



**THE FUTURE
STARTS TODAY 2021**
KPO SUSTAINABILITY REPORT

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KPO Sustainability Report is available in e-format in Qazaq, Russian and English languages on the [website www.kpo.kz](http://www.kpo.kz).



INTRODUCTION

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LETTER FROM GENERAL DIRECTOR GRI 102-14

Dear readers,

I am pleased to present to you the 14th Sustainability Report of the Karachaganak Petroleum Operating B.V. Kazakhstan Branch, covering the year 2021.

I have worked at KPO as General Director for a year now. Over this time, I can say that I feel proud to lead and be a part of such a unique and fascinating world-class project.

In 2021, despite the COVID-19 challenges, we achieved a remarkable performance in hitting production and marketing targets as well as delivering large and complex projects, such as the Turnaround and the start-up of the Karachaganak Gas Debottlenecking Project. The 4th Gas Reinjection Compressor project also achieved mechanical completion.

It is worth noting that in 2021 all projects and production and maintenance activities were carried out safely. Thanks to the HSE continuous improvement programmes KPO LTI rate improved from 0.06 in 2020 (two injuries) to 0.03 (one injury) in 2021, TRI rate – from 0.18 in 2020 to 0.09 in 2021. Our comprehensive approach to Asset Integrity also complemented the higher rate of the LTI. The Life Saving Rules and the Golden Rules of Comply, Intervene and Respect have long been embedded in all operations.

In 2021, with the view of reaching carbon neutrality and stabilising revenue, we made a decision to transit to green technologies and to ensure the project economy is diversified. Subsequently, this strategy had necessitated that all our processes undergo a number of changes. The selected directions for transformation

were diversification and revenue improvement, cost base management, and transition to 'Green KPO'.

In 2021, KPO achieved a world-class gas utilisation rate of 99.94% representing only 0.06% of flaring. We conduct a full-scale monitoring of environmental components, including air, surface water, subsurface water and soil, and implement emissions monitoring for air and wastewater discharges. We work on introducing 'green' technologies including GHG emissions reduction measures and efficient waste management techniques.

Our environmental and energy management systems have been continuously recognized as effective and in compliance with international standards ISO 14001:2015 and ISO 50001:2018. As of end 2021, KPO had invested US\$ 445.4 mln into various environmental activities.

The Company had also been consistent in implementing personnel training and development programmes. In 2021, KPO local content in staff reached 98% in professional and technical and 85% in managerial positions. Our local content in goods, works and services exceeded 68,5% or over US\$ 564 mln.

In terms of social performance, KPO has kept investing into social infrastructure projects, such as Aksai Hospital Upgrade, construction of schools, sport and health centres, and residential houses in West Qazaqstan region. I am also proud to share that in December 2021, KPO received the Grand Prix Award at the National Contest of Social Responsibility of Business – Paryz-2021, in recognition of the Venture's strong commitment to community, its own people and environment.



As the largest industry in the area, KPO creates value for a wide range of stakeholder groups and this in turn imposes responsibility on how we should operate our business. Trustful relationships and transparency with all our stakeholders become key to achieving sustainability goals. Leadership, innovation and co-operation will remain our main drives on this path.

Welcome to KPO 2021 sustainability highlights and please feel free to revert with questions or comments. Your feedbacks will be most appreciated and used to make our future reports better.

Yours truly,

Giancarlo Ruiiu
KPO General Director

ABOUT THIS REPORT

Karachaganak Petroleum Operating B.V. Kazakhstan branch (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.

GRI 102-1, 102-3, 102-4, 103-1 (2-1, 3-3)

In the past 14 years, starting from 2008, we have been reporting to stakeholders about our efforts in sustainable development. This Report is the fourteenth in a row. Traditionally, the Report outlines our performance for the preceding year through the prism of three pillars of sustainable development: social, environmental, and economic. This approach is in line with the global ESG-agenda. Furthermore, here we disclose our management approach, social partnerships and environmental initiatives implemented through engagement with key stakeholder groups.

Sustainability fidelity is our license to operate when contributing to society goes alongside with the subsoil use. 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".

