules violation, prevention of drivers' fatigue, consideration of external factors while driving, etc, were raised;
- Special Winter Road Safety Stand Down involving both Company and contractor drivers on risks of driving in winter including threats of hitting animals;
- Ensuring compliance with installing dashcams on all contractors' vehicles working at the Karachaganak field;
- Update of the key Road Safety procedures covering road safety, management of the in-vehicle monitoring system, safe load haulage;
- Comparative analysis of the Company's road safety management system for compliance to the international standard ISO 39001 "Road Safety Management System". KPO plans a certification on this standard in 2022.

CASE STUDY 2**HSE LEADERSHIP AND COACHING****Context / short description:**

Safety is of paramount importance at KPO. Although, KPO faces repeated incidents for the same cause: risk complacency and lack of intervention at work sites. In addition, KPO introduce big projects and engage new employees with no work experience at the Company facilities. Our key target is to train them up to the required safety standards.

Safety at work sites subject to HSE leadership and competency of supervisors and leads. By own example, supervisors and leads can establish and reinforce safety culture.

Goal:

Improve skills of supervisors to identify hazards, engage employees and coaching teams in order to improve safety culture at workplaces.

Solution / actions:

In 2019, the Coaching, Engagement and Intervention workshop was developed, where KPO and contractor supervisors and leads responsible for high-risk activities were invited. The workshops consisted of theoretical part, practical group exercises including coaching sessions at work sites.

For 2020, KPO Management assigned a task of implementing the HSE Leadership and Coaching Programme covering:

- All supervisors and project team leaders of the Project Execution Directorate, in particular the 4th Injection Compressor project,
- Operations line managers of supervisors and team leaders, who had attended Coaching, Engagement and Intervention workshops in 2019.



Photo from the 2019 archive

Result:

During 2019 and 2020, over 1200 KPO and contractor supervisors have attended the workshops allowing them improve their knowledge and skills in coaching, involvement and intervention. Besides the standard training methods, the training materials included videos, incident investigation data and pocket manuals.

The most active supervisors – programme participants, who applied new knowledge on work sites, have received awards within the HSE incentives mechanism.

CASE STUDY 3

SAFE BEHAVIOUR MOTIVATION AS PART OF KEY PERFORMANCE INDICATORS

Context / short description:

Both positive and negative behaviour of employees have significant impact on the HSE culture in the organization.

Goal:

In 2020, for better understanding and memorizing Golden Rules and Life Saving Rules by the Company and contractor employees, a mandatory e-learning was launched followed by testing.

Solution / actions:

Aimed at improving safety culture and reinforcing and motivating personnel to undergo e-learning, the Company management took a decision to make successful completion of e-learning as one of the criteria for meeting KPIs and annual bonuses in the area of health and safety.

The second criterion was to achieve a 12:1 indicator (near misses to recordable injuries), i.e. for each recordable injury there should be at least 12 near misses. The second criterion was aimed to motivate employees to report all kinds of incidents, minor and those without consequences, the investigation of which would prevent more serious incidents.

Result:

In 2020, the Company has registered 73 near misses against the six recordable injuries, i.e. established ratio of the 12 near misses to one recordable injury was achieved. By year-end, all KPO employees (except for those on long leaves) have completed this learning. Annual bonus for HSE performance was paid to employees.



Rewarding of employees for contribution in HSE, February 2020

NEW COMMUNICATION TOOLS FOR EMPLOYEE HSE AWARENESS GRI 102-11, 403-5

The unexpected situation of the global coronavirus pandemic pushed KPO to look for and engage new techniques and resources in raising awareness of the staff and improving HSE communication.

In 2020, our Corporate Safety Department began issuing a Newsletter in order to communicate the most important HSE events and activities. This format has allowed keeping the remotely working employees up to date, and sharing their suggestions and lessons learnt.

The recurrence of PC screen pop-up messages was increased from one to five times a day, each message containing hyperlinks to data of any format. The pop-up message design was improved with eye-catching images and minimum of text in order to draw attention of employees. This allows conveying the relevant information more effectively.

By numerous requests, we have launched weekly safety moments prompting the most critical HSE topics that can be used for discussion before or during work meetings. If a specific topic is required, this can be found among all issued topics in the HSE library on the Intranet.

As part of the 'raising awareness' campaign on winter safety and preventing incidents in winter weather, presentations and a video in the TikTok social media style were developed and distributed. For enrolment in the contest that was also organised among the KPO and contractor employees, participants had to present photos or short videos on the following topics:

- Getting ready for winter – safety at work;
- Getting ready for winter – taking care of the family;
- Getting ready for winter – a safe vehicle.

Following the contest results, 10 authors of the most creative useful tips were rewarded.

All communication tools that used at KPO imply a feedback through the HSEHelp@kpo.kz mailbox. Corporate Safety Department offers the staff to ask questions and share comments and suggestions in every message communicated internally. The most valuable ideas are rewarded. In 2020, 387 requests received at HSEHelp@kpo.kz were processed.

Engagement with peer companies

In 2020, KPO successfully continued the initiative of HSE cooperation with the Oil Operator companies 'Tengizchevroil' and 'North Caspian Operating Company' aimed at mutual creation of sustainable safe behaviour culture in the industry. Information, lessons learned from incidents and best practices are shared. In addition, this initiative aims to simplify, standardize and implement common requirements and practical solutions in the oil and gas industry. Over the past year, the collaboration continued online.

Issues discussed at the meetings related to organizing work in restricted COVID-19 conditions and road safety including the classification of road traffic incidents, the use of a vehicle monitoring system and video cameras while driving, the incident investigation process and other.



Drilling rig № 249

CASE STUDY 4 GRI 102-44

GENERAL SAFETY AND ROAD SAFETY ENGAGEMENT WITH THE AKSAI COMMUNITY

Context / short description:

Each year KPO place utmost importance to awareness raising and promoting road safety and general safety amongst the population of Aksai. Given the limitations of the coronavirus pandemic, some of the planned activities were carried out in a new format.

Solution / actions:

KPO used to hold the annual Road Safety event dedicated to the International Children's Day celebrated on 1st June for Aksai children and parents. However, in 2020 the COVID-19 pandemic affected the implementation of this event.

Despite the limitations, thanks to assistance of the local 'Radio-Aksai' colleagues, the Corporate Safety Department employees were able to conduct an online contest having communicated with parents and children of the town via Instagram.

A week before the event several short videos were prepared and published on the "Radio-Aksai" Instagram page to remind about the most common risks and safety rules targeting shaping habits of safe behaviour and preventing child injuries. Along with this, we proposed Aksai residents to provide their photos and videos in order to share their ways of ensuring safety and protection of children at home, outside and on the roads, etc.



The best and most creative works were selected for the awards and were announced live on the 'Radio-Aksai' on the Children's Day.

In addition, during 2020, in collaboration with the Aksai radio station, KPO continued broadcasting audio ads on various topics, including safety rules at home and outside, fire prevention, safe driving, child safety, as well as safe behaviour at night and in winter. Audio ads about safety and road safety are broadcasted on the radio five times a day with monthly updates.

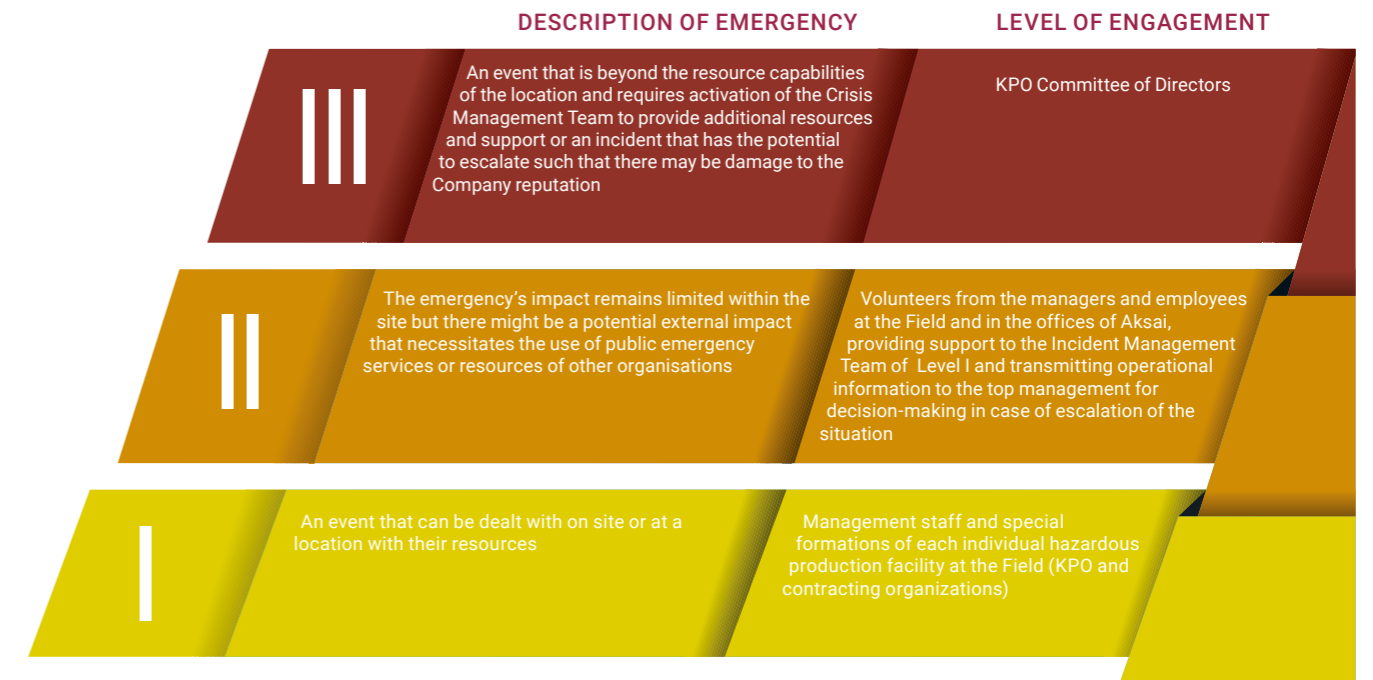
Besides, together with representatives of the local road police and district education department, awareness events were held for children of secondary school junior classes to actively promote Road Safety rules. As part of this campaign, children were presented with memorable gifts and over a thousand reflective flickers for using at night time.

EMERGENCY RESPONSE GRI 103-1, 103-2, 102-11, 102-44

Emergency response and crisis management are the key processes in KPO management. Emergency preparedness and response address possible emergencies and incidents, their prevention and mitigation of impact on people, the environment, the Company's assets and reputation.

In case of any incident, accident or emergency, KPO operates a robust three-level Emergency Response system used to trigger a prompt response, assessment of emergency scale, planning and implementation of actions to localize and eliminate emergency and its consequences. The system is graphically shown on the figure 10.

Fig. 10. KPO Emergency Response System GRI 103-2, 403-5



In emergencies, the life and health of people, environmental safety, asset integrity and reputation of the Company depend on the efficiency of training skills of the Levels I, II and III Emergency Management personnel, rescue services and teams to respond. Despite the COVID-19 spread restrictions, KPO conducted a sufficient scope of emergency response activities including preparation of resources and means providing social distancing is complied with.

Also, in a pandemic, KPO took measures to ensure stable operation of the Level II Incident Management Team (IMT), in particular:

- reduced physical contact of the IMT Level II members;
- combining field-based and Aksai-based teams in order to reduce the number of employees on duty at the same time;
- table-top-exercises and shift handovers using audio and video means of communication.

As practice has shown, such solutions have allowed maintaining continuous operation of the Incident Control Team (ICT), while the unified IMT level II proved its effectiveness in practice during a real-life mobilization in December, having demonstrated well-coordinated teamwork.

KPO emergency response system is annually validated through various emergency drills and exercises in line with the annual Plan for preparing Management Bodies, KPO Emergency Response and Civil Protection teams, which is not part of personnel and community teams to take actions in emergencies.

In 2020, due to the COVID pandemic, KPO had limited prospects in conducting comprehensive emergency response exercises and training of the new IMT members. Nevertheless, members of IMT level II and CMT level III participated in the following real-life mobilizations and exercises, which allowed maintaining the level of readiness: **GRI 103-3**

- 'ASTRA' exercise in February 2020 – a comprehensive emergency management exercise with participation of the Level II Incident Management Team, Level III Crisis Management Team;
- 'COVID-19' exercise and 'COVID-19' real-life mobilization in March 2020 – Level III Crisis Management Team;
- Real-life mobilization in December 2020 – mobilization and response of the joint Level II Incident Management Team due to suspicious object found by Security at well 9841.

As part of the Level I, in 2020 all the KPO hazardous production facilities conduct monthly emergency exercises with engagement of the Facility Incident Management Team, emergency rescue teams and KPO and contractors' personnel.

Throughout 2020, adhering to all sanitary standards and social distancing, theoretical sessions and practical drills were held on a weekly basis with engagement of the KPO Emergency Response System teams, including:

- firefighting services;
- gas rescue teams;
- voluntary gas rescue teams;
- medical staff.

It should be noted that some table-top-exercises and drills, as well as emergency response exercises were cancelled at the peak of quarantine in order to reduce the risk of COVID spread considering the sanitary and epidemiological restrictions. Subsequently, exercises and drills were resumed.

Also, in 2020, KPO continued with training staff on civil protection via an e-learning system as required by the RoQ legislation.

The laboratory for respiratory protection, gas analysing and fire extinguishing equipment ensured the uninterrupted issue of the equipment to KPO and contractor personnel for conducting gas hazardous and emergency rescue operations. Additional hygiene means were provided to employees during the usage exercises of the respiratory protective equipment (RPE).

Within 2020, the Centre for issuing filter masks and gas detectors continued providing protective equipment to all KPO and contractor employees and Field visitors.

Community preparedness **GRI 102-11, 103-3, 102-44**

In case of an emergency, KPO monitors the level of awareness on community response among the residents of villages adjacent to the Karachaganak Oil and Gas Condensate Field. In 2020, according to the approved plan, seven meetings on topics such as fire safety, stray livestock as a source of danger, role of Central Monitoring Station, Public Alarm Station and familiarization with its equipment, were held with state bodies and community residents living within the vicinity of the Field. The meetings covered 71 persons.

Within 2020, KPO Emergency Response specialists jointly with contractors' representatives have been performing monthly testing of the alarm signals to maintain continued readiness of the public alarm stations located in the settlements.

In 2020, KPO has completed installation of the new diesel generator units and public alarm stations' control systems in the villages of Priuralnyi, Zharsuat, Karachaganak, Zhanatalap and Uspenovka. The new equipment will ensure reliability and continuous operation of the stations.

Besides, KPO continues its active engagement with local authorities in the periods of high water, fire danger and winter.

ASSET INTEGRITY **GRI 103-1, 103-2, 102-11, 403-7, 06-13**

The key target of Asset Integrity is to prevent major incident hazards. As defined by the IOGP Standard no.456, Asset Integrity is achieved when facilities are structurally and mechanically sound, perform the processes and produce the products, for which they were designed.

KPO is committed to monitoring potential threats to its operations and continue working on mitigation of high risks through the safety barrier system. KPO's Asset Integrity department continuously assess the 'health status' of the safety barriers to identify 'holes in the barriers' and to prevent any accidents.



Tab. 18. Targets in Asset Integrity **GRI 102-11, 403-7, 103-2**

2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
Perform a Final Acceptance Test for a new software of Barrier Model	Achieved	During the year, the new software has been customised in line with KPO requirements. Final Acceptance Test and Users training on the Riskpoint Barrier Model Tool have been performed. In December 2020, the new KPO Barrier Model software was put into service.	Roll out a new Barrier Model tool and conduct awareness sessions for all KPO front line staff
Perform the study and analysis of Undersized Pressure Safety Valves (PSV) at KPC, Unit-2 and Unit-3	New target: in progress	Asset Integrity have defined and registered the Barrier Model risks relevant to Undersized PSVs. Asset Integrity and Operations departments performed risk assessment for such PSVs.	Continue monitoring the Undersized PSVs replacement at KPO production facilities and record related risks into the Barrier Model
Carry on the implementation of the ASSURANCE HAZOPs recommendations	New target: in progress	Good progress achieved in actions closure at Unit-2 Assurance HAZOP 2018: 81.4% (290 out of 356). Unit-3 Assurance HAZOP 2019 progressed 26.5% (53 out of 200) of actions closure. All actions are tracked in the Synergi database.	Continue supporting the HAZOP actions closure via Process Safety Review (PSR) module in Synergi database
Implement defined changes of the Alarm Rationalisation Project (Phase III)	Achieved	The Alarm Rationalisation Project was completed; and the ownership was handed over to Central Maintenance department.	
Continue the Process Safety Awareness campaign and develop an action plan based on the analysis of the feedback collected to reinforce barrier control and monitoring	Postponed	Due to COVID-19 restrictions, the Process Safety Awareness campaign was suspended.	Continue the Process Safety Awareness campaign and develop an action plan based on the revised IOGP standards

The objective of KPO Asset Integrity is to prevent major incidents and reduce risks to people, environment, assets, and the Company’s reputation. In order to reduce the risk, we have defined barriers that relate to plant, people and processes, thus managing the major accident hazards to a level that is as low as reasonably practicable. **GRI 103-1**

KPO Asset Integrity Management System is a set of measures to prevent major accident hazards and to raise hazard awareness amongst the KPO employees, all contractors and subcontractors working at the Karachaganak field.

Since 2014, KPO has been applying its Asset Integrity Management System, which is focused on the four core tools:

1. Barrier Model,
2. Asset Integrity Key Performance Indicators,
3. Management of Change system for brownfield modifications,
4. Process Safety Fundamentals campaign.

Barrier model **GRI 102-11, 103-2, 403-2, 407-7**

In 2020, KPO Asset Integrity Department has been working on a customised configuration of a software tool developed by a specialized software company RiskPoynt to enhance the existing Excel-based Barrier Model Tool. The new solution is an innovative, operational risk management tool that provides analytics and metrics to ensure the highest level of safety and security for KPO assets.

The KPO Barrier Model software was upgraded to the level of KPO requirements in order to improve efficiency of the process with increasing “live data” and to reduce the response time of dealing with identified potential hazards. KPO launched the new Barrier Model tool on 22 December 2020.

Loss of primary containment **GRI 403-2, 06-13**

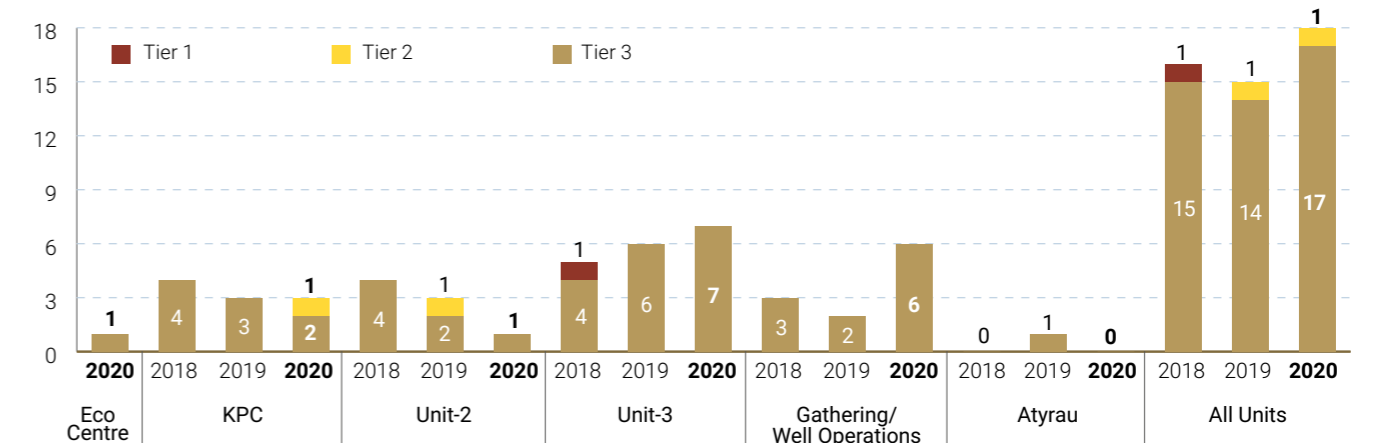
Loss of Primary Containment (LOPC) is an unplanned or uncontrolled release of any material from primary containment, including non-toxic and non-flammable materials. The KPO 2020 Loss of Primary Containment Report provides for the analysis of the LOPC incidents that occurred during 2020 along with their defined recovery actions in terms of:

- Root causes (in accordance with Incident Investigation Tap Root Methodology),
- Level of compliance with Process Safety Fundamental rules,
- Status of corrective actions,
- Weeps & Seeps Leaks Register data.

Management and analysis of major accident hazards is the key to prevent or reduce the likelihood and severity of process safety events. Once a Process Safety event occurs, the investigation process is initiated with logging it in the KPO Synergi database. KPO investigation team analyse the root causes and develop recommendations and an action plan. Further implementation of actions is monitored via the Synergi database.

Statistical analysis for 2018–2020 shows that the number of LOPC events increased by 12% in 2020 against the 2019 performance, and the incidents severity was also increased. Only one Tier 2 Process Safety event occurred at KPC: gas leak at KPC Flash Gas Compressor building as shown on the graph.

Graph 6: Loss of Primary Containment at KPO by process facilities, 2018–2020 **06-13**



Note: For Process Safety Event definition (Tier-1/2/3), please refer to the International Standard IOGP 456.

Asset Integrity KPI **GRI 103-3**

Our Key Performance Indicators in Asset Integrity aim to identify precursor events or conditions that could ultimately lead to higher-level consequences or to enable prevention of their occurrence. KPO monitors both lagging and leading indicators, as per the Recommended Practice API RP 754, recommendations of the IOGP 456 Standard, and Eni and Shell guidelines on the Asset Integrity KPI reporting. As part of the 2020 Parent Companies’ audit findings, the KPI process was upgraded with identification of allocated ‘traffic lights’ for missed KPIs in internal system.

In 2020, the Asset Integrity department delivered the monthly and quarterly reporting and analysis of the Asset Integrity KPI’s as reflected in the Asset Integrity KPI Scorecards.

As part of continuous improvement and awareness raising, the KPI pyramid was supplemented with the Tier 1-3 ratio reflecting the number of occurred events by levels to the total number of man-hours worked by the employees of contracting and subcontracting organizations.

Due to the lack of resources and COVID-19 restrictions in the year, KPO Asset Integrity did not work on digitization opportunities for inputs to the scorecards and dashboards and other automated processing as part of the KPO Digitization programme.