OUR MISSION

Mission of the Karachaganak Petroleum Operating B.V. 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 102-7, 102-46, 102-50, 102-51, 102-52, 103-1 (2-6, 3-1, 2-3, 3-3)

The boundaries of the KPO Sustainability Report relate to all Company operations in the allotment 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 KPO performance in 2021 calendar year. This document presents an overview of our performance in 2021 and plans for the following 2022 year. In order to demonstrate our sustainability commitments, the data disclosed in the Report is presented in comparison with previous years. Following the established practice and as per the GRI Standards principles, we disclose both our achievements and issues. Our material topics are reflected in the Contents of the Report and listed in the relevant chapter. This Report has been endorsed by the KPO Directors' Committee and reviewed by the members of the Operators' Sustainability Sub-Committee.

Our previous Sustainability Report for 2020 was issued in late August 2021. The archive of all our issued sustainability reports is available on our website at www.kpo.kz/en/sustainability. In addition, our reports are posted at the Corporate Register web database, one of the largest global online directories for corporate responsibility reports, available at www.corporateregister.com.

KPO acts as an Operator in accordance with the Final Production Sharing Agreement (FPSA) signed between the shareholders of the Karachaganak Project and the Government of the Republic of Qazaqstan.

GRI 102-5 (2-1)

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 (2-6)

APPLICABLE GLOBAL REPORTING INITIATIVE STANDARDS

GRI 102-54

This Report and has been prepared in accordance with the requirements of the GRI Standards of 2016 and 2018 in the 'Core' option and the Oil and Gas Sector GRI Standards of 2021. The Report provides disclosure of indicators related to our most significant material topics.

Our goal is to ensure the appropriate level of transparency and reliability in our sustainability report, as required by the GRI Standards, which we consider as most applicable for us in sustainability reporting.


KPO has been reporting on its sustainable development since 2008.

- ▶ From 2008 through 2012, our early publications were prepared in accordance with the GRI Guidelines 3.
- ▶ From 2013 through 2016 KPO reports were issued in accordance with the Fourth Guideline of the Global Reporting Initiative (GRI G4). In 2014, KPO was one the first companies in Qazaqstan to have applied the requirements of the GRI G4.
- ▶ From 2017 to 2020 KPO sustainability reports were issued in accordance with the requirements of the GRI Standards.


INDEPENDENT ASSURANCE

GRI 102-56 (2-5)

When preparing this issue in 2022, KPO has not applied for independent assurance due to budget unavailability and time constraints.



The archive of all our issued sustainability reports is available on our [website](http://www.kpo.kz/en/sustainability).



MATERIAL TOPICS AND STAKEHOLDER ENGAGEMENT

MATERIAL TOPICS GRI 102-44, 102-46, 103-1 (3-1, 3-3)

The KPO Sustainability Report is one of the important tools for building effective communication with the Company's stakeholders. The aim of this document is to inform the stakeholders about material topics and solutions of issues related to them, and how the related changes have impacted both the organization and its stakeholders during the reporting period.

It is important for us to maintain a constructive dialogue with our stakeholders and implement mutually beneficial solutions. Decisions are usually made through the engagement process of the two.

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.

For a number of years, we have identified a number of topics material for us, which are reviewed annually in order to disclose the most relevant and critical to our activities. In this Report, we continue sharing the dynamics of the topics progress.

The process of compiling a sustainability report involves the exchange of information and data collection through interaction between various departments within the Company, as well as with stakeholders externally.

To define boundaries of our material topics, we are guided by the Standards of the Global Reporting Initiative (GRI) and their Standards for oil and gas sector. 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 are assessed, as well as set goals are quantified in comparison with achievements of previous periods.

Regardless of various 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 alone.

Considered in the Report material topics tend to address issues related to the economic, environmental and social impacts of the KPO's activities in general, as well as separately in the process of implementation of particular production operations.

At the end of 2021, in order to identify the most material topics for disclosing in this issue, we have conducted a survey amongst the key stakeholders. This survey has helped us analyse our reporting process and prioritise our material topics.

In 2021, all the topics listed in Figure 1 have remained important for KPO and its stakeholders. The evaluation of the materiality of each topic based on the survey results is shown on the diagram in a ranking from 2 to 5 with a "threshold" value of 2.5. According to stakeholders, the key material topics identified include:

- ▶ Security practices,
- ▶ Occupational Health and Safety,
- ▶ Protection of employees health,
- ▶ Asset Integrity,
- ▶ Emergency response,
- ▶ Monitoring of air quality,
- ▶ Reduction of GHG and pollutants' emissions,
- ▶ Water conservation.