In 2020, Asset Integrity department continued working on monthly collection, structuring, regular updating and discussion of KPIs and data for the information panel (general KPIs and separately for facilities).

Management of Change System for brownfield modifications

Management of Change is a system that ensures that any changes related to modification of equipment are evaluated, authorised and documented before they are implemented, thus ensuring the continued integrity of the plant.

Our Management of Change system is widely used by the KPO departments involved in the process of equipment modifications. In total as of end 2020, 1,946 electronic changes (or eMoCs) were registered in the system, of those 9,8% were raised during 2020. Overall, 814 changes were closed in the system, of which 136 have been closed within 2020.

Asset Integrity department together with all Units have achieved the reduction of the number of eMoCs in backlog. Comparing to 2019, Backlog electronic changes decreased by 58.8% with the remaining backlog of 247. In 2021, we target to improve the system efficiency by reducing the backlog and preventing its further accumulation.

Alarm Management GRI 103 - 3

In 2020, the Alarm Rationalisation Programme has been finalised and the ownership has been passed to Central Maintenance department for implementation (phase III). During Q1 2020, brief training to all Central Maintenance Operators and Supervisors was carried out in preparation for the implementation phase.

Process Safety Fundamentals campaign

GRI 103-3, 102-11

The Process Safety Fundamentals (PSFs) campaign was started in 2017. The campaign is focused on raising awareness of the operations frontline personnel about the hazards that may occur while operating the process facilities.

In 2020, due to COVID-19 restrictions, the Process Safety Awareness campaign has been put on hold.

SECURITY

KPO takes every possible effort to ensure integrity of operational facilities and security of all personnel including contractors

GRI 103-1



Tab. 19. Our targets in security GRI 103-2

Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
Ensure zero illegal taps in the KPO export pipelines	Completed	Regular monitoring of the export pipelines was provided by mobile patrol teams and the Optasense notification system.	Ensure zero illegal taps in the KPO export pipelines
Upgrade software and hardware of the Optasense system	Completed	The notification system software was upgraded to version Sintela 5.0.	
	New target		Implement a number of activities require to prevent illegal actions and to reduce incidents
Continue training on Human Rights and Security Principles (HRSP) for security personnel	Completed	As of end 2020, the training covered 100% contractor security personnel. GRI 410-1 The regulation on the conduct of the training on HRSP is included in the terms of new contracts for providing security services since 2016.	Continue training on Human Rights and Security Principles (HRSP) for security personnel

Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
<ul style="list-style-type: none"> Complete detailed engineering and minimum 50% construction and installation of electronic security systems; Initiate preparation of work scope for installation of safety fencing and electronic security systems in Bolshoi Chagan Oil Pumping Station. 	In progress	The project's detailed engineering was completed. Construction phase and installation of electronic security systems have not started due to the COVID-19 restrictions.	<ul style="list-style-type: none"> Proceed with the procurement and installation of electronic security systems at the Company's facilities; Identify a potential security provider for the Oil Pumping Station in Bolshoi Chagan.
Introduce new-type badges with chips and advanced capabilities	In progress	A contract for delivery of new electronic badges was signed, and the software was developed.	Integrate several different applied electronic badges/certificates into one card

Following the results of KPO Security department activity for 2020, 521 violations were found, and 26 internal investigations were conducted. These included five applications, which were submitted to law-enforcement agencies.

During 2020, KPO revealed and prevented cases of unauthorized removal / relocation of KPO and contractors' assets worth approx. KZT 92 mln. Beside that, thanks to efforts of the KPO Security department and the Burlin District law-enforcement agencies the stolen property was returned.

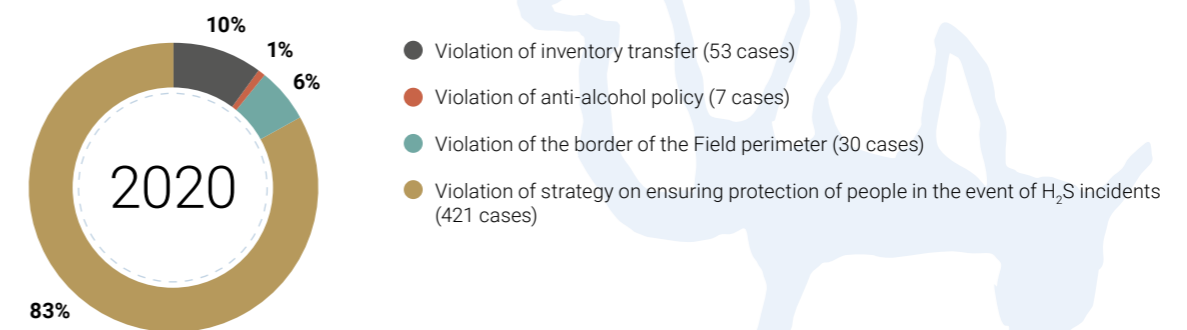
Employees of our security service contractor on the export pipelines have assisted the WQO law-enforcement agencies in solving crimes related to rustling and illegal treatment of derivatives of rare animals. GRI 102-44

As part of implementation of the Security Management System Phase 2, the following measures were undertaken in 2020 to upgrade the existing control and notification system:

GRI 103-3

- documents package for implementation and installation of a new Sintela software, advanced intrusion-detection technology, has been prepared;
- new equipment has been purchased and installed at the facilities, commissioning has been running;
- the processes and algorithms of the upgraded software have been integrated into the Security management system;
- new algorithms have been added to improve accuracy of potential threats perception and minimize false alarm;
- new algorithms for access control and delivery/ removal of materials were introduced considering the facts of unauthorized removal of the copper-wire earth grounding cables from wells;
- the process of training operators to manage the Sintela system was launched in December 2020.

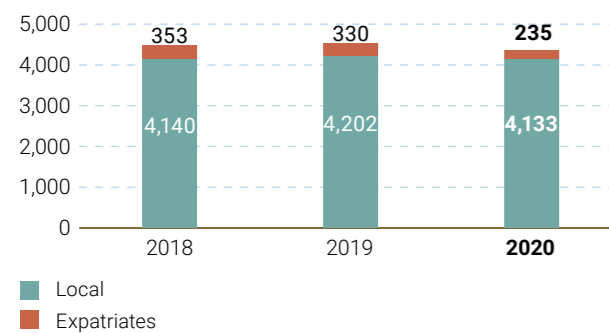
Graph 7. Violations evidence in 2020



PEOPLE AND SKILLS

As of end 2020, the total number of employees in KPO, including those working on temporary projects, made up 4,368 people with 4,133 of them being Qazaq nationals and 235 expatriates.

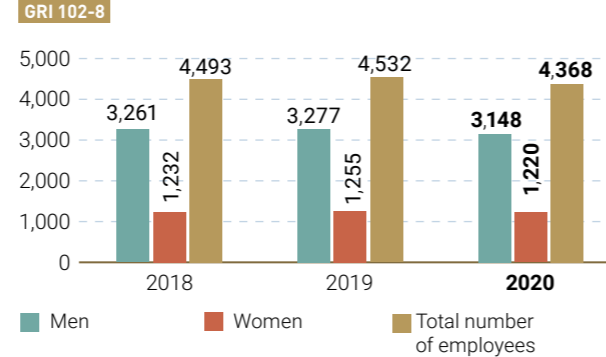
Graph 8. KPO employees, 2018–2020 GRI 102-7, 102-8



Graph 10 shows the ratio of employees by gender. In 2020, 3,148 men and 1,220 women worked at KPO. GRI 102-8

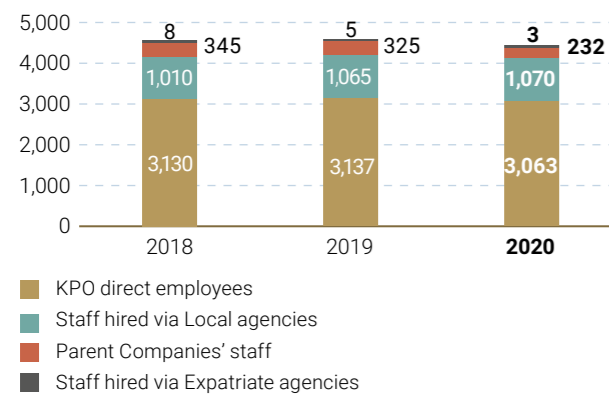
As of end 2020, the number of temporary employees⁶ totalled to 120. GRI 102-8

Graph 10. KPO employees by gender, 2018–2020 GRI 102-8



Graph 11 shows the turnover of local employees in 2020 broken down by age groups regardless of the type of contract. GRI 401-1

Graph 9. KPO employees by type of employment, 2018–2020 GRI 102-8



Graph 11. Personnel turnover by age, 2020 GRI 401-1

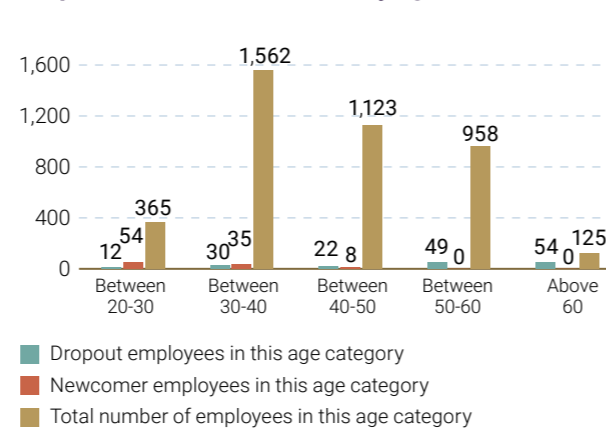
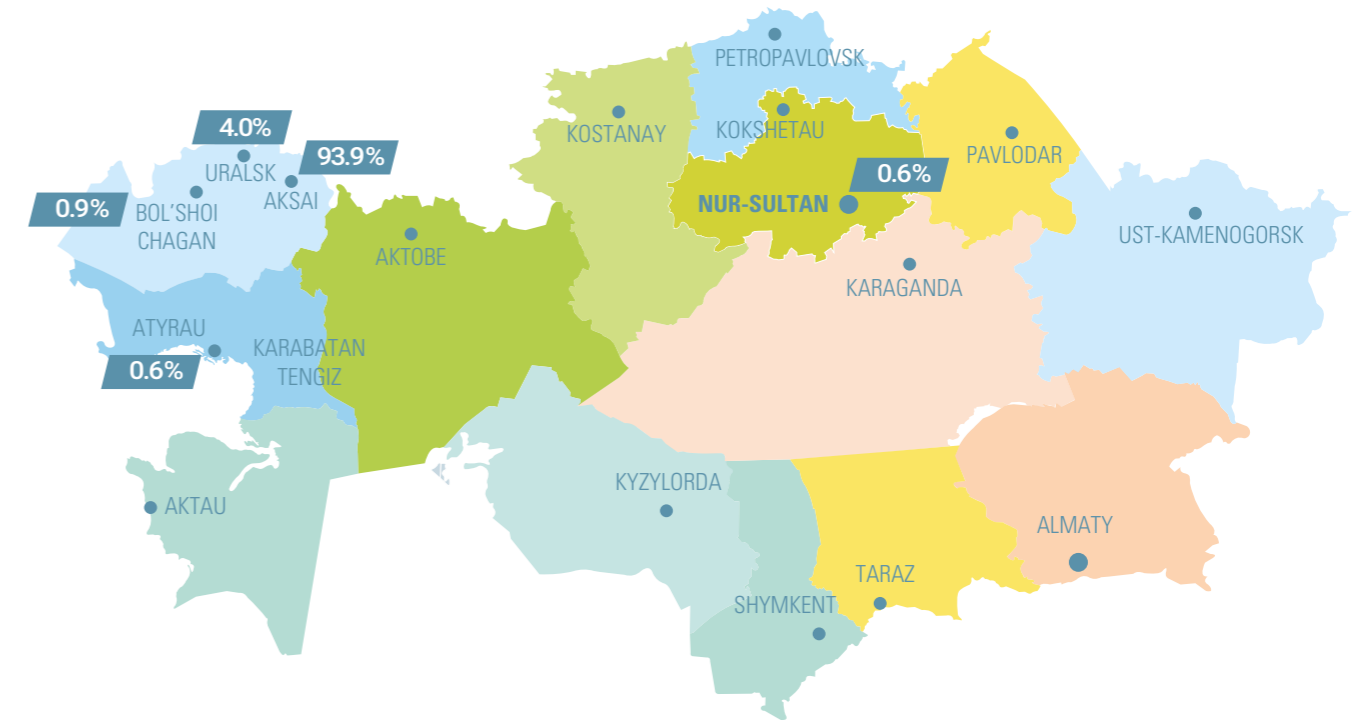


Fig. 11. KPO employees by region, % GRI 102-8, 103-1

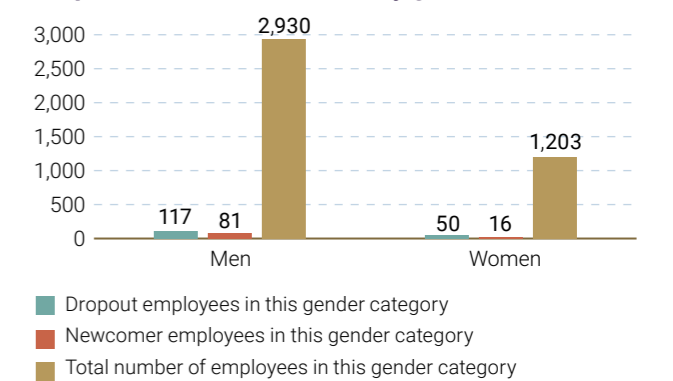
The map describes the geography of where KPO employees reside across the country.



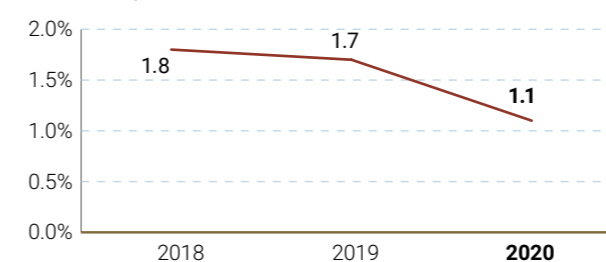
Graph 12 shows the turnover of local employees in 2020 broken down by gender. In 2020, the new employees hired in KPO made up 2.3% of the average number of employees. The turnover made 1.1% in 2020 versus 1.7% in 2019 (see graph 13). GRI 401-1

According to the RoQ Labour legislation, the turnover indicator includes the number of employees, who resigned on a voluntary basis.

Graph 12. Personnel turnover by gender, 2020 GRI 401-1



Graph 13. Dynamics of local personnel turnover⁷, 2018–2020 GRI 401-1, 103-3



⁶ Temporary employee is an external candidate hired for a limited time to replace a directly hired employee, who is on unpaid or maternity leave or seconded to a Parent Company.

⁷ Calculation of local turnover indicator is performed according to the following formula: personnel turnover = the number of personnel, who voluntarily resigned during the reporting year / the average number of employees for the same period x 100.

EMPLOYEE RELATIONS GRI 102-44

Collective bargaining is essential in the Company. Trade unions play a key role in supporting and protecting employees' rights. Trade unions develop draft Collective Agreements addressing various aspects of social and labour relations and bargain with the Company to improve working conditions of the employees. Three Trade Unions represent the interests of KPO employees:

- Public Association "Local Trade Union of Karachaganak Petroleum Operating B.V. employees";
- Public Association "Karachaganak Local Professional Union of KPO employees and contractors"
- Public Association "TRUST" Local Trade Union of Karachaganak Petroleum Operating B.V. employees and contractor companies".

The Collective Agreement signed for 2019–2021 was effective in 2020.

Provisions of the Collective Agreement are applied to all KPO employees regardless of their membership in the Trade Unions. GRI 102-41

KPO has a few grievance mechanisms: applications to HR Controllershship either directly or through Trade Union, and via the anonymous Hotline. In 2020, HR received 64 applications, including grievances. The received grievances addressed such issues as labour misconduct, employment, conflict resolution, abuse of power, misconduct with contractor employees. All received grievances were reviewed and resolved. GRI 102-17, 103-2

In accordance with the Collective agreement, KPO has the obligation to raise a minimum two-month (8 weeks) notice to Trade Unions in case of liquidation of the Company with a subsequent reduction in staff, system or amount of remuneration leading to deprivation of employees' conditions. GRI 402-1

The Company supports the application of the Voluntary Dissolution of Employment Relationship Programme as part of the Collective Agreement and pursuant to the RoQ Labour Code dated 2017 (Art. 52). The program applies to men aged 58-63 and women aged 53-58. In 2020, 43 KPO employees applied for the voluntary dissolution of employment relations (42 employees in 2019, 24 employees in 2018 and 45 employees in 2017).

In order to optimize costs, increase efficiency and maintain the Company's competitiveness when the oil price is low, in November 2020 the Company has launched one-time Programme for Voluntary Dissolution of Employment Relations. 42 applications were approved under this programme.

Industrial Relations GRI 102-11, 407-1

To avoid the possibility of forced labour and/or violations of the rights of employees to hold meetings or obtain collective concessions, KPO has regular meetings to explain the requirements of the legislation, as well as internal rules and regulations. The above risks may arise in the event of insufficient attention to compliance with legal standards in contracting and subcontracting organizations.

The current production and the activities on further development and expansion projects at the Karachaganak field are mainly carried out by contractors. Therefore, the successful implementation of the tasks and performance indicators depend on effective labour relations in KPO and within contracting and subcontracting organisations involved.

In this regard, KPO pays special attention to compliance with labour legislation and sanitary and hygienic standards of the Republic of Qazaqstan within the framework of implemented contracts for the provision of works and services.

In 2020, the COVID-19 outbreak and the current economic situation made it necessary to take unprecedented measures to ensure safety and health of all Company employees. While introducing restrictive measures, KPO liaised with regulatory authorities and contractors/subcontractors in order to devise the required algorithm and mechanism of action.

As part of the support for local suppliers of goods and services, KPO organized PCR testing of contractors' employees in compliance with the mandatory requirements regarding the implementation of sanitary and restrictive measures. In order to avoid additional financial burden on small businesses, these costs are fully recovered by KPO as of June 1, 2020.

Over the past year, suggestions, complaints and comments received from personnel were discussed and reviewed at the level of contractors' management, various KPO directorates and contract holders with the aim of required response and corrective actions.

Cooperation between KPO and contractors / subcontractors both in the course of ongoing operations and as part of the Karachaganak project implementation has ensured operational safety and stability in the workforce.

DEVELOPMENT OF NATIONAL PERSONNEL GRI 405-1, 103-3

Development of the national personnel is a continuous process in KPO. Professional competency is maintained and developed through the available system of training and skill improvement.

In 2020, KPO in cooperation with the PSA Authority approved the 2020–2025 Programme for Local Content Increase in Staff. The results achieved in the implementation of the previous programme were taken into account while developing the new one.

In 2020, 23 positions previously held by expatriate personnel were nationalised, 54 positions were abolished. Local employees made up 94% of the total Company's staff as of December 2020. In total, over 233 expatriate specialists were replaced with national employees and 239 positions held by expatriate employees were abolished in the period of 1999 – 2020. The breakdown by categories is presented in table 20. GRI 103-2

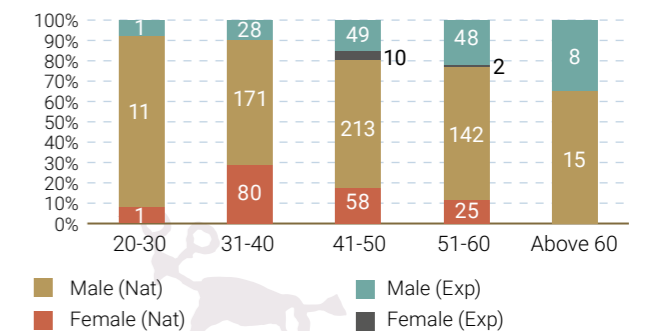
Tab. 20. Increase of Local Content in KPO staff by categories of employees GRI 202-2, 103-3

Category	Description	RoQ legal requirement	Local content in staff		
			2020	2019	2018
1+2	Executive management and their deputies, Department / Unit management	Minimum 70%	83%	79%	77%
3+4	Professional staff / qualified workers	Minimum 90%	97%	96%	95%

Additionally, in accordance with the goals set in this Programme, KPO keeps tracking the local content in contractors registered in the West Qazaqstan Oblast. In 2020, 43 companies provided their quarterly, biannual and annual Local Content in Staff reports. The Local Content in staff within these organizations made up to 79% in the category 'Executive management and their deputies Department / Unit management' and 94% in the category 'Professional staff / Qualified workers'.

Graph 14 presents the total number of expatriate and local senior and middle management of the Company split by age and gender. This includes KPO core structure and temporary projects.

Graph 14. Number of local and expatriate managers by age and gender, 2020 GRI 405-1(b)



PERSONNEL TRAINING GRI 103-1, 103-3

For the safe and efficient operations of the Karachaganak field facilities, we always need the highly qualified personnel. KPO applies worldwide experience of its parent companies and attracts various international and Qazaqstani training organizations to raise professional qualification of its personnel.

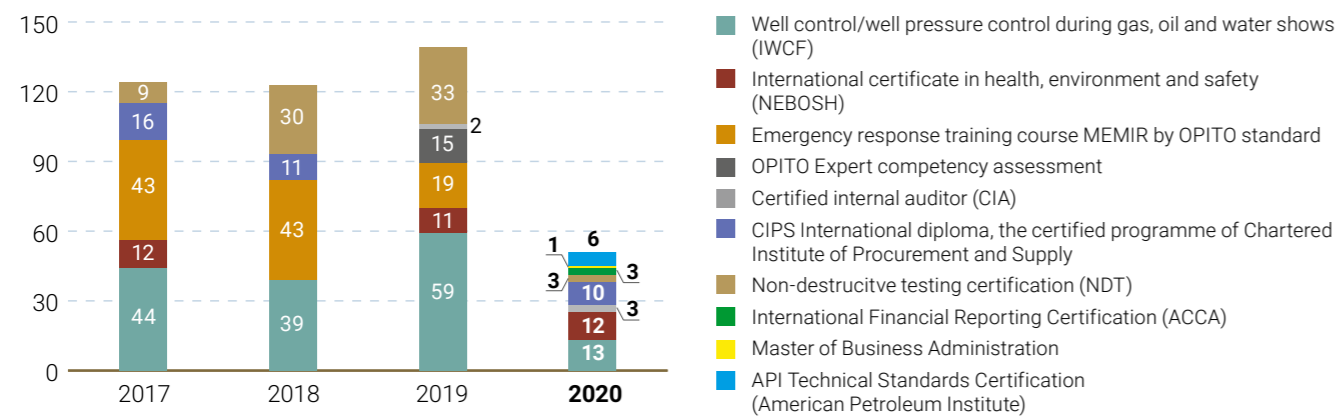
Every year, KPO conducts a variety of training programs aimed at:

- improving the personnel skills to achieve production and exploration goals;
- mandatory HSE training, as required by the RoQ legislation, the Company's internal procedures and best international practices.

In 2020, 76% of the Company's local employees were trained and engaged in various professional development programmes, professional training and retraining, online seminars and conferences.

Besides, in 2020, KPO conducted training of the specialized international programmes (see graph 15), language skills, and professional and mandatory HSE courses.

Graph 15. KPO personnel trained on the International Qualification certified programmes in 2020



Training statistics GRI 404-1, 403-5

As responsible organization, KPO ensures mandatory HSE training both for its own staff and for personnel of its contractor organizations. In 2020, 445,122 hours of training (686,709 hours in 2019) were held, of which 295,495 were provided to KPO employees (363,286 in 2019). The remaining 149,627 hours (323,423 hours in 2019) were spent on the HSE mandatory courses for the employees of the contractor organizations.

Totally, in 2020 19,637 people were trained, 3,134 of them – KPO employees and 16,503 – contractor personnel. Average training hours are given in graph 16.

Training arranged for KPO employees in 2020 by categories is shown in table 21.

Tab. 21. Training of employees by categories, 2018–2020 GRI 404-1

Category	2020	2019	2018
1. Managers and supervisors	92 people (73.99 hours per 1 employee)	161 people (66.60 hours per 1 employee)	172 people (54.84 hours per 1 employee)
2. Qualified specialists / supervisors	1,439 people (81.93 hours per 1 employee)	1,250 people (88.96 hours per 1 employee)	1,364 people (67.96 hours per 1 employee)
3. Technical personnel	1,484 people (113.01 hours per 1 employee)	2,044 people (111.73 hours per 1 employee)	1,494 people (121.07 hours per 1 employee)
4. Office and administrative personnel	119 people (25.81 hours per 1 employee)	150 people (86.53 hours per 1 employee)	84 people (44.99 hours per 1 employee)

CASE STUDY 5

ENHANCED DEVELOPMENT PROGRAMME GRI 404-2

Context / short description:

In the period of 2017 – 2020, KPO launched the third intake of the Enhanced Development Programme (EDP) aimed at identifying high-potential local employees and further development of their skills. While implementing the programme, the main focus was made on creating a talent pool to meet the Company's business needs, including the selection of talented employees, identifying their strengths and weaknesses, developing and implementing individual development programs, and as a result appointing them to planned positions.

Goal:

- Create conditions for employees to acquire the knowledge and skills necessary for sustainable professional growth by applying the development tools, such as coaching, internship at the Parent Companies' assets, formal training, certified programmes and mentoring.
- Ensure continuity of workforce planning.

Solution / actions:

From February through May 2017, KPO Training and Development Department had been selecting candidates to participate in the programme. Since the beginning of 2018, a number of events have been held to train and develop participants in accordance with their individual development plans, including quarterly meetings with current KPO Directors and Parent Company top management. It is worth mentioning that using the SAP application has helped us creating a unified platform for participants to work and interact effectively with line management, the assigned coaches and mentors.

In 2019, we paid considerable attention to coaching. The 'International tendencies in coaching' seminar received positive feedback from participants.

At the beginning of 2020, a forum titled 'Inspire Yourself and Inspire Others' was held with engagement of a famous coaching expert from Russia. As a result, participants mastered the coaching tools aimed at self-motivation and the motivation of others.

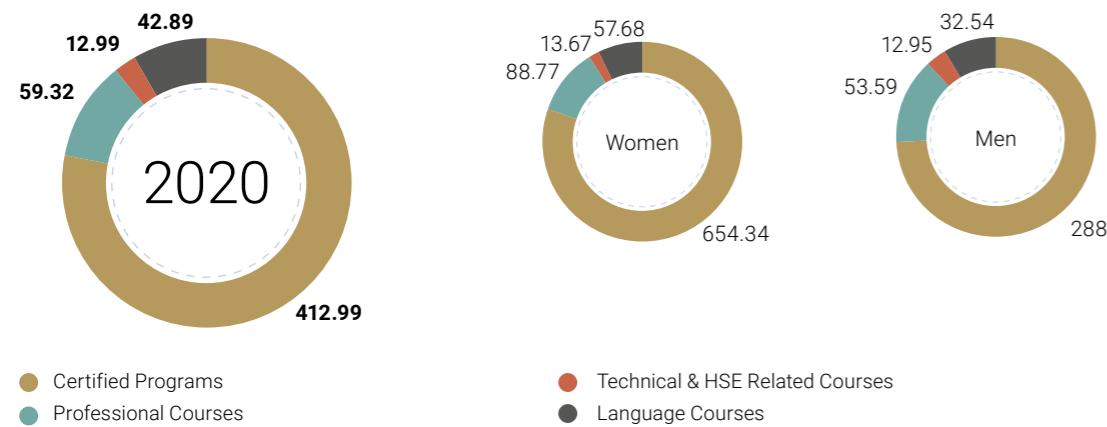
In total, five forums on the leadership development were held in the course of the program. According to the results, about 80% of the surveyed participants noted that the activities carried out helped them raise their leadership competency level.

Result:

The final year of the programme in 2020 fell at the COVID-19 pandemic, which have adjusted its implementation. Despite that, the programme was successfully completed at the end of 2020. The total number of participants in the third training intake was 161 people. By the end of the programme, 56% of the participants attained the roles as planned; and their individual development plans were completed by 77%.

Participants, who did not attain the assigned roles within the programme, were put into the Company's high-potentials pool.

Graph 16. Average number of training hours per one training course passed by nominated KPO employees in 2020, by type GRI 404-1



CASE STUDY 6

UNIVERSITY GRADUATES DEVELOPMENT PROGRAMME GRI 404-2

Context / short description:

At the launch of the facilities under the Phase IIM in 2007, the availability of highly qualified production and maintenance personnel in the region was limited. KPO initiated an OPITO Standards training programme in order to enhance qualifications and skills of local personnel.

Goal:

The key task of the Programme is to create a pool of high potential personnel among local the graduates of the Qazaqstani universities to ensure safe operations of the Karachaganak Field facilities.

Solution / actions:

Since 2008, as part of dual education, KPO has been implementing the Professional Development Programme for Production Operators, Mechanical Technicians, Electrical Technicians and Instrument Technicians based on the international standard of the Offshore Petroleum

Industry Training Organization (OPITO). Once selected, candidates are trained according to international standards gaining both theoretical and practical knowledge. Upon a successful completion of the programme, interns are hired by the Company and start their careers at the production units. The value of this training programme lies in the methodology provided in a block-module format. This approach allows developing a set of competencies, which focus on the ability to address production issues in workplace.

Result:

A total of 492 students have completed the programme between 2008 and 2020.

In 2020, we continued the training under the Professional Development Programme for Production Operators and Mechanical Technicians started in 2019.

In September 2020, 36 trainees completed the theoretical module on specialities of Production Operator, Electrical Technician and Instrument Technician and were assigned to pass internship in Production and Maintenance department.

COMPENSATION AND BENEFITS

KPO maintains fair work conditions, which are ensured mostly by competitive salary and various benefits.

A package of benefits is provided to all KPO direct employees; the package consists of monetary and non-monetary rewards. For the employees hired at KPO via recruitment agencies, the collective agreements of these agencies are applied.

GRI 401-2

Most rewards are included in the Collective Agreement that was reviewed in 2019 and remains effective for the period 2019–2021. GRI 102-41

Pursuant to the existing procedures, each year KPO offers an upgrade on the employees' remuneration, including the cost-of-living salary increase at the beginning of the year, annual performance review bonus for those, who received positive ratings based on annual performance, and also individual pay rises and additional lump sum payments.

The year 2020 was challenging from the economic point of view, nonetheless KPO did not stop making payments as prescribed in the Collective Agreement. In 2020, two general salary increases were made: the first payment of 6.4% reflecting the inflation level for the previous 2019 and an additional 1% pay rise under the terms of the Collective Agreement in January; the second payment of 10.6% increase in March as a result of negotiations with Trade Unions.

According to General Director's memorandum, in order to maintain uninterrupted production for the period of the COVID-19 lockdown, a special operation group of employees was created and was additionally remunerated on a monthly basis.

Throughout the year, there was no downsizing in the Company, but in order to optimize the organizational structure, employees were offered to apply to a Programme on Voluntary Dissolution of Employment Relationship with Provision of Benefits.

According to the annual benchmarking for compliance with the market level of remuneration in oil and gas sector in Qazaqstan, the average salary in KPO as of 2020 was three and a half times higher than an average salary in the West Qazaqstan Oblast (WQO). As a result of this analysis, no additional salary adjustment was proposed in 2020. GRI 202-1

Performance and Development Review GRI 404-3, 103-3

Performance and Development Review (PDR) is one of the feedback tools aimed at monitoring and enhancing work efficiency. The PDR process covers Qazaqstani employees, who have an employment agreement with KPO for minimum half a year.

In light of the transfer of most employees to remote work as part of measures preventing the spread of coronavirus infection, the PDR process has been revised and simplified. In particular, ratings distribution scale included "Strong", "Fully Effective" and "Needs Improvement". The ratings "Exceptional" and "Unsatisfactory" were not used.

For those employees holding managerial positions, a process to monitor their Key Performance Indicators against the set targets is arranged separately.

COMMUNITY ENGAGEMENT GRI 102-44, 103-1, 103-2, 413-1, 06-12

While operating Karachaganak KPO works to prevent or minimize the negative impacts and maximize the benefits from its presence by strengthening our engagement with local communities, thus creating conditions for economic

growth and development. Company policies, standards and procedures in the area of corporate social responsibility are based on the Performance Standards of International Finance Corporation. GRI 102-12



Tab. 22. Targets in community engagement GRI 103-2

2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
Implement the Community Development Programme for 2020 as per approved budget Sign a trilateral Memorandum of Cooperation with the Burlin District Akimat	Completed	The programs were implemented to the extent that the situation with the COVID-19 allowed. GRI 413-1 A trilateral memorandum of cooperation with the Burlin District Akimat was signed.	Implement the Community Development Programme as per approved budget
Conduct 12 Village Council meetings on social, environmental and economic topics with the three rural district communities: Priuralnyi, Zharsuat, Uspenovskiy	Completed partially	Due to the limitations of the COVID-19, 10 online meetings were held in three rural districts GRI 413-1	Conduct 9 Village Council meetings in three rural districts on social and environmental issues
Review and timely close all in-coming grievances and suggestions from the communities	Completed	All received grievances were reviewed and effectively closed out	Review and timely close all incoming grievances and suggestions from the communities
Continue the post-resettlement monitoring of the households in Aksai and Araltal and assess whether additional livelihood restoration support is required	Completed	By the end of 2020, the guarantee obligations of construction companies for the maintenance of constructed facilities under the relocation project are fully fulfilled.	Continue the post-resettlement monitoring of the households in Aksai and Araltal and assess whether additional livelihood restoration support is required

In 2020, KPO continued engagement with local communities despite the COVID-19 quarantine restrictions imposed by the authorities of Burlin District and West Qazaqstan Oblast.

We held 10 online meetings with the Village Councils of three rural districts: Priuralnyi, Zharsuat and Uspenovskiy. During the sessions, we briefed the villagers about KPO's 2020 community development assistance programmes and KPO's environmental monitoring programme. We also announced the admission of candidates to the Company's Scholarship Programme for school graduates from vulnerable families in Priuralnyi, Zharsuat and Uspenovskiy rural districts.

Seven school graduates from the Priuralnyi, Zharsuat and Uspenovskiy rural districts, who met the criteria of the KPO Scholarship Programme, were enrolled in colleges and universities of West Qazaqstan Oblast.

Also during the Village Council meeting, we urged the local community members to follow the basic sanitary and hygiene rules such as to prevent the coronavirus spread in their areas.

As part of the Community Development Programme, KPO provided 150 vouchers for the elderly to rest in Akzhaiyk Sanatorium.

Community feedback mechanism GRI 103-2, 103-3, 413-1

In accordance with KPO Community Grievance Procedure, we have received seven gas odor complaints from local communities living in close proximity to the Karachaganak Field. Investigations carried out by KPO Operations Environment Monitoring Team did not reveal any malfunctioning of the process equipment, leaks/emissions or MPC exceedances in each case. Feedbacks were communicated through the Community Liaison Specialist.

Monitoring of the resettled communities 06-12

2020 was the final year for our construction contractors to complete the 36-months' warranty terms for maintenance of 100 houses and the School built in Araltal and the two 9-storey apartment blocks built in Aksai in 2017 for the households resettled from Berezovka and Bestau. In 2020, 198 complaints and requests have been received from the resettled

PUBLIC HEARINGS GRI 102-44

During 2020, with the support of the Burlin District authorities, KPO held four public hearings in the form of open meetings on 6 construction projects and four public hearings in the form of a survey on 5 construction projects of various facilities, which included field and technology pipelines, environmental monitoring stations, as well as reconstruction and turnaround of the existing drilling units, facilities and temporary sites.

Information about public hearings is communicated to the public through publications in regional and district newspapers, as well as through the Company's website. Public hearings are held in the format of an open meeting or a survey. In connection with the coronavirus pandemic, the KPO and the local executive bodies agreed to receive feedback from the population by submitting questionnaires, which are enclosed to the package of documents posted on KPO website.

All the projects discussed at the public hearings in 2020 were approved by the audience and recorded in the relevant meeting minutes, which are available on the website of Burlin District authorities and KPO website at '[Sustainability/Social responsibility/Community engagement/Public hearings](#)'.

households in Araltal and Aksai. Those included: minor construction defects in the apartments, such as replacement of joints between water pipes, leaking balconies and some internal coating works. By the end of 2020, the construction companies had fulfilled their warranty obligations in full by fixing all minor construction defects; all complaints were effectively closed.

In the spring of 2020 jointly with Burlin District authorities KPO supported the resettled families in Araltal with a mobile grocery shop selling food and essential goods during the lockdown.

In October 2020, with the support of Aksai Mayor's Office, KPO Community Relations team supplied 150 saplings of rowan trees, maples and poplar trees from Burlin District Farm to green the territories of two 9-storey apartment blocks and one 5-storey apartment block in Aksai.



KPO employees while tree planting in microdistrict 10 of Aksai

CASE STUDY 7 GRI 102-44

COMMUNITY 'GREEN' INITIATIVE

Context / short description:

The issues of environmental protection and ecosystems of the territories adjacent to the Karachaganak field are always in the focus of KPO's attention. In its production activities, the Company adheres to the highest standards aimed at minimizing the impact on the environment.

As part of the post-resettlement monitoring, KPO decided to green the courtyards of the houses built in Aksai.

Solution / actions:

In October 2020, KPO Community Relations team visited a number of farms in West Qazaqstan Oblast to learn how to grow various types of trees, both leafy and fruit trees and how to select the seedlings.

Result:

On 20 October 2020, with support of Aksai Mayor's Office KPO staff delivered 150 saplings of mountain ash, Tatar maple and poplar for planting in the backyard of Apartment Blocks #24 and #25 in microregion 10 in Aksai. The saplings were handed over to the head of the Condominium.

The Condominium went to spread the tree planting also in the backyard of the apartment block No. 4/6 on Druzhby Narodov Street. All mentioned apartment blocks had been built for the households resettled in phases 1 and 2.

The joint efforts of the KPO Community Relations team, Aksai Mayor and the Cooperative of Apartment Owners have paid off. The ex-villagers highly appreciated the initiative for landscaping their yards. Taking care of the planted trees is the contribution of each resident to the environmental protection and preservation of the ecosystem in the area.



CASE STUDY 8 GRI 102-44

LOCAL COMMUNITY: RESETTLEMENT STORY OF THE DUSHEKENOV FAMILY

Context / short description:

The resettlement of Berezovka and Bestau, which used to be located on the border of the new Sanitary Protection Zone of the Karachaganak field, took place in the period from 2015 to 2017 in several stages. In total, over 460 families were relocated to Aksai and the adjacent newly developed Araltal microdistrict. One of the examples of settling in a new place and restoring the usual way of life is presented below.

Result:

Imanmalik Dushekenov is a retired resident, who moved with his elder son and his family from Berezovka Village to Aksai in Phase 1 at the end of 2015.

Imanmalik's daughter Gulsin Nazarova worked as a schoolteacher of Qazaq language and literature at Berezovka School. In 2017, she was resettled to a new house in Araltal. Now she works at Araltal School as a teacher of Qazaq language and literature.

In accordance with Entitlement Matrix, the households where elderly resided together with grown up and married children were entitled to separate housing after resettlement. Therefore, Imanmalik's married son and married daughter got two separate houses in Araltal.

Imanmalik Dushekenov's son Sapargali has three children. The eldest son is already working, the youngest son is a 6-grade pupil of the Araltal school, his daughter Aizhan is a medical college graduate. She did her college under the KPO's Scholarship Programme. After the graduation, KPO supported Aizhan with getting a job in local Clinic. Now Aizhan is a third-year student at a Medical University in Russia.

Aizhan says that KPO had given her a ticket to life through its Scholarship Programme. "My scholarship sponsored by KPO was bigger than that of other students".

When meeting with KPO Community Relations team Imanmalik Dushekenov thanked KPO for the assistance provided to his family: education for his granddaughter and a good housing in Araltal.



ENVIRONMENTAL IMPACT

KPO is committed to minimizing its impact on the environment while developing the Karachaganak oil & gas condensate field. KPO carries out its operations based on the principles of sustainable development and in compliance with high environmental standards. The key environmental commitments of the Company's HSE Policy include:

GRI 103-1, 103-2

- prevention of the environmental pollution,
- reduction of GHG emissions,

- conservation of biodiversity and ecosystems,
- conservation of natural resources,
- ensuring environmental safety,
- continuous improvement in environmental performance.

As part of its environmental commitments, the Company applies state-of-the-art methods and world-class best available technologies.

ENVIRONMENTAL PROTECTIVE MEASURES PLAN **GRI 103-2, 102-44**

To achieve the goals set in the area of environmental protection, KPO annually develops Environmental Protective Measures Plans (further as the EPMP). Measures set forth in the Plan focus on ensuring environmental safety, improving environmental protection methods and technologies, rational use of natural resources and maintaining compliance with the ISO 14001 and ISO 50001 international standards.

In accordance with the RoQ Environmental Code regulations, in order to obtain the Environmental Emissions Permit KPO should present the licensing authority with the EPMP for the permit's validity period.

In 2020, KPO performed its operations according to the obtained Environmental Emissions Permits and approved EPMP's as presented in table on <https://kpo.kz> "[Protecting the Environment / Environmental protective measures plan](https://kpo.kz)". In 2020, KOGCF secured four Permits per type of environmental emissions: emissions of contaminants into air, waste disposal, discharges of contaminants with domestic wastewater, as well as discharges of contaminants with process and produced water, which is injected in the KOGCF Subsurface Waste Water Disposal Polygons No.1 and No.2. Accordingly, EPMP was developed and approved for each of the Permits obtained.

In 2020, the total actual costs incurred for the implementation of the environmental measures at the KOGCF amounted to KZT 11.06 bln, i.e. 74% of allocated budget has been spent with 101% of the work scope completed. The 2020 target costs were KZT 14.96 bln. The variance was caused by incomplete implementation of the planned scope of work on certain measures, as well as deferral of some works to 2021 due to COVID restrictions.

With reference to item 2.3.1 of the Minutes of Meeting of the RoQ Presidential Commission for State of Emergency Management (№ 12 dated 15.04.2020), in August and November 2020, KPO issued letters to the RoQ Ministry of Environmental Protection, Geology and Natural Resources and to the RoQ Ministry of Industry and Infrastructure Development with respect to extending the implementation of the four measures planned for 2020 by the end of 2021:

1. Relocation of Environmental Monitoring Stations № 5 and № 15;
2. Development of a detailed design for the implementation of the automated monitoring system for real time remote data transmission specific to the company facility;
3. Studies with respect to application of domestic waste water sludge;
4. Energy performance audit.

The 2020 KPO EPMP execution by sections is shown in table 23.

ENVIRONMENTAL IMPACT

Environmental Protection Measures Plan.....	77
Sanitary Protection Zone.....	80
Environmental monitoring.....	82
Reduction of air emissions	86
Energy efficiency	91
Water use and disposal	95
Management of waste.....	98
Biodiversity.....	102

Tab. 23. 2020 Environmental Protective Measures Plan implementation, % GRI 102-44, 103-2

No	Sections of Environmental Protective Measures Plan	KPO measures implementation in %:		
		- within the Karachaganak Field	- at the KPC-Bolshoi Chagan-Atyrau export condensate pipeline (WQO)	- at the KPC-Bolshoi Chagan-Atyrau export condensate pipeline (Atyrau Oblast)
1	Air pollution control	130%	100%	100%
2	Conservation and rational use of water resources	72%	100%	100%
3	Land conservation	127%	NA*	NA*
4	Subsoil conservation and rational use	100%	NA*	NA*
5	Flora and fauna conservation	100%	N/A*	100%
6	Management of production and consumption wastes	122%	0%	100%
7	Radiation, biological and chemical safety	100%	NA*	NA*
8	Introduction of management systems and best safe technologies	85%	NA*	NA*
9	Scientific researches and design-survey activities in environmental protection	69%	100%	100%
10	Environmental awareness and promotion	100%	100%	100%
TOTAL:		101% (KZT 11.06 bln)	80% (KZT 362.5 mln)	100% (KZT 157.5 mln)

* NA – measures are not applicable.

EPMP implementation results are provided in table 24.

ENVIRONMENTAL FINES GRI 307-1

KPO runs its business in accordance with the environmental legislation of the Republic of Qazaqstan (RoQ). As part of its operations, the Company annually requests and obtains an Environmental Emissions' Permit (EEP) from the RoQ Ministry of Environmental Protection, Geology and Natural Resources. This permit sets the limits for air emissions, discharges and storage of production and consumption waste.

In 2020, the Company did not exceed the overall limits of emissions set in the Environmental Emissions' Permits. Further to the findings of the environmental inspections held during the reporting period, the Company paid an

administrative fine for KZT 1.3 mln. With respect to the events related to 2019, KPO paid administrative fines totalling KZT 33.8 mln. The Company appealed against all the above-mentioned fines at the superior authority and courts. However, those appeals have not been upheld.

In addition, in 2020 KPO made the payments totalling KZT 30.4 mln under the two civil claims charged on environmental matters with regard to the events dating back to 2018–2019. One of the civil cases related to 2018 was examined by courts three times and was partially won by the Company.

Tab. 24. Environmental benefits from KPO's Environmental Protection measures implemented in 2020

Air emissions	<ul style="list-style-type: none"> ■ Use of a surface pump to transfer fluids with high gas volume fraction during the well test and clean-up resulted in reduction of air emissions by 3,769 tonnes versus the expected 385 tonnes; ■ Use of high pressure separators during the test and clean-up of 3 wells helped reduce air emissions of contaminants by 240 tonnes from the expected 6,747 tonnes; ■ Use of hydrocarbon-based fluid for the reservoir stimulation (Lamix or Deisel) helped reduce air emissions of contaminants by 447 tonnes from the anticipated 391 tonnes.
Land reclamation GRI 304-3	<ul style="list-style-type: none"> ■ In 2020, 59.26 ha of land disturbed following well operations and construction activities, was reclaimed versus the planned 46.7 ha.
Waste and wastewater management	<ul style="list-style-type: none"> ■ 772 tonnes of segregated combustible non-recyclable waste was sent for incineration in General Purpose Incinerator (GPI); ■ Useful components recovered from the total municipal waste delivered for segregation to be further transferred to specialist companies for recycling and/or reuse: <ul style="list-style-type: none"> ■ plastics – 23.84 tonnes, ■ ferrous and non-ferrous scrap metals – 8.87 tonnes, ■ waste paper – 101.3 tonnes, ■ waste glass (crushed glass) – 7.51 tonnes. ■ Volume of treated liquid waste amounted to 6.60 kt, wastewater processing – 8.52 kt (in comparison with the 2020 EPMP – over 3 kt); ■ In 2020, KPO continued transferring the accumulated waste from the Solid Waste and Spent Drilling Mud Site to the Eco Centre Rotary Kiln Incinerator (RKI) and Thermomechanical Cuttings Cleaner (TCC) for treatment. During the year, 1,720 tonnes of wastes versus planned 3 kt were treated. The initial plan has not been fulfilled as treatment of cuttings by the RKI was suspended until completion of the TCC maintenance because of restrictions in the approved 2020 Waste Limits Project at 500 tonnes per year. ■ TCC recovered and sent for re-use 671.2 tonnes of Lamix base oil used for making oil-based drilling muds, versus the planned recovery of up to 500 tonnes. ■ Volume of reused treated wastewater for technical and production needs at the Karachaganak Field amounted to 18,313 m³. Volume of technical water consumed from the Konchubai Gully made 384,453 m³. The reduced drilling programme had led to the under-use of treated wastewater for drilling needs. Most of the treated wastewater was used for dust suppression at construction sites. The treated wastewater amounted to 4.8% of the technical water consumed from the Konchubai Gully against the planned 10%.

CASE STUDY 9

ENGAGEMENT IN DEVELOPMENT OF THE NEW ENVIRONMENTAL CODE OF QAZAQSTAN GRI 102-44

Context / short description:

In 2017, Qazaqstan announced its transition to the 'green' economy. This process implies radical changes in the national economy based on the up-to-date environmental legislation.

Since 2018, efforts for the development of a new Environmental Code were ongoing. The Company specialists actively participated at all stages of the development and review of this document.

Goal:

Contribute to the formation of a new Environmental Code based on KPO experience in conducting environmental activities at the Karachaganak Oil, Gas and Condensate Field.

Solution / actions:

The year 2020 was marked by successful completion of a huge effort over the draft of the new Environmental Code. Within a year, the Company environmental specialists were actively engaged in the working group comprising the RoQ Ministry of Environmental Protection, Geology and Natural Resources, the Association of Oil and Gas sector "KazEnergy" and the Lower Chamber of the RoQ Parliament to review

the drafts of the new Environmental Code and related acts. Our specialists provided constructive proposals and comments to the drafts of the Environmental Code and supporting acts in the area of environmental protection, including Water, Tax, Entrepreneurship Codes, Code of Administrative Offences and other. An enormous work has been done to introduce changes and amendments to the current environmental legislation.

Result:

The new Environmental Code of the RoQ was signed by the RoQ President K.K.Tokayev on January 2, 2021 and put into force from July 1, 2021.

In the run-up to the new Code, a number of critical issues pertaining to operation had been resolved by the Company experts jointly with other major users of natural resources. Such as handling of waste, application for environmental permits, mechanisms of the automatic emissions monitoring, invention of national standards on Green Technologies and others. An active engagement of national companies in the law-making efforts have enabled the business community to introduce rational and balanced upgrades to their production capabilities through application of the best available technologies in full compliance with the state policy for transition to 'green' economy.

SANITARY PROTECTION ZONE

Effective from 1st January 2018, a new estimated Sanitary Protection Zone (SPZ) was established within the Karachaganak Field.

In 2020, it was intended to take inventory of forest stands within the Field and SPZ. However, due to the introduction of quarantine limitations the access to the Field was restricted. Therefore, the project had to be postponed to 2021–2022.

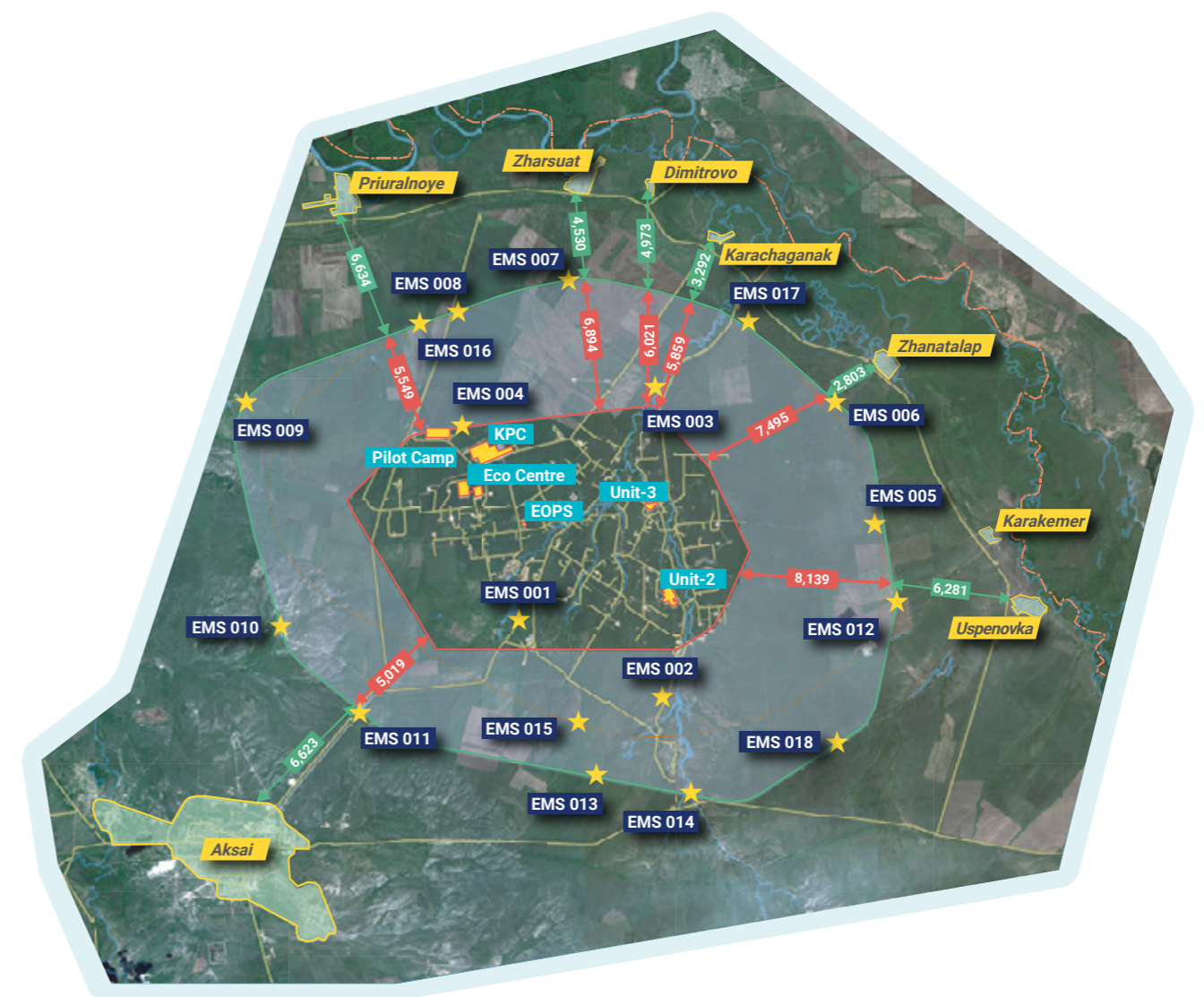
In 2020, as part of the KOGCF SPZ Enhancement Plan for 2018–2026, KPO commenced the phase 2 of the Project for the development and upgrading of the Estimated SPZ in the Karachaganak Field. In order to implement the Project,

KPO identified a list of required documents (regulatory legal acts, technical regulations, guidelines, etc.) and analysed collected data and information. Due to the quarantine, completion of the project was postponed until 2021.

In 2020, KPO completed the relocation of three environmental monitoring stations (EMS) Nos. 6, 9, and 12. Despite COVID-19 quarantine restrictions imposed by WQO local state authorities within the Oblast and Burlin district, relocation of the three EMS's was completed without an incident and ahead of schedule. Relocation of the remaining stations Nos. 5 and 15 was postponed to 2021.

Fig. 12. Map of the Karachaganak Field with SPZ marked as of end 2020

- ↔ Distance from the line of the outermost sources to settlements
- ↔ Distance from the estimated Sanitary Protection Zone to settlements
- State boundary
- ★ Automatic Environmental Monitoring Stations (EMS)
- Line of the outermost sources
- The estimated Sanitary Protection Zone (effective from 1st January 2018)
- Sanitary Protection Zone (till 2018)
- KPO production facilities
- Settlements
- Roads
- Hydrography



ENVIRONMENTAL MONITORING GRI 103-2, 413-1

KPO implements a number of environmental programmes, which cover all areas of the production activities. Among the core programmes, there is a Production Environmental Control (PEC) Programme developed in line with the RoQ Environmental Code requirements to meet the following objectives:

- obtaining reliable data about the Company's emissions and impact of production operations on the environment;
- minimizing the impact on the environment and human health;
- rapid and proactive response to emergencies;
- communication to stakeholders (local communities, state regulatory bodies, Parent companies) about the environmental activities of KPO and risks for human health.

As part of the PEC Programme, KPO monitors environmental emissions such as air emissions, wastewater discharge, waste treatment and disposal, and the quality of environmental components such as air, surface and ground water, and soil. The PEC monitoring of the quality of soils, surface and ground water demonstrated that concentrations of target substances in 2020 were on a par with those observed in previous years. There were no evidences that the Karachaganak Field operations may have impacted any of environment's components.

KPO monitors air quality by ways of collecting and testing the samples – the job is performed by an accredited laboratory as well as 18 stationary automatic EMSs. Air quality is assessed based on sanitary and hygienic limits, i.e. maximum permissible concentrations (MPC). To identify

Tab. 25. The annual average concentrations of the monitored air components recorded by EMS in 2020

Monitored components	Actual annual average concentration, mg/m ³	MPC one-time ⁸ , mg/m ³	Exceedance of MPC*
H ₂ S	0 – 0.001	0.008	no
SO ₂	0.001 – 0.007	0.5	no
NO ₂	0.002 – 0.006	0.2	no
CO	0.1 – 0.2	5.0	no

* Criteria of air quality at the SPZ boundary is MPC one-time.

⁸ MPC one-time is a maximum permissible one-time concentration of a chemical substance (in mg/m³) in the ambient air of settlements. This concentration shall not cause a reflex response in human bodies (delay of a breath, irritation of eyes, upper respiratory tract, etc.) in case of 20-30 min of inhalation.

the level of air pollution, the recorded concentrations of monitored components are compared against the maximum permissible concentrations and quantified in fractions.

In 2020, as part of the PEC Programme over 100,000 samples were collected, 117,000 laboratory analyses and 28,000 measurements were completed.

KPO pays particular attention to protection of air quality across the Karachaganak Field, at the Sanitary Protection Zone boundaries and the settlements adjacent to the Field.

Air monitoring by automatic Environmental Monitoring Stations GRI 413-1

18 stationary automatic EMSs are installed within the Karachaganak Field and along the perimeter of the SPZ (EMSs 001 – 018) and integrated into a single automatic environmental monitoring system.

Since the new sanitary protection zone (SPZ) was established and became effective from 01.01.2018, a project to relocate EMSs onto the new SPZ boundary was launched. As of end 2020, 12 EMSs are located along the SPZ boundary: 006, 007, 008, 009, 010, 011, 012, 013, 014, 016, 017, and 018. Two EMSs 005 and 015 are to be relocated in 2021.

Annual average concentrations of the monitored components at the boundary of the Karachaganak Field SPZ recorded by the EMSs in 2020 are shown in table 25. The column 'Actual annual average concentration' shows the minimum and maximum average concentrations of the monitored air components recorded by each EMS.

All the EMSs take measurement of the four main pollutants (H₂S, SO₂, NO₂, CO) on a continuous basis, i.e. 24/7. According to the data received from the EMSs in 2020, the actual daily, monthly, quarterly and annual average concentrations of the monitored components did not exceed the average daily MPC; however, on July 17, 2020, EMS 18 recorded MPC one-time exceedances measured within a short period of 20 minutes.

Tab. 26. One-time MPC exceedances recorded by EMS's in 2020

EMS №	Monitored components	Actual one-time concentrations recorded in 2020, mg/m ³	MPC one-time, mg/m ³	Frequency ratio of MPC exceedance, one-time	Number of exceedances
EMS-018	H ₂ S	0.018	0.008	2.25	1
	CO	6.2 – 12.0	5.0	1.24 – 2.4	4

Based on weather conditions, ESE and SE winds were recorded whereby KPO field operations could not have affected the atmospheric air in the area of EMS-18. Direct H₂S sources across KPO facilities were not identified. Major grass fires in Uspenovka rural district, Berezovka, Tungush and adjacent areas had caused the carbon monoxide (CO) exceedances. No gas odour complaints from the local communities adjacent to the Karachaganak Field were raised on the date the MPC exceedances were recorded. In line with the RoQ Environmental Code (article 130, clause 1, subclause 6), KPO sent a notification to the WQO Environmental Department with respect to the fact of the exceedances recorded on EMS-18.

Air quality data from all 18 KPO automatic EMSs are transmitted online to the West Qazaqstan Oblast Environmental Department via the [Ecomonitor](#) portal.

Atmospheric air monitoring in the villages adjacent to the Karachaganak Field GRI 413-1

There are stationary air monitoring posts in six settlements located around the field: Zharsuat, Zhanatalap, Dimitrovo, Karachaganak, Priuralnoye, Uspenovka, and in Aksai. Air sampling is carried out four (4) times a day at 1, 7, 13 and 19 hours according to the State Standard by the permanent personnel of the contracted laboratory, who reside in the villages. Approximately 52,000 air samples were collected and analysed at the stationary posts in 2020.

It should be noted that no connection has been found between the exceedances shown in table 26 and KPO field operations. The review of the KPO field operations and the meteorological parameters at the time of the MPC one-time exceedances suggest that all production facilities were in normal operation, with no flaring events, no equipment failures and emergencies recorded.

Air samples are delivered to the laboratory in Aksai where they get chemically tested for the content of five main components in accordance with the State Standard and Ruling Documents: hydrogen sulphide (H₂S), sulphur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), and methylmercaptan (CH₃SH). In addition, every 10 days the air is monitored for concentration of volatile organic components: benzene (C₆H₆), toluene (C₇H₈), xylene (C₈H₁₀).

Monthly results of air monitoring are published in local print media and distributed to the villages for posting on the information boards. If any gas odour complaint is raised by someone the community, an unscheduled air sampling is performed at stationary posts.

In 2020, No MPC exceedances was recorded for the daily average concentrations of the monitored air components in the villages.

In 2020, seven complaints with respect to gas odour were raised by the village communities adjacent to the Karachaganak Field. Unscheduled air sampling was carried out in the villages with results of the analyses showing that contents of the monitored components did not exceed the MPC's. Each complaint from an initiator with respect to gas odour has been addressed.

Annual average concentrations of the monitored air components in the seven villages in 2020 are shown in table 27. The column 'Actual annual average concentration' shows the minimum and maximum values of annual average concentrations of the controlled air components.

CASE STUDY 10 GRI 102-44, 413-1

ONLINE TRANSMISSION SYSTEM OF AIR MONITORING DATA FOR REGULATORY AGENCIES

Context / short description:

Ecomonitor portal is an online Air Monitoring data transmission system, developed by KPO in 2013 as part of the "KPO B.V. EMS Ecological Information Post Creation" project for prompt informing the RSE Kazhydromet on atmospheric air condition in Berezovka village and timely decision-making in event of complaints from the communities.

Goals:

- The information system would allow for real time transmission of air monitoring data in tabular and graphical form to the WQO regulatory agencies for further analysis and decision-making;
- Increasing transparency over KPO production activity and its impact on atmospheric air and improving interaction with regulatory agencies.

Solution / actions:

In 2013, KPO developed the Ecomonitor portal with an online access for WQO Kazhydromet branch to KPO atmospheric air monitoring data from the two environmental monitoring stations EMS-013 and EMS-014, installed in Berezovka village.

In June 2018, KPO established an online transmission of the air quality data to WQO Environment Department from all 18 automatic EMSs, installed both at the SPZ boundary and within the Karachaganak field.

In 2020, as part of the corporate geographic information system (GIS), KPO updated the Ecomonitor portal with a number of new features such as:

- significantly reduced time for collection and display of monitored data from the EMS;
- updated mode of atmospheric air quality reporting for the selected period (day, month, year) whereby reports are created much faster;

- submission of data through an interactive map that visually shows location of the automatic environmental monitoring stations, the Karachaganak Field SPZ boundaries and adjacent inhabited areas;
- EMS status visualized in real time (normal operation, calibration, power outage, etc.);
- portal user authentication changed from local to domain such as to improve the protection of the transmitted data.

In December 2020, KPO specialists presented a new version of the Ecomonitor and trained WQO Environment Department employees to operate the portal. Also, authentication data was handed over to the designated staff.

Result:

In result of the project implementation, WQO state agencies gained a real-time access to atmospheric air data from the Company EMSs.

The online monitoring data transmission to regulatory agencies contributes KPO's fulfilling its obligation in the fields of health, safety and environment, including:

- ensuring environmental safety and minimizing KPO's impact on human health and the environment;
- building confidence in KPO environmental data on the part of the regulators.

Taking into account the requirement of the new RoQ Environmental Code, for implementation of automated monitoring systems, KPO's decision to establish an Atmospheric Air Quality Monitoring System within the Karachaganak Field and subsequent data transmission to regulatory agencies was ahead of its time.

Tab. 27. Annual average concentrations of monitored air components in the villages adjacent to KOGCF in 2020

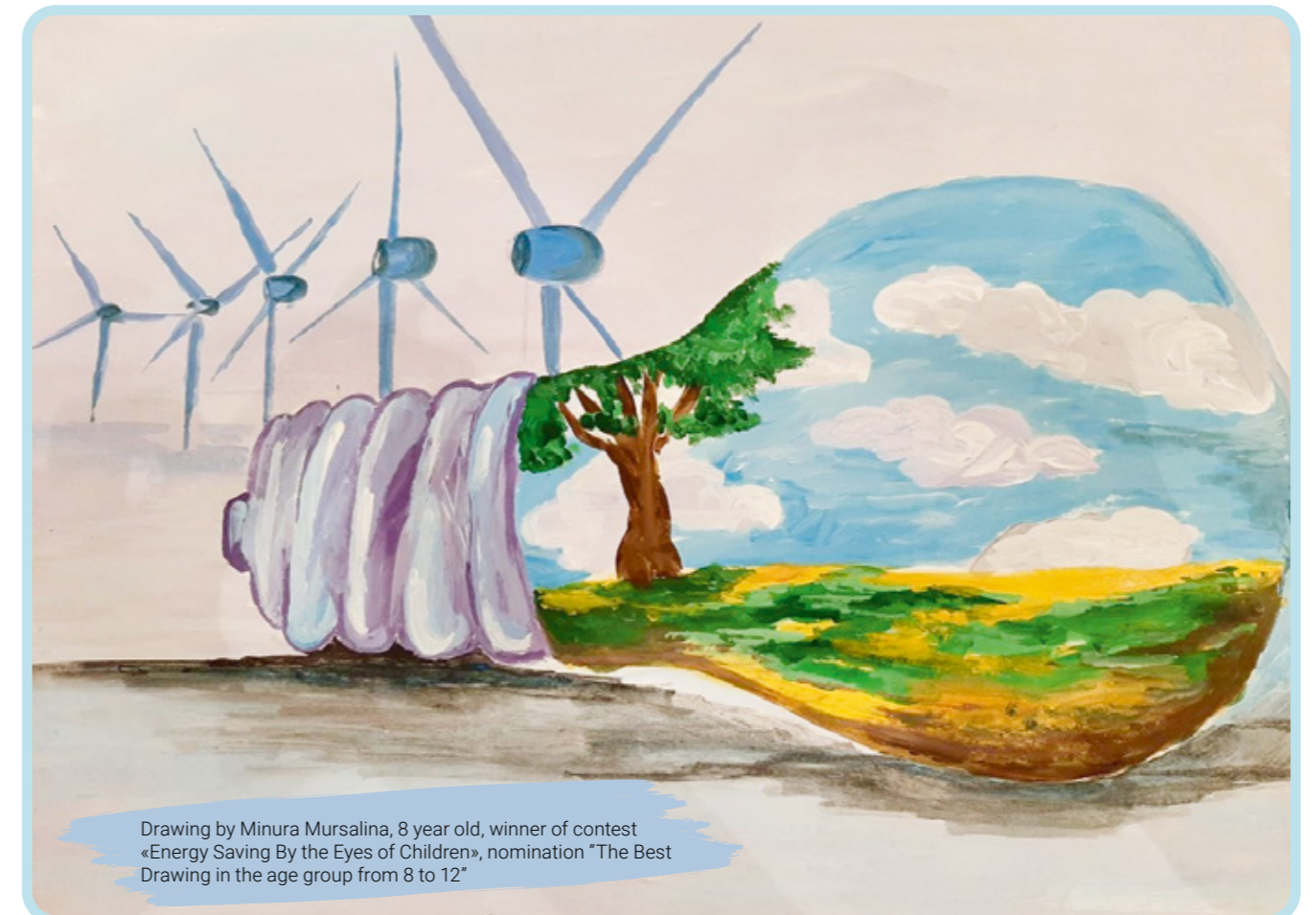
GRI 413-1

Monitored components	Actual annual average concentration, mg/m ³	MPC daily average ⁹ , mg/m ³	Exceedance of MPC daily average
H ₂ S	0.002	0.008 ⁹	no
SO ₂	0.003	0.05	no
NO ₂	0.024 to 0.026	0.04	no
CO	below MDL ¹⁰	3.0	no
C ₆ H ₆	0.173 to 0.180	0.3 ¹¹	no
C ₇ H ₈	below MDL ¹⁰	0.6 ¹¹	no
C ₈ H ₁₀	below MDL ¹⁰	0.2 ¹¹	no
CH ₃ SH	not detected	0.006 ¹¹	no

⁹ MPC daily average – maximum permissible daily average concentration of chemical substance [in mg/m³] in the ambient air of settlements. This concentration shall not have direct or indirect adverse effect on human body in case of inhalation during indefinitely long-term period (years).

¹⁰ Measurements recorded were below the method's minimal detection limit (MDL). MDL's for monitored components: CO – 0.6 mg/m³; C₇H₈ – 0.14 mg/m³; C₈H₁₀ – 0.14 mg/m³.

¹¹ MPC one-time. MPC daily average for hydrogen sulphide and methylmercaptan is not established, therefore, MPC one-time is referred to for comparison purpose; MPC one-time is also applied in order to assess the content of benzene, toluene and xylene in the air as the frequency of components' sample collection and analysis is once in ten days.



Drawing by Minura Mursalina, 8 year old, winner of contest «Energy Saving By the Eyes of Children», nomination "The Best Drawing in the age group from 8 to 12"

REDUCTION OF AIR EMISSIONS

Activity of such industrial enterprises as KPO is always associated with air emissions. High concentration of toxic substances in the air leads to environmental degradation. In that regard, KPO has set the goal to reduce the negative effect of its activities.

KPO manages air emissions based on the limits established in the Environmental Emissions Permit. Most emissions are generated as a result of combustion of fuel gas in gas turbine units, boilers, process heaters, compressors, and gas and liquid flaring.



Tab. 28. Targets in environmental protection GRI 103-2

Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
AIR EMISSIONS			
Ensure that specific GHG emissions do not exceed 67 tonnes of CO ₂ per one thousand tonnes of produced hydrocarbons	Completed	Specific GHG emissions amounted to 62 tonnes of CO ₂ per one thousand tonnes of produced hydrocarbons	Ensure that specific GHG emissions do not exceed 67 tonnes of CO ₂ per one thousand tonnes of produced hydrocarbons
Achieve reduction of GHG emissions by 285 thousand tonnes of CO ₂	Completed by 88%	Greenhouse gas emissions were reduced by 251 thousand tonnes of CO ₂ . The target was not achieved as the well operations activities were suspended in Q3 due to the COVID quarantine.	
Ensure that the throughput losses do not exceed 3.82%	Completed	Throughput losses amounted to 3.61%.	Ensure that the throughput losses do not exceed 3.82%

In 2020, cumulative air emissions totalled 7,591 tons, i.e. it remained the same as last year. Table 29 shows data on the permissible and actual KPO's emissions for the period of 2018–2020.

Tab. 29. Permitted and actual volumes of pollutant emissions, 2018–2020 GRI 305-7

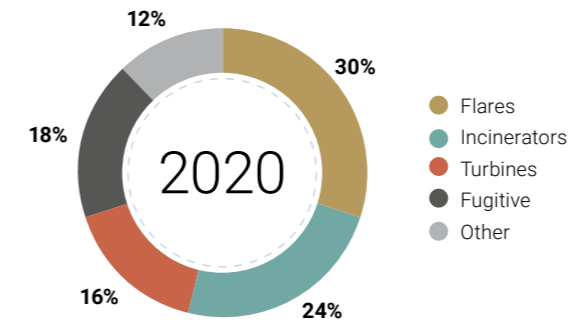
Annual volume of emissions by pollutants, in tonnes:	2018	2019	2020
Permitted:	19,986	18,544	17,527
Actual, including:	7,759	7,597	7,591
Nitrogen oxides	1,931	1,636	1,637
Sulphur dioxide	3,138	3,281	3,315
Carbon monoxide	1,249	1,205	1,145
Volatile organic compounds	1,315	1,329	1,352
H ₂ S	3	3	3
Solid particles	65	80	74
Other	58	63	65

Note: Emission volumes data are provided in accordance with the data of statistical report «2-TP Air».

In KPO, emissions are calculated using the technics specified in the statutory emissions limits and recommended for use in the Republic of Qazaqstan.

Graph No 17 shows pollutants emissions broken down by main air pollution sources.

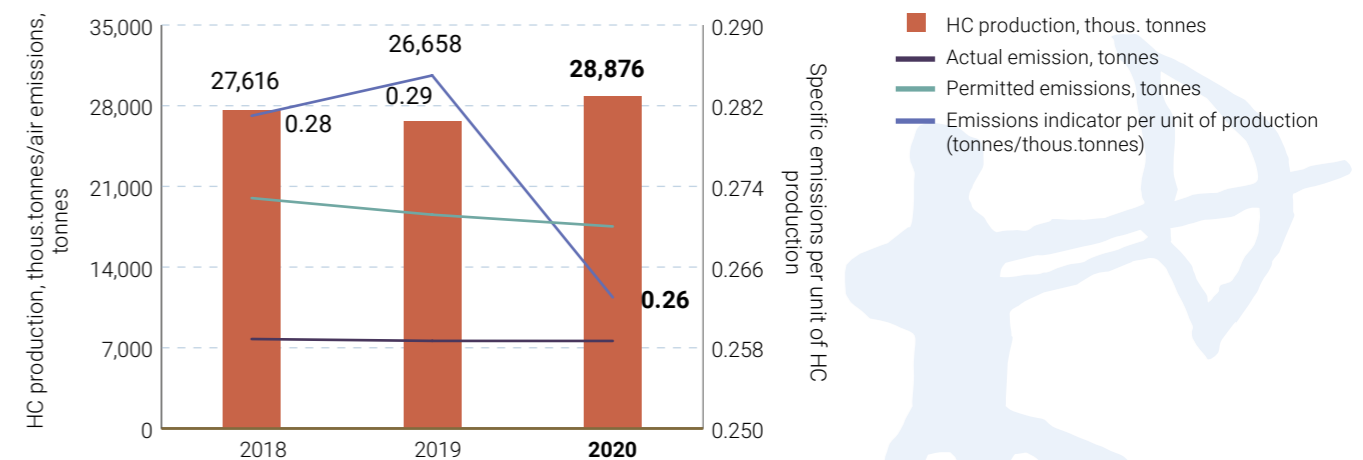
Graph 17. Distribution of pollutant emissions in KPO by main air pollution sources, in 2020



In 2020, the specific emissions per unit of production amounted to 0.26 tonnes per 1,000 tonne of hydrocarbons (HC) produced. Reduction in specific emissions in 2020 versus 2019 is attributed to higher production uninterrupted by shutdowns and increased gas injection levels.



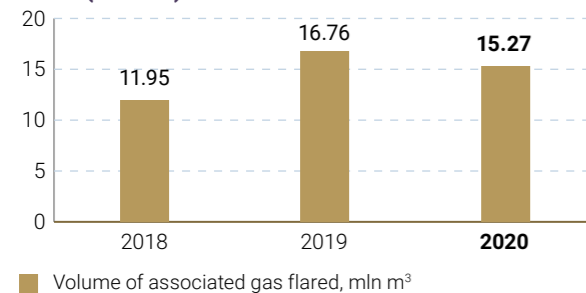
Graph 18. Hydrocarbons production and environmental emissions in 2018–2020



GAS FLARING OG-6

In 2020, the total amount of flared gas was 0.08% (0.09% in 2019) of the total volume of gas produced or 0.47 tonnes per thousand tonnes of produced hydrocarbons. Such a low flaring emission rate resultant from flaring testifies to high operational performance against the global industrial average rate of 10.6 tonnes per one thousand tonnes and European average rate of 5.5 tonnes per one thousand tonnes¹², as follows from the IOGP 2019's Report. Reduction in gas flaring volumes versus 2019 was due to the fact that a full turnaround was skipped in 2020.

In 2020, KPO used high volume gas fraction pumps (HVGf) for pumping liquids. The use of such equipment and materials has allowed decreasing the volume of liquids flaring by 26 thousand tonnes, which used to make 93% of the entire volume produced during the well clean-up operations. Thus, the volume of flared gas has decreased by 15 mln m³ (or 49% of the volume produced during the well clean-ups).

Graph 19. Volume of associated gas flared, 2018–2020 (mln m³)**Gas Utilization** OG-6

In 2020, KPO's gas utilization rate reached 99.92% (99.91% in 2019). The performance target approved by the RoQ Authority under the 2020 Associated Gas Processing Development Programme was 99.58%.

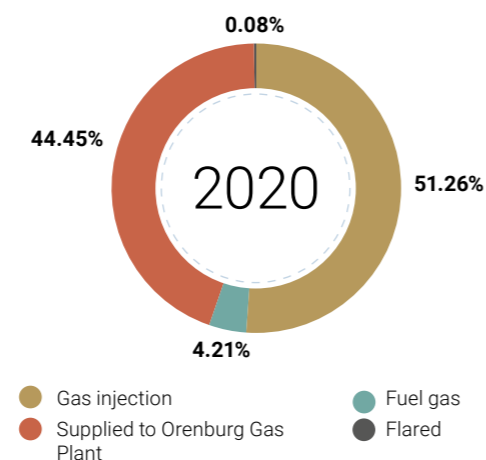
Direct greenhouse gas emissions GRI 305-1, 305-7

Across KPO the direct greenhouse gas (GHG) emissions are regulated under the national quotas trading system. KPO obtained quotas for 2018–2020 GHG emissions (CO₂) in the amount of 6,927,159 tonnes on the basis of specific emissions indicators (benchmark). In 2018 – 2020, total actual emissions amounted to 5,242,018 tonnes of CO₂, which made 76% of the quota.

Assessment of GHG emissions is performed for carbon dioxide (CO₂), methane (CH₄) and nitrogen oxide (N₂O), using the calculation method on the basis of the Company's operations data (in terms of fuel consumption and laboratory data on fuel composition).

According to the verified GHG Emissions Inventory Report for 2020, the total volume of GHG emissions amounted to 1,821,604 tonnes in CO₂-equivalent, of which CO₂ contribution equalled to 1,800,774 tonnes of CO₂-equivalent (98.9%), CH₄ – 11,993 tonnes of CO₂-equivalent (0.6%), N₂O – 8,837 tonnes of CO₂-equivalent (0.5%).

Information on the dynamics of generated GHG emissions is provided in table 30. A small reduction in GHG emissions (by 2.6%) in 2020 versus 2019 is attributed to the changes to the fugitive emissions methodology described in Case Study 11.

Graph 20. Gas utilization and flaring in 2020**Tab. 30. Dynamics of GHG emissions generated as a result of KPO production activities, 2018–2020**

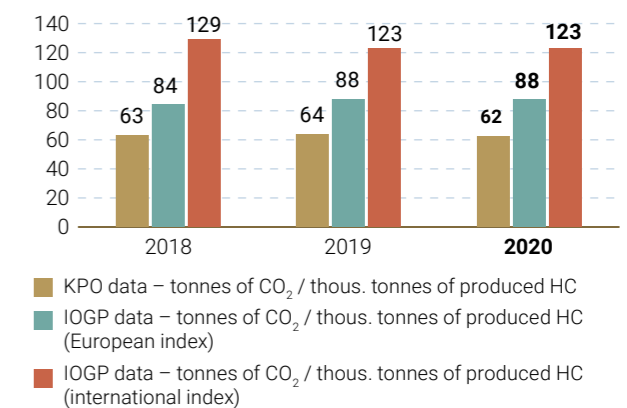
Total volume of greenhouse gas emissions (tonnes of CO ₂ equivalent)					
From fuel combustion at flares and incinerators	From fuel combustion at stationary sources	Fugitive emissions*	Total GHG emissions in 2020	Total GHG emissions in 2019	Total GHG emissions in 2018
141,954	1,670,399	9,251	1,821,604	1,870,324	1,893,447

* Considering the use of internal calculation methodology for fugitive GHG emissions approved for use for the purposes of inventory by the RoQ Ministry of Environment, Geology and Natural Resources. The volume of fugitive GHG emissions in 2020 calculated by the methodology applied at the GHG emissions inventory for 2018–2020 made up 161,782 of CO₂-equivalent.

Specific greenhouse gas emissions GRI 305-4

In 2020, KPO specific GHG emissions amounted to 62 tonnes of CO₂ per thousand tonnes of produced hydrocarbons, which is fully consistent with the target indicators of the specific GHG emissions of no more than 67 tonnes of CO₂ per thousand tonnes of hydrocarbon produced.

Graph 21 shows the dynamics of specific GHG emissions comparing to the specific emissions data provided by the IOGP. The actual specific GHG emissions at KPO are 23% lower than the European indicators and 52% lower than the international ones.

Graph 21. Dynamics of specific GHG emissions per unit of produced hydrocarbons (HC)*

* The data was sourced by Annual report of the International Associations of Oil and Gas Producers (IOGP) – "Environmental Performance Indicators – 2019 data". The 2019 data was used for comparison purpose in 2020, as the 2020 IOGP Report was not available at the time this issue was prepared.

of the planned target. The target was not achieved due to restrictions on well operations introduced in Q3 2020 due to quarantine.

Reduction of greenhouse gas emissions GRI 305-5

In 2020, as part of consistent reduction of GHG (CO₂) emissions, KPO set the target to reduce direct GHG emissions by 285 thousand tonnes through implementation of a number of production optimization and energy efficiency projects.

Owing to implementation of the seven projects listed in table 31, the actual reduction of the GHG emissions was 88%

Tab. 31. GHG emissions' reduction measures in 2020

No	Activity	GHG emissions' reduction, tonnes/year		Status of completion, %
		Target	Actual	
1	Use of high pressure separator during well clean-up*	219	10	5%
2	Use of high pressure pump during well clean-up	9	0.4	4%
3	Use of oil based fluid for reservoir stimulation	10	11.5	120%
4	Use of high volume gas fraction pump (HVGf)	6	108.6	1,817%
5	Repair of flare headers valves at KPC	19	26	137%
6	Adjustment of steam flow meter at Train 4	10	21.6	220%
7	Upgrade of Unit 2 turbo-compressors piping	13	73.1	562%
Total:		286	251.2	88%

* The target to reduce GHG emissions for 2020 was not fully completed due to COVID quarantine restrictions; the activity with a high-pressure separator was applied only at well № 9870 instead of 11 wells as planned.

¹² Data source: Annual reports of the International Association of Oil and Gas Producers (IOGP) – "Environmental Performance Indicators – 2018 Data".

CASE STUDY 11 GRI 103-2

DEVELOPMENT OF A METHODOLOGY FOR CALCULATING FUGITIVE GREENHOUSE GAS EMISSIONS

Context / short description:

Based on the outcomes of the fugitive GHG Emissions Monitoring Campaign from 2015 to 2019 it was identified that the actual GHG (methane) emissions are significantly lower (by 93%) than GHG emission volumes calculated in line with the Guidelines on GHG Air Emissions Calculation for Gas Production, Transportation and Storage Facilities. Based on the provisions of the Article 94-11 of the RoQ Environmental Code and ST RQ GOST R ISO 14064-1-2010, KPO took a decision to develop its own methodology that would allow to utilize the outcomes of the monitoring and therefore minimize indeterminacy in future calculations of fugitive GHG emissions at the Karachaganak field facilities.

Goal:

KPO's own methodology will support the delivery of the following objectives:

- It will enable for calculations of actual fugitive GHG emissions at a more advanced level based on the screening and monitoring data,
- It can be utilized during annual GHG emissions inventory at the Karachaganak field production facilities.

Solution / actions:

Considering the internal developed materials and based on the provisions of the Guidelines EPA-453/R-95-017, KPO Environmental Department has done huge work to develop and implement the Fugitive GHG Emissions Calculation Methodology. For this purpose, the following materials were studied and taken into consideration:

- Equipment Leak Evaluation Guidance materials issued by the USA Environmental Protection Agency (EPA-453/R-95-017).
- KPO Internal Fugitive Emissions Monitoring procedures and Fugitive Emissions Calculation Procedure.
- KPC, Unit-2 and Unit-3 fugitive emissions screening and monitoring results.

The new methodology was approved by the Ministry of Environment, Geology and Natural Resources of the Republic of Qazaqstan for using during the GHG emissions inventory at the Karachaganak field production facilities.

Result:

- The new methodology will enable KPO to obtain a more reliable data on the fugitive GHG (methane) emissions in Karachaganak;
- The methodology was applied during the GHG emissions inventory in 2020. According to the 2020 Inventory Report, application of this methodology allowed for reducing cumulative reportable KPO GHG emissions at least by 150 kt CO₂ equivalent or by 8%.

ENERGY EFFICIENCY

To ensure the growing demand for energy while making the transition to low-carbon technologies is one of the challenges facing the global community.

Our goals are to reduce the environmental impact and to effectively use energy resources in production and other ancillary processes. KPO carries out energy efficiency activities in an effort to achieve these goals.



Tab. 32. Targets in environmental protection GRI 103-2

Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
ENERGY EFFICIENCY			
Conduct the energy audit, determine the potential of energy saving and develop energy saving and energy efficiency improvement action plan for the period of 2021–2026	Partially completed	Due to the COVID-19 pandemic, the energy audit actions were partially implemented and postponed to 2021. In August 2020, the re-certification audit for compliance with the new ISO 50001:2018 standard version was successfully conducted, based on the results of which the KPO Energy Management System was recognized as efficient and corresponding to the international standards.	Complete the energy audit and develop a five-year energy saving and energy efficiency improvement action plan. Conduct a surveillance audit of the Energy Management System for compliance with the ISO 50001:2018 standard.
Conduct a certification audit of the Energy Management System for compliance with the new ISO 50001:2018 standard version			

ENERGY MANAGEMENT SYSTEM GRI 103-2,103-3

The ISO certification contributes to enhancement of the KPO reputation as a reliable partner to the Republic of Qazaqstan that takes appropriate actions to meet both regulatory requirements and international standards.

In August 2020, KPO successfully conducted a certification audit for compliance with the new ISO 50001:2018 standard version. The audit was conducted by RINA, the new certification authority.

Following the audit, the Company did not receive any non-conformance, and the KPO Energy Management System was recognized as efficient and corresponding to the international standards.

Energy consumption GRI 302-1

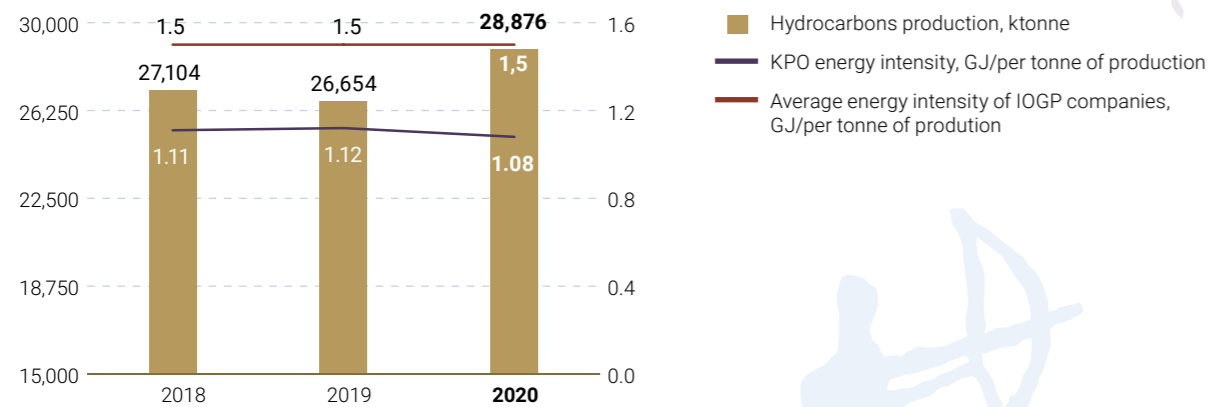
In 2020, the energy consumption totalled 1,067,135 tonnes of coal equivalent compared to 1,021,946 tonnes of coal equivalent in 2019. Table 33 shows the energy consumption volumes broken down by energy type.

Tab. 33. KPO energy consumption in 2018–2020 GRI 302-1

Type of energy	Unit of measure	Energy consumption, physical units			Energy consumption, tonnes of coal equivalent			Energy consumption, GJ		
		2018	2019	2020	2018	2019	2020	2018	2019	2020
Fuel gas	Thous. m ³	841,943	826,806	863,029	1,037,274	1,018,625	1,063,251	30,402,505	29,855,886	31,163,893
Electric power (purchased)	MW/h	6,707	7,244	6,236	825	891	767	24,181	26,115	22,482
Diesel fuel	m ³	839	739	1,188	1,058	932	1,498	30,997	27,468	43,905
Gasoline	m ³	245	226	199	271	249	220	7,934	7,301	6,439
Heating (in rented offices)	Gcal	8,219	8,731	9,781	1,175	1,249	1,399	34,449	36,595	40,994
TOTAL					1,040,603	1,021,946	1,067,135	30,500,065	29,953,365	31,277,713

In 2020, the energy intensity indicator was 1.08 GJ /tonnes of hydrocarbons, which was below the average energy intensity indicator of the companies that submitted their reports to the IOGP¹⁴ (1.50).

Graph 22. Dynamics of energy intensity, 2018–2020 GRI 302-3



Energy saving activities

Pursuant to the approved Energy Saving and Energy Efficiency Improvement Action Plan, KPO took the following actions in 2020:

- The activities on replacement of traditional lamps with LEDs bulbs at production and ancillary facilities
- Enhancement of fuel gas accounting including early works on the metering device installation were performed.

were continued. In 2020, 683 lamps were replaced at the Company’s facilities. Estimated economy of energy consumption from the traditional lamps replacement was about 132,950 KW/h.

¹⁴ Data source: Annual reports of the International Association of Oil and Gas Producers (IOGP) – ‘Environmental Performance Indicators – 2019 Data’.

CASE STUDY 12

KPO PROMOTES THE “THINK GREEN” INITIATIVE

Context / short description:

KPO works on implementation of the ‘green office’ principles across the company. The ‘green’ office implies a sparing use of resources by employees, caring for the environment and raising environmental awareness.

Goal:

In the long term, we expect that this initiative would contribute to reduction of waste generation, power and water consumption in the Company’s offices.

Introducing the ‘green office’ principles into the KPO’s corporate culture promotes eco-friendly thinking and lifestyle both at work and home, amongst family members and friends.

Generally, the Company employees might demonstrate care for environment among the local communities and create positive impact on the society. Engagement of more employees into the KPO environmental activities will facilitate improving the Company’s environmental performance.

Solution / actions:

KPO has prioritised the environmental training for promoting care for the environment and the Company’ resources. This also implies raising loyalty among employees to introduction of the ‘green’ technologies and environmental practices.

During 2020, over 500 employees were engaged in a number of environmental awareness activities, such as:

- A workshop involving KPO senior management dedicated to further improvement of the Company’s environmental performance including activities towards making the office an eco-friendly environment and improving the environmental culture;
- Motivational eco-training for the employees hosting Roman Sablin, an eco-coach, motivational speaker, environmental blogger, and author of the book “The Green Driver. Code to ‘green’ living in a city”;
- Environmental workshops with employees and discussions about the global environmental issues, personal contribution to reducing negative impact on the environment and minimizing ecological footprint.

Besides, KPO has issued its own Green Rules and environmental posters, designed to stimulate employees’ interest for change and to motivate them to take action towards reducing impact on the environment both individually and at the Company level.

Two KPO offices – Uralsk office and Karachaganak Business Centre – were selected for the Green Office pilot project, where the Company eco-activists conduct training and promote “green thinking” initiative among employees on a voluntary basis.

CASE STUDY 13

KPO ENERGY WEEK

Context / short description:

From November 11 to 17, 2020, KPO held the Energy Week, dedicated to the Energy Saving Day in the Republic of Qazaqstan. As part of the event, a number of online webinars engaging professional speakers from different areas of energy saving and environmental protection were conducted. This also included the drawing contest "The Energy Saving With the Eyes of Children".

Goal:

- Raise awareness of KPO and Contractor employees about the current trends, technologies and practices applied by industrial enterprises in energy saving and environmental protection;

- The drawing contest "Energy Saving through the Eyes of Children" was held in order to raise the younger generation's environmental awareness and sustainable living skills. Participation in the contest has encouraged children to learn the energy saving principles, and along the way to enjoy unfolding their creative abilities.

Solution / actions:

The Energy Week webinars included a wide range of issues: energy saving and energy efficiency projects implementation mechanisms, the RoQ Environmental Code updates, the 'green office' principles, foresight research and digitization in the area of energy saving, and other.

For elder children, a review of promising areas in energy education was conducted with participation of professors from the leading RoQ University and the German University of Applied Sciences Westküste. For younger children an interactive lesson 'What is energy efficiency and why is it important?' was held by the environmental teacher – ambassador of the RoQ Ministry of Environment, Geology and Natural Resources.

The organisers received a lot of positive feedback from participants despite the fact that the event was held for the first time and in an online format. More than 100 children of KPO and Contractor employees were engaged in the drawing contest "Energy Saving by the Eyes of Children". The contest winners were awarded with gifts and certificates of gratitude. As part of the event, KPO General Director Edwin Blom awarded KPO employees, who greatly contributed to the Company's Energy Management System certification and its compliance with the ISO 50001 standard.



WATER USE AND DISPOSAL

Our target is to use water resources rationally with the aim to preserve them. KPO controls the use of clean water within the Company by undertaking a set of measures on conservation of water resources and re-use of treated water, wherever possible.



Tab. 34. Targets in environmental protection GRI 103-2

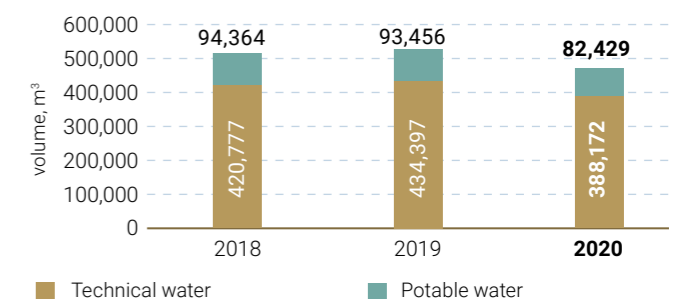
Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
EFFLUENTS			
Develop the project, complete the construction and commissioning of the equipment for reduction of the H ₂ S concentration in Unit-3 wastewater down to 50 mg/dm ³	Completed	Process Water Line Jump Over design project at Unit 3 was developed in order to reduce H ₂ S concentration in the injected wastewater by diversion of the Unit 3 wastewater to a condensate line at KPC. Design solutions were implemented. The jump over was commissioned at the end 2020.	
	New target		Complete exploration activities under the Project for geological exploration works on the follow-up exploration of the site at the Industrial Wastewater Polygon № 2

In 2020, the total KPO water consumption was 470,601 m³, of which technical water made up 388,172 m³, and potable water – 82,429 m³. GRI 303-3, 303-5

In 2020, the volume of water used by KPO for production needs was 10.6% lower than in 2019. The domestic needs' water consumption was lower too versus 2019. The reduction of water consumption was related to the drilling scope cut. Therefore, less water was used to produce drilling mud.

The main source of water supply for production needs in the Karachaganak field is the holding pond No 1 at the Konchubai Gully, while for household and domestic needs it is the Zharsuat water intake. The source of water supply for household, domestic and production needs of the Bolshoi Chagan OPS is the Serebryakovskiy water intake, while for the Atyrau Terminal is the Kigach water intake.

Graph 23. KPO water consumption, 2018–2020 GRI 303-3



Konchubai Gully is not part of the list of fishery waters based on the WQO Administration Resolution dated 22.12.2014 (No 325). The Konchubai Gully is not fed by groundwater; it collects water only during springtime by snow melting and rainfalls. According to the Special Water Use Permit valid until 24.05.2025 for water intake from the Konchubai Gully for industrial needs, the KPO annual intake limit constitutes 741,432 m³. The Permit is issued by the RSE 'Zhaiyk-Caspian Basin Inspectorate for Water Resources Management and Conservation of Water Resources Committee of the RoQ Ministry of Environmental Protection, Geology & Natural Resources'. **GRI 303-1** The holding pond № 1 at the Konchubai Gully is operated in line with the Operating Rules for ensuring optimum water use conditions, integrity of structures, environmental protection, and also as per the Process

Tab. 35. KPO water consumption in 2018–2020 broken down by source, m³ **GRI 303-3, 303-5**

No	Source	Facility	Water quality	2018	2019	2020
1	Zharsuat water intake facility (<i>domestic needs</i>)	KOGCF	groundwater, potable	92,888	91,851	80,957
2	Serebryakovskiy water intake facility	Bolshoi Chagan OPS	groundwater, potable	1,476	1,605	1,472
	<i>Domestic needs</i>			980	924	938
	<i>Production needs</i>			496	681	534
3	Konchubai Gully water intake facility (<i>production needs</i>)	KOGCF	surface water, technical	417,232	431,616	384,453
4	Kigach water intake facility	Atyrau Terminal	surface water, technical	3,545	2,781	3,719
	<i>Domestic needs</i>			933	777	759
	<i>Production needs</i>			2,612	2,004	2,960

Note: water consumption is metered using meters with measurements entered in the logbooks and further in the KPO water consumption metering database.

Discharge of treated wastewater **GRI 303-2**

KPO uses special man-made facilities for collecting treated domestic and industrial wastewater and storm runoffs. These facilities exclude a possibility of contaminants soaking into the soil and groundwater and allow collecting the treated wastewater for their re-use for technical needs, thereby reducing the fresh water intake. The types of wastewater collection facilities were shown in the 2018 Sustainability Report (Tab. 40, p. 105).

Formation water produced with hydrocarbons and process wastewater are treated and injected into the deep-lying formations of the Karachaganak Field Subsurface Wastewater

operating procedure for safe operation and maintenance of the holding pond's hydraulic structures.

Water intake from other sources is ensured through contracts with water suppliers. **GRI 303-5**

The potable water is used exclusively for domestic needs of the KPO facilities. At the Bolshoi Chagan Oil Pumping Station (OPS) the potable water is supplied by the RSE 'KazVodKhoz' WQO Branch and, due to absence of alternative sources of water supply, is used only to fill the fire water tanks for fire safety purposes.

Table 35 shows KPO water consumption breakdown by source.

Disposal Polygons No 1 and No 2. Wastewater injection is the international practice of disposing wastewater that allows preventing the formation of salt-containing waste on the surface during the treatment. Owing to the reliable water shutoff and soil properties, which are perfect for the injection of wastewater, the migration of wastewater into upper aquifers is ruled out.

According to the RoQ legislation, the volume of discharged wastewater and amount of discharged contaminants are estimated and justified in the Company project documentation and regulated by special permits. Wastewater generated as a result of the KPO economic and operational activities is not discharged into the natural water bodies.

Table 36 shows the KPO discharge volumes in 2018–2019 by wastewater types and receiving facilities.

Tab. 36. Total discharge volume and contaminants by wastewater type and receiving facility, 2018–2020, m³

GRI 303-4

Receiving facility	Type of wastewater	2018		2019		2020	
		Discharge volumes, m ³	Amount of contaminants, tonnes	Discharge volumes, m ³	Amount of contaminants, tonnes	Discharge volumes, m ³	Amount of contaminants, tonnes
Holding ponds	Treated domestic wastewater	68,752	38.8	68,763	35.72	64,244	34.38
Subsurface Waste Water Disposal Polygons	Industrial wastewater, process and produced wastewater	663,706	42,240	628,819	39,645	694,893	45,970
Terrain of Bolshoi Chagan OPS and Atyrau Terminal OPS	Rainfall and snow melt wastewater	2,694	1.51	3,546	2.05	1,982	1.56
Total discharge		735,152	42,280	701,128	39,683	761,119	46,006

Note: the volume of water discharge is metered using meters with data entered in the logbooks and further in the KPO water consumption metering database. The amount of contaminants discharged is determined by calculation as the product of the actual concentration of the contaminant before the discharge and the actual volume discharged.

Comparing to 2019, the volume of wastewater discharged by Company in 2020 increased by 8.6%. Of that, in 2020, the volume of injected industrial wastewater increased by 10.5% as compared to 2019. The increase in industrial wastewater was due to increase of produced water. The types of treated wastewater and contaminants were presented in the 2017 Sustainability Report (p. 93).

In 2020, the discharge of contaminants amounted to 46,006 tonnes (which was 15.9% more compared to 2019 – 39,683 tonnes). Of them, 45,961 tonnes were discharged within the maximum permissible discharge (MPD) limits, while the excess discharge amounted to 45 tonnes.

Excessive discharge of contaminants was due to insignificant exceedance of the annual MPD limits in terms of sulphide content in wastewater injected into Subsurface Waste Water Disposal Polygons No 1 and No 2. Excessive discharge of contaminants with domestic wastewater to the holding ponds was not observed. As provided by the RoQ Tax Legislation, the Company effected necessary payments for the discharges of contaminants.

Overall, wastewater injection has no effect on the environmental components such as soil, flora and fauna, as wastewater is injected into effectively isolated deep horizons with high-mineralized groundwater that is not used for domestic and potable, balneological, and process needs, irrigation or livestock farming.

Reuse of treated wastewater **GRI 303-3 (2016)**

In order to reduce fresh water intake for such works and operations like drilling, drilling muds preparation, watering of planted trees, dust suppression on roads and constructed sites KPO uses treated domestic, production storm wastewater and storm runoffs. The wastewater is re-used at the Company facilities in line with the 2018–2022 Operating Procedure.

The volume of wastewater reused for technical needs by KPO in 2020 amounted to 4.8% of the technical water consumed from the Konchubai Gully. In 2020, the Company reused 18,313 m³ of treated wastewater for technical needs, mostly for dust suppression. Decrease in 2020 compared to 2019 was due to reduction of the drilling scope at KOGCF and the absence of the need to make drilling mud. Table 37 shows the activities that utilize treated wastewater.

Tab. 37. Reuse of treated wastewater in 2018–2020, m³

	2018	2019	2020
The total volume of re-used treated wastewater, including:	18,241	38,545	18,313
Drilling operations and drilling mud preparation	8,825	30,117	3,482
Irrigation, hydro tests, and replenishing of fire tanks	1,040	1,088	335
Dust suppression	8,376	7,340	14,496

Note: the volume of reused water is measured indirectly in m³ (motor hours, tank truck volume, number of trips, pumping capacity, etc.) with the completion of a control ticket and data entered in the logbook.

MANAGEMENT OF WASTE

Waste handling in KPO is focused on reducing the real and potential hazards the generated waste may impose on people and the environment. We continuously explore and apply new and most advanced techniques and technologies in waste management.

Our targets are to treat and to recycle waste at our facilities, to cut down waste transfer to landfills and to reduce the negative impact from burial.

Tab. 38. Targets in waste management GRI 103-2



Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
Ensure implementation of the activities scheduled for 2020 as per the 2018–2020 Waste Management Programme	Completed	During the year, all the activities scheduled for 2019 including separate collection, segregation, reuse, processing, reduction of volumes and hazardous properties of waste were completed, except for partial treatment at Rotary Kiln Incinerator due to its shutdown for unscheduled maintenance.	Ensure implementation of 10 activities scheduled for 2021 as per the 2021–2023 Waste Management Programme
Carry out semi-industrial testing of drilling cuttings	Postponed	Due to the COVID outbreak, the reduction of the drilling programme at the Karachaganak Field and the lack of the required amount of drilling cuttings, the semi-industrial testing was postponed to 2022.	

KPO processes related to production, processing and transportation of raw materials, as well as utilization of special equipment, materials and other required resources, inevitably involve generation of waste.

Measures taken by KPO to reduce the volume of generated waste, the Ventures' compliance with environmental safety rules during accumulation and storage, collection and transportation, segregation, reuse, recycling and reduction of volumes and hazardous properties of wastes, as well as environmentally friendly burial – all this enables to significantly mitigate the adverse impact on people and the environment.

GRI 103-2, 306-1

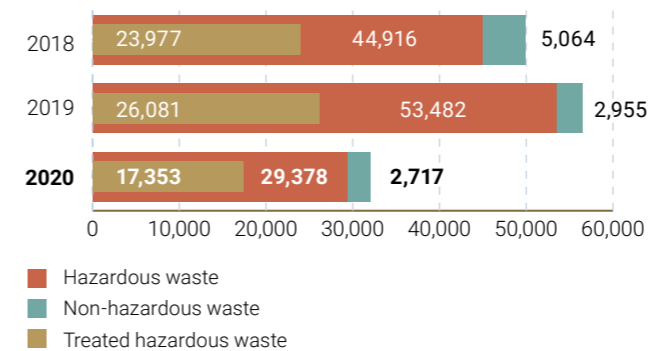
The KPO Waste Management Programme for 2018–2020 provides indicators and measures aimed at gradually reducing the accumulated and generated waste volumes and its hazardous properties. The Company applies the following waste management methods:

- waste recycling back into the production process stream;
- waste treatment at the Eco Centre facilities;
- waste disposal at the Eco Centre facilities;
- waste transfer to specialist contractor organizations for further disposal, processing and destruction. OG-7

In 2020, the volume of waste generated at KPO facilities totalled 33,178 tonnes. Compared to 2019 this shows a decrease by 24,608 tonnes, which was mainly due to the reduction of the drilling programme and the shutdown of the rotary kiln incinerator for repair. Graph 24 shows all types of waste generated in KPO.

According to the Unified National Form of the waste reporting information system, the total amount of waste generated in 2020 includes waste both generated and treated.

Graph 24. Waste generated at KPO facilities in 2018–2020, tonnes GRI 306-3



Waste treatment and disposal GRI 306-2, 306-4, 306-5

Treatment of the Company's production and consumption waste is carried out at the Eco Centre facilities or Waste Management Complex. The facility ensures cost-efficient and environmentally safe recycling and treatment of solid wastes and fluids and is truly considered to be an example of the best drilling waste management practice in the West Qazaqstan Oblast. The best available technologies are applied at the KPO Eco Centre facilities for treating drilling waste, which allows not only to reduce the volume and hazards of waste, but also to recover valuable components and treat waste for further reuse. Waste recycling back into production process exercised by the Company is the best possible way to re-use the generated waste.

The KPO Eco Centre comprises five waste treatment facilities, as well as a Landfill for its safe disposal:

1. Thermo-mechanical cuttings cleaning facility (TCC),
2. Rotary Kiln Incinerator (RKI),
3. General Purpose Incinerator (GPI),
4. Liquids Treatment Plant (LTP),
5. Waste Segregation Unit (WSU).

During 2020, the following activities were completed at the Eco Centre:

- Owing to separation of base oil and water from the treated oil-based drilling cuttings, in 2020 the quantity of KPO disposed waste was reduced by 7% from the originally generated volume.
- In 2020, 8,571 tonnes of waste were treated, 1,195 tonnes of base oil and water were separated, and 7,227 tonnes of waste treated at the TCC were disposed at the Solid Industrial Waste Landfill.
- Through treatment and neutralization of drilling and production waste at the Rotary Kiln Incinerator, the volume of waste (against the originally generated amount) was reduced by an average of 24%. In 2020, 4,600 tonnes of drilling and production waste were treated; 3,504 tonnes of waste treated at the Thermo-mechanical Cuttings Cleaning Facility were disposed at the Solid industrial waste landfill.
- By incineration of wastes at the General Purpose Incinerator, the amount of waste was reduced by 90%. In 2020, 772 tonnes of waste were sent for incineration, following which 73 tonnes of ash were disposed at the Solid industrial waste landfill.
- In 2020, 6,603 tonnes of liquid waste were treated. The process resulted in 2,052 tonnes of treated brines and muds, which were sent for re-use – preparation of drilling brines and muds.
- In 2020, 1,093 tonnes of solid domestic waste were sent to GPI for incineration, 164 tonnes including waste paper, metal scrap, glass and plastic were segregated and handed over to the specialist organizations for treatment and reuse. 320 tonnes of solid domestic waste were handed over to the specialist organizations for disposal at the Solid Domestic Waste Landfill.
- 12 cells of the Solid Industrial Waste Landfill were capped and closed at the end of 2020.

In 2020, the Company continued extraction of wastes from the old Solid Waste and Spent Drilling Liquids Storage Site for further treatment at the Thermo-mechanical Cuttings Cleaning facility and Rotary Kiln Incinerator and disposal at Solid industrial Waste Landfill. The waste is disposed at the Landfill according to the RoQ environmental legislation requirements.

Table 39 shows the waste handling methods used by the Company in 2020.

Tab. 39. KPO waste handling methods in 2020, tonnes GRI 306-3, 306-5

No	Waste handling methods	Generated hazardous waste	Generated non-hazardous waste	Domestic waste	TOTAL
1	Available waste at the beginning of 2020	339,835	946	0	340,781
2	Generated during the reporting year	29,378	2,717	1,083	33,178
3	Reused at the enterprise	2,762	0	0	2,762
4	Treated at facilities	17,260	94	894	18,247
5	Incineration in the General Purpose Incinerator without power generation	2	0	770	772
6	Disposed of and buried at waste disposal facilities	12,665	0	0	12,665
7	Handed over to specialist contractors	1,554	3,566	380	5,500
8	Available waste at the end of 2020	341,416	3	0	341,419

Note: the amount of waste is defined by weighing of each batch of waste at the Eco Centre weight scales prior to its transportation for treatment, segregation, removal, burial or other operations. Waste quantities are logged in the waste supporting documents (control tickets, waste handover certificates) and further in the Company's waste accounting database.

KPO waste is mainly produced during the wells drilling and workover activities. Concurrently, the water or oil base of the drilling cuttings depends on the type of the drilling mud used for well operations. The solid and liquid drilling waste generated in 2020 amounted to 14,051 tonnes (70% of the initially generated waste, i.e. waste volume before treatment).

In 2020, 1,220 tonnes (as compared to 3,777 tonnes in 2019) were sent for treatment from the Solid Waste and Spent Drilling Liquids Storage Site. In 2021, further processing of waste from the site will continue. GRI 306-4

Table 40 shows the main types of drilling waste broken down by the handling methods. As the table shows, only water-based mud and cuttings are subject to disposal. Oil-based drilling cuttings are subject to burying after pre-treatment and extraction of the oil base.

Tab. 40. Waste generated from well operations by handling methods, 2018–2020 06-7

No	Type of waste	Generated quantity, tonnes			Handling method
		2018	2019	2020	
1	Spent water-based drilling mud	324	427	4,125	Treatment at Liquid Treatment Plant (LTP)
		1,251	1,014	1,020	Disposal
2	Water-based drilling cuttings	546	925	533	Burial
		–	182	0	Thermal treatment in the Rotary Kiln Incinerator (RKI)
3	Spent oil-based drilling mud	1,618	2,676	818	Treatment at the Thermo-mechanical Cutting Cleaning Facility (TCC) and Liquid Treatment Plant (LTP)
4	Oil-based drilling cuttings	8,049	9,022	5,316	Treatment at the TCC with extraction of the oil base, water and followed by the burial of the solid part, thermal treatment in the Rotary Kiln Incinerator (RKI)
		–	–	–	–
5	Spent brines	6,309	4,866	1,932	Treated at the TCC and LTP, thermal treatment in the RKI
		578	2,837	296	Disposal
6	Oil cuttings	7	44	11	Thermal treatment in the Rotary Kiln Incinerator (RKI)

Within the contract terms, the Company hands over part of the waste for disposal to specialist contractors, who make their own decision on further waste handling methods once the waste has been accepted from KPO, and report on its transfer to third parties on a quarterly basis. Depending on the type, specialised enterprises hand over the waste for treatment with subsequent production of consumer goods, demercurization, regeneration, thermal treatment, incineration, physical and chemical treatment, dismantling into component parts with further transfer to concerned enterprises as recyclables.

Due to introduction of the Article 301 of the RoQ Environmental Code from 01.01.2019 that prohibits disposal of waste plastic, plastic, polyethylene and polyethylene

terephthalate packaging, waste paper, cardboard, paper waste, glass cullet, the Company carries out segregation of these types of waste in rented buildings with engagement of sub-contractors. These types of waste are handed over to specialized enterprises to be used as recyclables.

Since 2011 until the end of 2020, for the whole period of the waste paper segregation, about 640 tonnes of the waste paper has been collected and transferred to local enterprises for production of consumer goods.

The segregation of spent batteries was arranged in all Company office premises. In 2020, 118 kg of batteries were collected.

BIODIVERSITY

KPO is committed to carry out its operational activities with minimal impact on biodiversity and ecosystems. Meanwhile, the Company took responsibility for conducting the biodiversity research in the area of its activities.

As per the declared goal to minimise the impact on biodiversity within the Field territory, since 2011 KPO has been developing and implementing a Biodiversity Action Plan (BAP). This plan is developed in accordance with the methodology stipulated in the Standard 1.3.1.47 ESHIA and the Guide to biodiversity action plans for the oil and gas sector published by the IPIECA and IOGP associations. Development of the BAP

involves identifying business risks related to biodiversity and ecosystem services addressing them appropriately and, where possible, turning them into opportunities.

The implementation of BAP allows applying an integrated, coordinated and consistent approach to conservation of biodiversity and protection of the environment while pursuing production activities at KPO.

To date, the Company fully implemented a scope of work planned in BAP for 2018–2020.



Tab. 41. Our targets in environmental protection GRI 103-2

Our 2020 targets	Target achievement	Actions taken in 2020	Targets for 2021
Develop a Biodiversity Action Plan for 2021–2023	Completed	BAP for 2021–2023 was developed and enhanced, including setting up a geographic information system and active cooperation with external stakeholders.	Perform the monitoring of wildlife, including key and rare species
Perform monitoring of entomofauna at the Karachaganak Field	Completed	Monitoring of entomofauna was carried out from June 26 to July 6 of 2020.	

MONITORING OF BIODIVERSITY AT THE KARACHAGANAK FIELD

 GRI 304-2

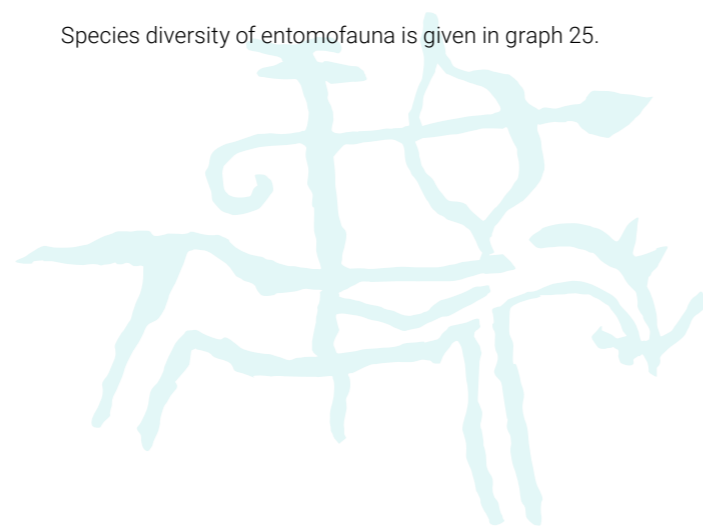
In the course of the monitoring of flora and fauna at the Karachaganak field being conducted since 2011 on a regular basis, no adverse impact on the latter's habitats from the KPO's production activities has been observed. On the contrary, the absence of agricultural activity, the overall protection of the area and almost complete absence of the human disturbance factor have contributed to creating favourable conditions for the life cycles of local flora and fauna in the field, thus enabling for conservation of rare species.

Monitoring of entomofauna in 2020. The monitoring of entomofauna was performed in the Karachaganak field over the period from June 26 to July 6 of 2020.

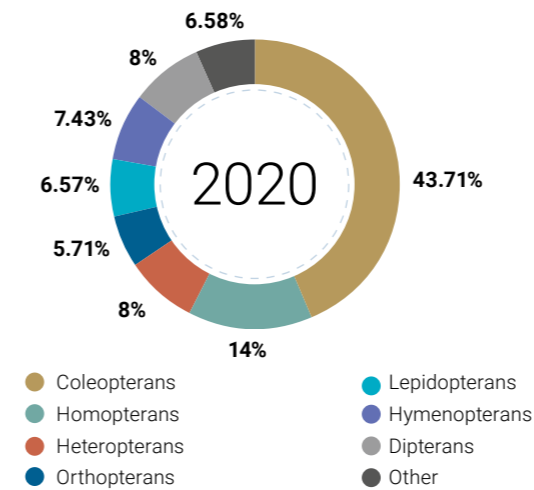
The purpose of this monitoring is to study the species composition and diversity of entomofauna and to determine the presence of any significant measurable changes associated with the KPO operations in order to adjust the Company activities aimed at the biodiversity preservation.

In the course of the entomofauna survey held in 2020, 349 species or subspecies of insects and spiders related to class 2, 14 orders, 103 bloodlines and 290 genus were revealed on 20 monitoring sites of the Field.

Species diversity of entomofauna is given in graph 25.



Graph. 25. Results of the entomofauna surveys in 2020



One of the species listed in the Qazaqstan Red Data Book, – *Iphiclides podalirius* L. butterfly is characterised as a depopulating specie.

The results of the study have revealed that the most significant anthropogenic factors affecting the entomofauna at this time are merely grazing and steppe fires.

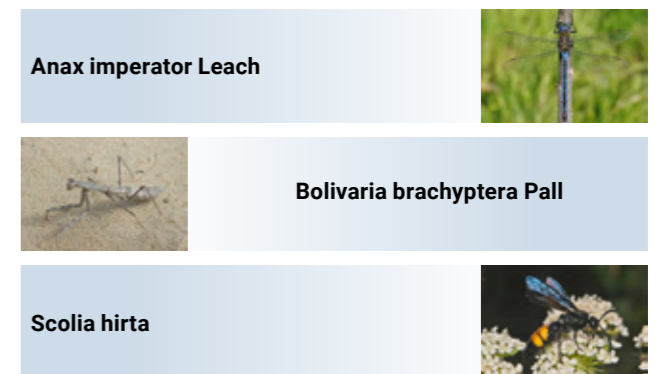
Biodiversity Action Plan for 2021 – 2023

In 2020, alongside with the monitoring of the entomofauna, KPO developed a Biodiversity Action Plan for the period of 2021 – 2023.

Tab. 42. Biodiversity Action Plan for 2021–2023 GRI 103-2

Period	Work Scope	Purpose
2021	Conduct the monitoring of wildlife, including key and rare species	Identify if there are any changes in the ecosystems as a result of the emissions of pollutant substances from the Field operations in comparison with the latest surveys
2022	Monitoring of vegetation	Identify if there are any changes in the ecosystems as a result of the emissions of pollutant substances from the Field operations in comparison with the previous surveys
2023	Decoding of the remote sensing data in different years and creation of an ecosystem map in geographic information system (GIS)	Carry out monitoring of the changes in the patterns the steppe areas are allocated within the boundaries of the Field's Sanitary Protection Zone and nearby territories
	Creation of a geographic information system	Create a biodiversity geographic information system to be able to receive online data about the changes in the ambient environment and biodiversity
	Video-shooting about biodiversity of the Karachaganak Field territory	Actively engage with local communities and authorities to raise their awareness about the necessity to preserve biodiversity
2021–2023	Publication of information sheets on biodiversity	Actively engage with local communities and authorities to enhance their awareness about the necessity to preserve biodiversity

Three types of insects listed in the Red Book of the Republic of Qazaqstan (Qazaqstan Red Data Book, 2006) were revealed within the territory of the Karachaganak field:



No any significant impact by the Karachaganak production activities on species and number of the entomofauna has been identified.

At this stage of the KPO operations, no any significant negative impacts on the biotopes is planned, and therefore the impact on entomofauna within low significance is expected.

Nevertheless, the dynamics of the entomofauna state will be monitored as part of the implementation of the Biodiversity Action Plan.

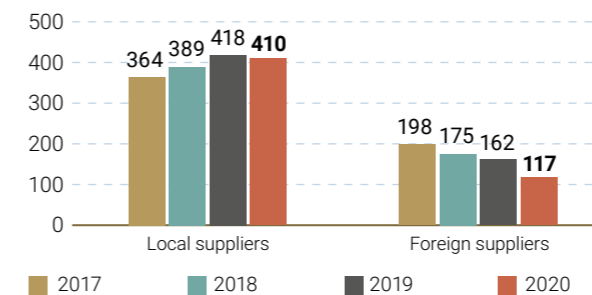
The 2021–2023 BAP stipulates the core areas of the KPO activities for biodiversity conservation and ecosystem services in the region in line with the KPO Sustainable Development Charter.

SUPPLY CHAIN GRI 102-9, 102-44

KPO is committed to conducting its business ethically and in compliance with all applicable laws and regulations. Therefore, KPO enters into contractual relationships with suppliers and contractors, who maintain high standards and demonstrate commitment to personal and process safety when providing services to the Company, as well as maintaining the set standards of ethics, compliance and sustainable development. These fundamental principles are incorporated in and are evaluated at every stage of the contract and procurement process until the closure of the contract.

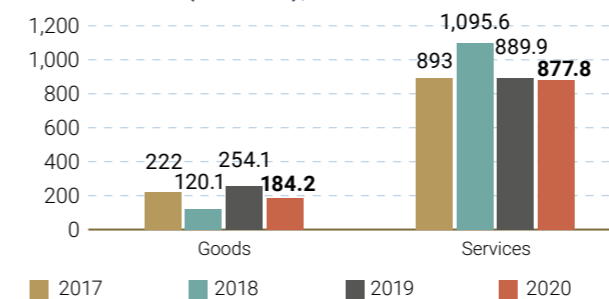
In 2020, KPO awarded contracts and contract amendments to over 500 contractors and suppliers, of which almost 80% where local entities.

Graph 26. KPO contractors and suppliers, 2017 – 2020



In 2020, KPO signed approximately 800 contracts and contract amendments for delivery of goods worth approximately US\$ 180 mln, and approximately 700 contracts and contract amendments for services worth approximately US\$ 880 mln.

Graph 27. Value of contracts and contract amendments (mln US\$), 2017–2020



We perform our contracts and procurement activities in compliance with the legislation and the Karachaganak Joint Operating Committee's Tender Procedures, which regulate procurement of goods, works and services for the Karachaganak Project.

In April 2020, KPO adopted the new Tender Procedures. The procedures enabled the enhanced electronic documents exchange and processing including tender receipt and evaluation, which in turn addressed the issues related to social distancing and virtual work during the COVID-19 pandemic. The new version of the Tender Procedures also focuses on the development of local content including goods manufacturing in the Republic of Qazaqstan by means of early tenders, trial orders, contracts in exchange of investments, conditional bid reduction, and Kazakh-only tenders.

To help local potential contractors and suppliers better compete and to minimize disqualification risks for such companies, KPO has been focusing on structured pre-tender engagement sessions. In these sessions, clear explanations of KPO tender requirements are provided to the bidders, as well as lessons learned. GRI 103-2

KPO is an active participant in the events conducted by Atameken, KazService and other oil-and-gas organisations or associations. Using multiple opportunities, KPO actively presents its requirements to the local market participants and encourages their development and growth including cooperation with internationally recognised and experienced suppliers of goods, works and services. Delivering Local Content targets is an important commitment of KPO to the Republic of Qazaqstan and is well recognized by KPO.

As a transparent operator, KPO annually publishes its procurement plans on its website at <https://www.kpo.kz/en/suppliers/contract-plan>.

Potential suppliers interested in participating in KPO tenders are encouraged to register and keep their "vendor's profile" up-to-date in KPO Vendor database (please see details at www.kpo.kz) or directly in Kazakhstan Unified Vendor ALASH Database. It is very important for potential contractors and suppliers to provide accurate and relevant information on their competencies and experience to be considered by KPO in its sourcing strategies.

ECONOMIC IMPACT

Supply chain	105
Local Content development.....	106
Supporting social infrastructure	108

LOCAL CONTENT DEVELOPMENT GRI 203-2, 102-44

Since 2001, KPO develops and implements a two-year Local Content Development Programme for the Karachaganak project in order to achieve the goals set in the KPO Local Content Policy.

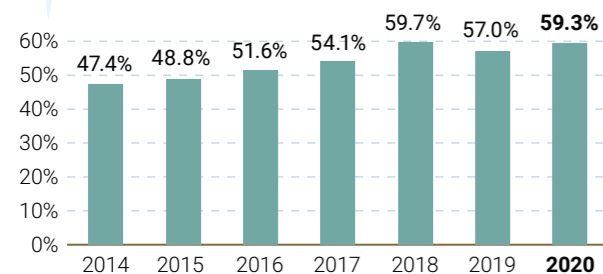
The objectives of the Programme for the period 2020 – 2021 are consistent with state initiatives for the development of mechanical engineering, industrialization and digitization of the Republic of Qazaqstan. The Programme has identified the target areas for local content development, and the key indicators for performance monitoring and assessing.

GRI 103-2

KPO local content development initiatives have led to achieve the following results: GRI 204-1

- In 2020, the Local Content share in Karachaganak project reached 59.3% (US\$ 586.7 mln);
- 33% of total goods procured by KPO are locally produced (US\$ 45.5 mln) with 16.2% Local Content share as specified in the SR-KZ Certificate¹⁵.

Graph 28. Local Content Share in total KPO purchases of goods, works & services, 2014–2020 GRI 204-1



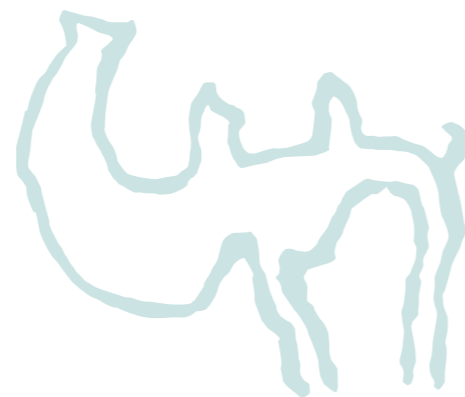
KPO gives the highest priority to Local Content share increase for goods locally made in Qazaqstan. The stable growth of overall indicators is achieved thanks to a number of goods' localization activities implemented since 2014.

In 2020, 20 contracts for a total value of US\$ 4.3 mln were awarded to produce goods in Qazaqstan for the Karachaganak project, such as heat exchangers, mechanical components, valves, containers for storing cylinders, spare parts for pig launchers/receivers, air coolers, caustic storage tanks, compressor separator, tilted plate separator and flotation tank. 'Qazaqstani tendering' contributes to the growth of competitiveness of local manufacturers and suppliers. In 2020, KPO initiated 35 so-called 'Qazaqstani tenders' to be held exclusively among local companies for a total value of US\$ 399 mln. As a result, KPO awarded 10 contracts to the local companies worth US\$ 1.7 mln. The tender processes for the remaining contracts continue.

Since signing the FPSA in 1997 by the end of 2020, the cumulative Local Content share in goods, works and services in Karachaganak had exceeded US\$ 8.2 bln. GRI 204-1

KPO intentionally contributes to the sustainable development of manufacturers within its footprint in the West Qazaqstan Oblast (WQO). In the framework of the Memorandum of Understanding on cooperation for the development of mechanical engineering in oil and gas industry, KPO closely interacts with enterprises, which participate in the 'WQO Mechanical Engineering for Oil & Gas Industry' sub-cluster, and regularly engages them in market researching in bids for deliveries of goods, works and services.

Following the awarded contracts performance, in 2020 KPO has paid US\$ 318.8 mln to the West Qazaqstani enterprises for deliveries of goods, works and services, the Local Content share on which has reached US\$ 226 mln or 70.9%.



¹⁵ A certificate confirming that the product was produced or processed on the territory of Qazaqstan. This certificate is intended for circulation on the territory of Qazaqstan, for example, when participating in the procurement of subsurface users or in public procurement.

Development of local suppliers' potential GRI 102-44

The ability to attract competitive local suppliers is one of the critical factors for success in the localization initiatives. In 2020, over 160 of local suppliers of goods, works and services, including representatives of small and medium entrepreneurship were involved in the KPO Local Content development activities and trainings.

In 2020, KPO launched a pilot program for developing key business competencies and diversification for representatives of small and medium entrepreneurship (hereinafter as SMEs) in the West Qazaqstan Oblast. As part of this joint initiative of KPO and the Akimat of Burlin region, specialized webinars were held for 150 representatives of 146 SMEs, whose activity was not directly related to O&G industry.

In 2020 in order to improve competitiveness of the Qazaqstani manufacturers, KPO launched another programme for certification in accordance with international ASME and API standards. Eight local manufacturers were selected to participate in the programme, of which the West Qazaqstan Machine Engineering Company and JSC Ust-Kamenogorsk Industrial Valves Plant have successfully passed through the qualification process with the expected ASME and API certification in 2021.

As a result of cooperation between KPO and Euroconsultants S.A., the company nominated by the World Bank and the RoQ Government as a major consultant for local development, 17 Qazaqstani companies have been certified to ISO 14001, 18001, 9001, and 45001.

Engagement on local content issues GRI 102-44

In order to attract investment for development of local production in the Republic of Qazaqstan, KPO continue working with the UK Department of International Trade. This engagement is aimed at raising awareness and interest amongst international companies for establishing partnerships or creating joint ventures with Qazaqstani enterprises and promoting technology transfer.

On 13th November 2020, KPO participated in an online meeting of the British and Qazaq Working Group on energy-related issues at the Foreign Investments Council to discuss

the impact of the current market volatility, the global pandemic and Qazaqstan's participation in the World Trade Organization. Local Content requirements for the implementation of ESG priorities (environmental, social and governance issues) and sustainable development of the Karachaganak field were also part of the meeting agenda.

During 2020, KPO participated in online meetings of the Ministry of Energy, KazService and Petrocouncil associations to support local service providers in the oil and gas sector and to hold webinars for guiding applicants in KPO tender process in the light of the latest amendments made into the JOC Tender Procedures.

Long-term initiatives GRI 102-13

In 2020, KPO continued implementation of the long-term initiatives endorsed within the Memorandum of Understanding on domestic industry development, which was signed between KPO, PSA LLP and KAZENERGY Association, and the Memorandum of Understanding on localization of the goods produced by original equipment manufacturers (OEM)-signed between the RoQ Ministry of Energy, PSA LLP and KPO.

On 30th November 2020, the Agreement on Intents for the establishment of an International Centre for Development of Oil & Gas Machinery was signed between the Ministry of Industry and Infrastructure Development, the Ministry of Energy, PSA LLP, the Machinery Builders' Union of Qazaqstan and three major petroleum Operators: KPO, TCO and NCOC. The International Centre will conduct its activities on behalf of the three operators and will closely interact with relevant ministries, the PSA LLP Authority and petroleum and engineering associations involved in the development of the national oil and gas machinery building.

In the framework of the Memorandum of Understanding on localization, in 2020 KPO continued activities on development of roadmaps with the Original Equipment manufacturers. The categories of goods and spare parts for potential localization, timing of implementation and the estimated production scope in Republic of Qazaqstan. By the end of 2020, roadmaps were signed with companies such as Baker Hughes, Honeywell, nVent, Stewart-Buchanan Gauges Ltd.

SUPPORTING SOCIAL INFRASTRUCTURE GRI 102-44

Within 2020, KPO has launched 21 social and infrastructure projects in WQO including new big long-term projects and has completed six social and infrastructure projects worth over KZT 10 bln (equivalent to US\$ 27 mln). The list of projects completed in 2020 is shown in table 43.

Tab. 43. Social infrastructure projects in Uralsk and adjacent villages completed by KPO in 2020 GRI 203-1

Area	Project name	Actual costs (mln KZT)*
Construction and repair of roads	Capital repair of Moldagulova street from Taimanov street to Kulichev street, Uralsk	686
Civil and industrial construction	Capital repair of the city Polyclinic No. 7, Uralsk	426
	Medium repair of the overpass across the railway and access road pavements in "Neftebaza" district, Uralsk	6,233
	Construction of the school for 450 seats, Uralsk	2,355
	Construction of the Sports and Health Centre for 160 spectator seats in Zhangala village, Zhanagalskiy Region, WQO	403
	Construction of the Sports and Health Centre for 160 spectator seats in Saikhin village, Bokeiordinskiy Region, WQO	355
TOTAL		10,458

* Amounts are VAT including.



Sports and Health Centre built in Zhangala village, Zhanagalskiy Region, West Qazaqstan Oblast



Opening of a gymnasium school on aesthetic studies in Uralsk



GRI INDEX GRI 102-55

This report has been verified by the Ernst & Young (EY) for compliance with the requirements of the GRI Standards in the Core option. EY performed a limited independent assurance of 10 specific disclosures in the Report, namely: 204-1, 302-1, 303-3, 304-2, 305-5, 306-1, 403-9, 404-1, OG-7, OG-13 (marked with V in the table GRI 102-54).

UNIVERSAL STANDARDS				
GRI Standard	Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 101 Foundation 2016				
GRI 102: GENERAL DISCLOSURES 2016				
102-1	Name of the organization	4		
102-2	Activities, brands, products, and services	12-13		
102-3	Location of headquarters	10, 128 (back cover)		
102-4	Location of operations	10, 11		
102-5	Ownership and legal form	4, 31		
102-6	Markets served	12		8, 9
102-7	Scale of the organization	4, 10, 11, 13, 64	Fig. 2. Karachaganak Operating Facilities in 2014 (Sustainability Report 2014, pp. 12-15)	9
102-8	Total number on employees and other workers, by employment contract, by gender, by employment type, by region.	64-65		10
102-9	Supply chain	105		12
102-10	Significant changes to the organization and its supply chain		No significant changes	
102-11	Precautionary principle or approach	50, 55, 57-58, 59-60, 62, 66		12
102-12	External initiatives	72		17
102-13	Membership of associations	35, 107	KPO is a member of KAZENERGY Association. Business partnerships and membership in associations (p. 9 of KPO Sustainability Report 2015)	17
102-14	Statement from senior decision-maker	3		
102-15	Key impacts, risks and opportunities	34, 46		9
102-16	Values, principles, standards, and norms of behavior	36		5, 10, 16
102-17	Mechanisms for advice and concerns about ethics	37, 66		5, 10, 16
102-18	Governance structure	31-32		16
102-33	Communicating critical concerns	34		
102-40	List of stakeholder groups	8-9		17
102-41	Collective bargaining agreements	66, 71		8, 17
102-42	Identifying and selecting stakeholders	8, 10		17

APPENDICES

GRI Index 111

Verification Report..... 120

Glossary 122

Feedback form..... 125

UNIVERSAL STANDARDS				
GRI Standard	Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
102-43	Approach to stakeholder engagement	6, 8, 10		17
102-44	Key topics and concerns raised	6, 7, 8, 31, 32, 42, 43, 56, 57, 58, 63, 66, 72-75, 77, 78, 80, 84, 105, 106, 107, 108	Key issues raised by stakeholder's groups are presented in the following chapters: <ul style="list-style-type: none"> Parent Companies, PSA LLP Authority – in 'Governance structure' pp. 31-32; Community engagement – pp. 72-75; Employees – p. 66; Students – https://kpo.kz: KPO partnership with Qazaqstani universities; State bodies – pp. 42-43, 57-58, 63, 77, 80, 84, 108; Counterparties – pp. 105-107; Business partners – pp. 105, 107; Trade Unions – p. 66. 	17
102-45	Entities included in the consolidated financial statements		This Report covers the Operations and Projects of the KPO B.V. Branch in Kazakhstan	
102-46	Defining Report content and topic boundaries	6-7		
102-47	List of material topics	7		
102-48	Restatements of information		No	
102-49	Changes in reporting		No significant changes	
102-50	Reporting period	4		
102-51	Date of most recent report	4		
102-52	Reporting cycle	4		
102-53	Contact point for questions regarding the report	128 (back cover)		
102-54	Claims of reporting in accordance with the GRI Standards	5, 111		
102-55	GRI Standards Content Index	111-119		
102-56	External assurance	5, 120-121		

TOPIC-SPECIFIC STANDARDS				
Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG	
GRI 200: Economic Topics 2016				
<i>This reference to GRI 103: Management Approach 2016 and the corresponding Disclosures 103-1, 103-2 and 103-3 applies to the material topics Market presence, Indirect Economic Impacts, Procurement Practices, Anti-corruption, Reserves.</i>				
103-1 – Explanation of the material topic and its boundary	4, 10, 12, 65			
103-2 – The management approach and its components	33, 105, 106			
103-3 – Evaluation of the management approach	35			
GRI 202: Market Presence 2016				
202-1 – Ratios of standard entry level wage by gender compared to local minimum wage	71	202-1-a. Not applicable There are no differences in salary levels by gender. Karachaganak O&G condensate field located in the Western Qazaqstan Oblast (Republic of Qazaqstan) relates to 'significant location of operations'.	5, 8	
202-2 – Proportion of senior management hired from the local community	67	By 'senior management' is meant to be Executive management and their deputies' given in category 1+2 in "Increase of Local Content in Staff by categories of employees" (Tab. 16, p. 70). 'Local' in the context refers to national employees, the citizens of the Republic of Qazaqstan. Karachaganak O&G condensate field located in the Western Qazaqstan Oblast (Republic of Qazaqstan) relates to 'significant location of operations'.	8	
OG-1 – Volume and type of estimated proved reserves and production (partial disclosure)	10	partial disclosure		
GRI 203: Indirect Economic Impacts 2016				
203-1 – Infrastructure investments and services supported	14, 43		3, 9	
203-2 – Significant indirect economic impacts	106		8	
GRI 204: Procurement Practices 2016				
204-1 – Proportion of spending on local suppliers ✓	106		8, 12	
GRI 205: Anti-corruption 2016				
205-2 – Communication and training about anti-corruption policies and procedures	37		16	

TOPIC-SPECIFIC STANDARDS			
Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 300: Environmental topics 2016			
<i>This reference to GRI 103: Management Approach 2016 and the corresponding Disclosures 103-1, 103-2 and 103-3 applies to the material topics: Energy, Water, Biodiversity, Emissions, Effluents & Waste, Environmental Compliance</i>			
103-1 – Explanation of the material topic and its Boundary	77		
103-2 – The management approach and its components	77, 82, 86, 90, 91, 95, 98, 102, 103		
103-3 – Evaluation of the management approach	91		
GRI 302: Energy 2016			
302-1 – Energy consumption within the organization ✓	91-92	302-1 - c (ii, iii, iv), d. Not applicable. KPO does not keep separate records on steam consumption and energy consumption for cooling; this data is included in the total amount of electricity consumption. KPO does not sell electricity, heat, air conditioning and steam. KPO applies standards, methods and conversions regulated by the RoQ normative documents in energy saving and energy efficiency.	7, 12, 13
302-3 – Energy intensity	92		7, 8, 12, 13
GRI 303: Water and Effluents 2018			
303-1 – Interactions with water as a shared resource	96		6, 12
303-2 – Management of water discharge-related impacts	96, 16		6
303-3 – Water withdrawal ✓	95-96		6
303-4 – Water discharge	97		6
303-5 – Water consumption	95-96		6
GRI 304: Biodiversity 2016			
304-1 – Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Website https://kpo.kz:Preservation of Biodiversity		15

TOPIC-SPECIFIC STANDARDS			
Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
304-2 – Significant impacts of activities, products, and services on biodiversity ✓	102; website https://kpo.kz:Fauna monitoring, Monitoring of vegetation		15
304-4 – IUCN Red List species and national conservation list species with habitats in areas affected by operations	Website https://kpo.kz:Preservation of Biodiversity		15
GRI 305: Emissions 2016			
305-1 – Direct GHG emissions	88		12, 13
305-4 – GHG emissions intensity	89		13, 12
305-5 – Reduction of GHG emissions ✓	89		13, 12
305-7 – Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	86, 88		12, 13
OG-6 – Volume of flared and vented hydrocarbon	88		12, 13
GRI 306: Waste 2020			
306-1 – Waste generation and significant waste-related impacts ✓	98		12, 9.4
306-2 – Management of significant waste-related impacts	99		12, 13
306-3 – Waste generated	99-100		12, 13
306-4 – Waste diverted from disposal	99, 100		12, 13
306-5 – Waste directed to disposal	99-100		12, 13
OG-7 – Amount of drilling waste and strategies for treatment and disposal ✓	98, 101		12, 6.3
GRI 307: Environmental Compliance 2016			
307-1 – Non-compliance with environmental laws and regulations	78		12

TOPIC-SPECIFIC STANDARDS			
Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 400: Social topics 2016			
103-1 – Explanation of the material topic and its Boundary	68, 65	KPO impact boundary covers Qazaqstani citizens, in particular of the West Qazaqstan Oblast.	
103-2 – The management approach and its components	33, 66, 67; website https://kpo.kz:Competency Management System		
103-3 – Evaluation of the management approach	65, 67, 68, 71; website https://kpo.kz:Competency Management System		
GRI 401: Employment 2016			
401-1 – New employee hires and employee turnover	64-65		8
401-2 – Benefits provided to full-time employees that are not provided to temporary or part-time employees	71		8
GRI 402: Labor/ Management Relations 2016			
402-1 – Minimum notice periods regarding operational changes	66		8
GRI 403: Occupational Health and Safety 2018			
103-1 – Explanation of the material topic and its Boundary	33, 39, 46, 57, 59, 62	KPO impact boundary covers KPO facilities at the Karachaganak field of the West Qazaqstan Oblast and export pipeline in Atyrau Oblast. The topic covers KPO and contractors.	
103-2 – The management approach and its components	39, 44, 46		
103-3 – Evaluation of the management approach	47, 50, 51, 52, 58, 61; website https://kpo.kz:HSE Card Programme		
403-1 – Occupational health and safety management system	33, 51, 52		8
403-2 – Hazard identification, risk assessment, and incident investigation	41, 44, 47, 60		8
403-3 – Occupational health services	40, 41, 43, 44		8
403-5 – Worker training on occupational health and safety	55, 57, 68		8
403-6 – Promotion of worker health	41, 43, 44		3

TOPIC-SPECIFIC STANDARDS			
Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
403-7 – Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	50, 51, 59		8
403-8 – Workers covered by an occupational health and safety management system	33		8
403-9 – Work-related injuries ✓	47-49		3, 8
403-10 – Work-related ill health	43, 44		3, 8
GRI 404: Training and Education 2016			
103-1 – Explanation of the material topic and its Boundary	68	KPO impact boundary covers Qazaqstani citizens.	
103-2 – The management approach and its components	33, 67; website https://kpo.kz:Competency Management System		
103-3 – Evaluation of the management approach	67, 68		
404-1 – Average hours of training per year per employee ✓	68, 69-70		8
404-2 – Programs for upgrading employee skills and transition assistance programs	69, 70		8
404-3 – Percentage of employees receiving regular performance and career development reviews	71		8
GRI 405: Diversity and Equal Opportunity 2016			
103-1 – Explanation of the material topic and its Boundary		KPO impact boundary covers Qazaqstan.	
103-2 – The management approach and its components	36, 66		
103-3 – Evaluation of the management approach	37	Terms of the Collective Agreement are reviewed every 2-3 years	
405-1 – Diversity of governance bodies and employees	67		5, 8
405-2 – Ratio of basic salary and remuneration of women to men		Karachaganak O&G condensate field located in the Western Qazaqstan Oblast (Republic of Qazaqstan) relates to 'significant location of operations'. Basic salaries are established for employee categories regardless of gender, and hence basic salaries for women and men are equal.	5, 8

TOPIC-SPECIFIC STANDARDS			
Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 407: Freedom of Association and Collective Bargaining 2016			
103-1 – Explanation of the material topic and its Boundary		KPO impact boundary covers West Qazaqstan Oblast	
103-2 – The management approach and its components	66		
103-3 – Evaluation of the management approach		Terms of the Collective Agreement are reviewed every 2-3 years	
407-1 – Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	66		8
GRI 410: Security Practices 2016			
103-1 – Explanation of the material topic and its Boundary	62	The impact boundary covers KPO and contractors within the facilities of the Karachaganak field, the West Qazaqstan Oblast and the export pipeline facilities in the Atyrau Oblast	
103-2 – The management approach and its components	62		
103-3 – Evaluation of the management approach	62, 63		
410-1 – Security personnel trained in human rights policies or procedures	62		10
GRI 413: Local Communities 2016			
103-1 – Explanation of the material topic and its Boundary	72	The KPO impact boundary covers the local communities in villages along the perimeter of the Karachaganak field and Aksai town in the Burlin district of WQO	
103-2 – The management approach and its components	72, 73		
103-3 – Evaluation of the management approach	73		
413-1 – Operations with local community engagement, impact assessments, and development programmes	72, 73, 82-85		3, 9
OG-12 – Operations where involuntary resettlement took place, the number of households resettled in each and how their livelihoods were affected in the process (partial disclosure)	72-73; website https://kpo.kz:Resettlement_of_the_Berezovka_and_Bestau_villages , KPO Sustainability Report 2017, pp.105-106		3, 9

TOPIC-SPECIFIC STANDARDS			
Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 103: Emergency response preparedness 2016			
103-1 – Explanation of the material topic and its Boundary	57	KPO impact boundary covers KPO facilities at the Karachaganak field, the export pipeline in West Qazaqstan and Atyrau oblasts. The topic covers KPO and contractors.	
103-2 – The management approach and its components	57		
103-3 – Evaluation of the management approach	58		
OG 13: Industrial safety and integrity management			
103-1 – Explanation of the material topic and its Boundary	46, 60	KPO impact boundary covers KPO facilities at the Karachaganak field, the export pipeline in West Qazaqstan and Atyrau oblasts	12
103-2 – The management approach and its components	59, 60; (KPO Sustainability Report 2016, p. 42)		12
103-3 – Evaluation of the management approach	61, 62		12
OG-13 – Number of process safety events, by business activity ✓	60-61		3

VERIFICATION REPORT **GRI 102-56**

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Independent practitioner's assurance report

To the Management and Stakeholders of Karachaganak Petroleum Operating B.V. Kazakhstan branch

Subject matter

We have been engaged by Karachaganak Petroleum Operating B.V. Kazakhstan branch (hereinafter "Company" or "KPO") to perform a limited assurance engagement, as defined by International Standards on Assurance Engagements, (herein "the Engagement"), to report on the material sustainability performance indicators included in the Company Sustainability Report (hereinafter "the Report") and identified there by the "✓" symbol (hereinafter "the Indicators"), for 2020 (hereinafter "the reporting period"):

- ▶ Proportion of spending on local suppliers;
- ▶ Energy consumption within the KPO;
- ▶ Water withdrawal;
- ▶ Significant impacts of activities, products, and services on biodiversity;
- ▶ Reduction of emissions of greenhouse gases;
- ▶ Waste generation and significant waste-related impacts;
- ▶ Amount of drilling waste and strategies for its treatment and disposal;
- ▶ Work related injuries;
- ▶ Average hours of training per year per employee;
- ▶ Number of process safety events, by business activity

Under this engagement, we did not perform any procedures with regard to the following:

- ▶ Forward-looking statements on performance, events or planned activities of the Company; and
- ▶ Information about Report compliance with the UN Sustainable Development Goals.

Applicable criteria

In preparing the Indicators the Company applied Global Reporting Initiative Sustainability Reporting Standards (hereinafter "GRI Standards") in Core option and the sustainability principles described in Sustainable Development Charter which is available at KPO's corporate website (hereinafter "the Criteria").

The Company's responsibilities

The Company's management is responsible for selecting the Criteria, and for presenting the Indicators in accordance with the Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the

Indicators, such that these are free from material misstatement, whether due to fraud or error.

Practitioner's responsibilities

Our responsibility is to express a conclusion on the presentation of the Indicators based on the evidence we have obtained.

We conducted our assurance engagement in accordance with International Standard for Assurance Engagements (revised) "International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information" (hereinafter "ISAE 3000"). ISAE 3000 requires that we plan and perform our engagement to obtain limited assurance about whether, in all material respects, the Indicators are presented in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

Our Independence and Quality Control

We apply International Standard on Quality Control 1 (ISQC 1), and accordingly, we maintain a robust system of quality control, including policies and procedures documenting compliance with relevant ethical and professional standards and requirements in law or regulation.

We comply with the independence and other ethical requirements of the IESBA Code of Ethics for Professional Accountants, which establishes the fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Summary of work performed

The assurance engagement performed represents a limited assurance engagement. The nature, timing and extent of procedures performed in a limited assurance engagement is limited compared with that necessary in a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is lower.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within information technology systems.



A limited assurance engagement consists of making inquiries, primarily of persons responsible for preparing the Indicators and related information and applying analytical and other appropriate procedures.

Our procedures included:

- ▶ Inquiries of the representatives of the Company management and specialists responsible for its sustainability policies, activities, performance and relevant reporting,
- ▶ Analysis of key documents related to the Company sustainability policies, activities, performance and relevant reporting,
- ▶ Obtaining understanding of the process used to prepare the information on indicators,
- ▶ Benchmarking of the Report against sustainability reports of selected international and Kazakhstani peers of the Company and lists of sector-specific sustainability issues raised by stakeholders,
- ▶ Review of a selection of corporate and external media publications with respect to the Company sustainability policies, activities, events, and performance in reporting period,
- ▶ Analysis of material sustainability issues identified by the Company,
- ▶ Identification of sustainability issues material for the Company based on the procedures described above and analysis of their reflection in the Report,
- ▶ Review of data samples regarding Indicators for the reporting period, to assess whether these data have been collected, prepared, collated and reported appropriately,
- ▶ Assessment of compliance of the Report with the sustainability reporting principles described in the GRI 101 Standard.

We also performed such other procedures as we considered necessary in the circumstances.

Conclusion

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that the Indicators are not represented fairly, in all material respects, according to the Criteria.

Ernst and Young Advisory LLP

Almaty
September 1, 2021

GLOSSARY

	ABBREVIATION	DESCRIPTION
A	API	American Petroleum Institute
	ASME	American Society of Mechanical Engineers
B	BAP	Biodiversity Action Plan
	BOE	Barrels of oil equivalent
C	ConCom	Contractor Committee
	COVID-19	Coronavirus disease of 2019
	CPC	Caspian Pipeline Consortium
	C&P	Contracts and Procurement
E	EEP	Environmental Emissions Permit
	EIA	Environmental Impact Assessment
	EITI	Extractive Industries Transparency Initiative
	eMoC	Electronic changes in the Management of Change system
	EMS	Environmental Monitoring Station
	EOPS	Early Oil Production Satellite
	EPMP	Environmental Protection Measures Plan
F	FPSA	Final Production Sharing Agreement
G	Gcal	Gigacalorie
	GHG	Greenhouse Gases
	GRI	Global Reporting Initiative
	GPI	General Purpose Incinerator
	GTG	Gaz Turbine Generator
	GTPP	Gas Turbine Power Plant
	GWh	Gigawatt-hour
	GWS	Goods, works and services
H	HC	Hydrocarbons
	HGVF	High Gas Volume Factor
	HSE	Health, Safety and Environment
I	IMS	Integrated Management System
	IOGP	International Oil and Gas Producers' Association that collects safety incident and environmental data from its member companies globally since 1985.
	ISAE 3000	International Standards on Assurance Engagement 3000
	ISO 14001	Internationally accepted standard that sets out requirements for putting in place an effective Environmental Management System
	ISO 45001	Internationally accepted standard that sets out requirements for putting in place an effective occupational health and safety
	ISO 50001	Internationally accepted standard that sets out requirements for putting in place an effective Energy Management System
	ISO 90001	Internationally accepted standard that sets out requirements for putting in place an effective Quality Management System

	ABBREVIATION	DESCRIPTION
J	JMC	Joint Marketing Committee
	JOA	Joint Operating Agreement
	JOC	Joint Operating Committee
K	KATS	Karachaganak Atyrau Transportation System
	KEP	Karachaganak Expansion Project
	KGDBN	KPC Gas Debottlenecking Project
	KOGCF	Karachaganak Oil and Gas Condensate Field
	KOTS	Karachaganak Orenburg Transportation System
	kt	kiloton
	KPC	Karachaganak Processing Complex
	KPI	Key Performance Indicators
L	kV	kilovolt
	KWh	Kilowatt-hour
	LOPC	Loss of primary containment
	LTi	Lost Time Injury
M	LTIF	Lost Time Injury Frequency
	LTP	Liquid Treatment Plant
	MDL	Minimal Detection Limit
O	MoU	Memorandum of Understanding
	MPC	Maximum permissible concentration
	MPD	Maximum permissible discharge
	Mscm	Million standard cubic metres
	MWH	Megawatt hour
	NCOC	North Caspian Operating Company
	NGO	Non-governmental organisation
	O&G	Oil & Gas
P	OPITO	Offshore Petroleum Industry Training Organisation
	OPS	Oil Pumping Station
	Parent Companies or Contracting Companies	ENI, Shell, Chevron, Lukoil and KazMunayGaz National Company
	PDR	Personnel Development Review
	PEP	Plateau Extension Projects
	Phase IIM	Phase II Maintenance
	PPE	Personal Protective Equipment

	ABBREVIATION	DESCRIPTION
R	RKI	Rotary Kiln Incinerator
	RoQ	Republic of Qazaqstan
	RTI	Road Traffic incidents
	RTIF	Road Traffic Incident Frequency
S	SDG	Sustainable Development Goals
	SPZ	Sanitary Protection Zone
T	TCO	Tengizchevroil
	TRI	Total Recordable injuries
	TRIF	Total Recordable Injury Frequency
W	WQO	West Qazaqstan Oblast
	WSU	Waste Segregation Unit
	CH ₃ SH	Methylmercaptan
	CH ₄	Methane
	C ₆ H ₆	Benzene
	C ₇ H ₈	Toluene
	C ₈ H ₁₀	Xylene
	CO	Carbon monoxide
	CO ₂	Carbon dioxide
	H ₂ S	Hydrogen Sulphide
	NO ₂	Nitrogen dioxide
	N ₂ O	Nitrous oxide
	SO ₂	Sulphur dioxide

FEEDBACK FORM

We believe that our readers' feedback would help us improve our reporting. **GRI 102-53**

1. Name, surname _____ Organization _____

2. Which stakeholder group best describes you?

- (1) Parent companies
- (2) Authorised body – PSA LLP
- (3) Employees
- (4) Trade Unions
- (5) State bodies
- (6) Counterparties
- (7) Local communities
- (8) Business partners
- (9) Media
- (10) Non-government organisations

(11) If you do not belong to any of the groups listed above, please indicate your connection to KPO:

3. What is your reasons for reading our Sustainability Report?

- (1) For KPO general awareness purposes
- (2) To track KPO sustainability performance
- (3) For industry analytics purposes
- (4) As a study material
- (5) As a potential vendor
- (6) For any other reasons. Please state: _____

4. Please evaluate the report according to the criteria below:

Criteria	Poor	Fair	Good	Excellent
(1) Cohesion and coherence (easy to understand)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Report structure (easy to navigate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Design and illustrations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Visibility and value of tables, graphs and infographics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Overall report quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. How would you rate our performance disclosure in the following areas?

	Poor	Fair	Good	Excellent
(1) Production performance and technologies in operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Safety and Asset Integrity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Occupational health and safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Environmental performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Contribution to economy of the Western Qazaqstan and the country	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(6) Other comments or suggestions: _____				

6. Which material topics or issues disclosed in the KPO Sustainability Report 2020 are important for you as a KPO stakeholder? Please, limit your choice to 10 topics of the most interest to you.

Social topics:

- Personnel development and training
- Social, cultural and gender diversity, equal opportunities
- Industrial relations (Labour - Management relations including contractors)
- Freedom of association and collective bargaining
- Security practices
- Respect for human rights by security services

Socio-Economic topics:

- Increase of local content in staff
- Employment and compensation
- Social infrastructure projects, sponsorship and charity
- Local Content development and its share in procurement of goods, works and services
- Anti-corruption
- COVID-19 and its impact on the KPO activities

Economic topics:

- Corporate governance and management approach
- Technologies and innovations
- Estimated proved reserves and production
- Procurement practices and supply chain
- Transparency of payments to the government (EITI)

Environmental-Economic topics:

- Energy efficiency
- Environmental compliance
- Environmental investments
- ISO 14001, 45001, 50001, 9001 (contractors) certification

Environmental topics:

- Spills
- Air quality monitoring
- Reduction of GHG and pollutants' emissions
- Water conservation
- Management of waste and effluents
- Biodiversity and ecosystems conservation
- Environmental grievance mechanisms

Socio-Environmental topics:

- Occupational safety and health
- Protection of health
- Process safety
- Emergency Response
- Community grievance redress
- Community relations: impact assessment and mitigation

7. Your suggestions for improving KPO Sustainability Report:

Please send your feedback, comments to this edition or contribution to the Report 2021 to the below address or by email at Sustainability@kpo.kz.



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GRI 102-3, 102-53

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