The degree of value of material topics disclosed in this Report can be seen on Figure 1.

Fig. 1. Material topics of KPO Sustainable development GRI 102-44, 102-46, 102-47 (3-1, 3-2)

SOCIO-ENVIRONMENTAL TOPICS

- 31 Occupational safety and health
- 32 Protection of health
- 33 Process safety
- 34 Emergency Response
- 35 Community relations: impact assessment and mitigation, grievance redress

ENVIRONMENTAL TOPICS

- 24 Spills
- 25 Air quality monitoring
- 26 Reduction of GHG and pollutants' emissions
- 27 Water conservation
- 28 Management of waste and effluents
- 29 Biodiversity and ecosystems conservation
- 30 Environmental grievance mechanisms

ENVIRONMENTAL-ECONOMIC TOPICS

- 20 Energy efficiency
- 21 Environmental compliance
- 22 Environmental investments
- 23 ISO 14001, 45001 and 50001, 9001 (contractors) certification

SOCIAL TOPICS

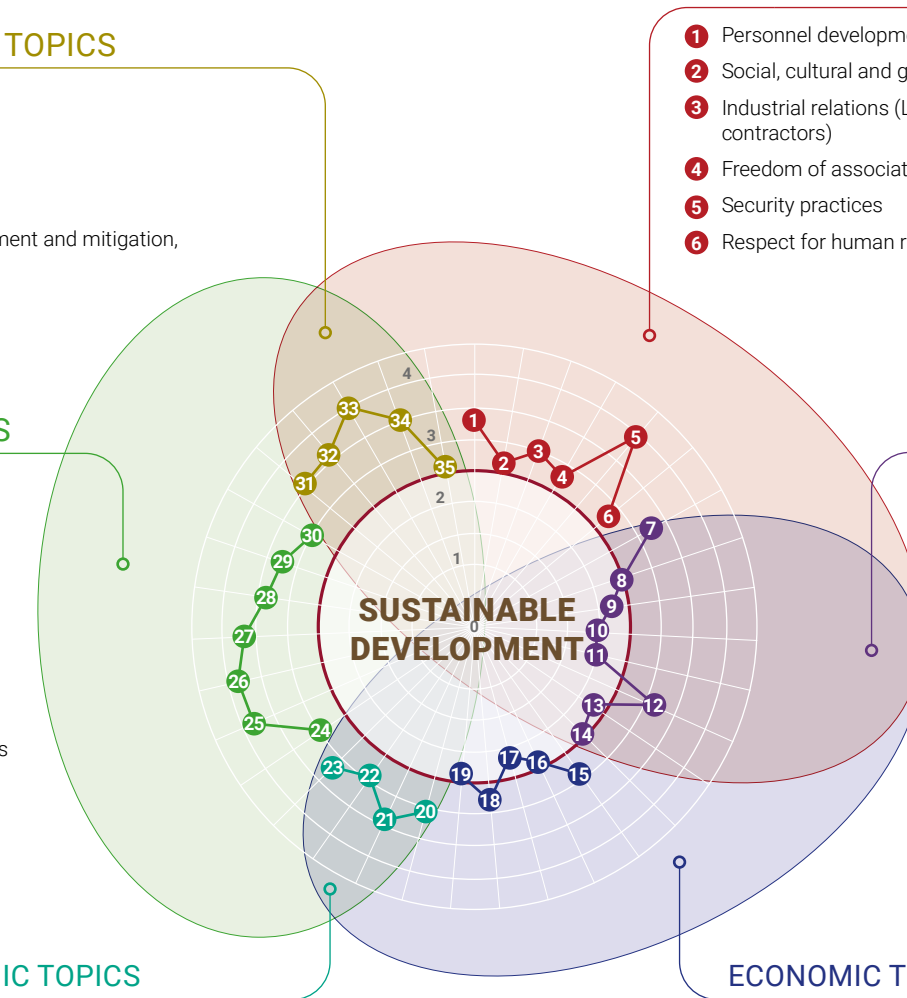
- 1 Personnel development and training
- 2 Social, cultural and gender diversity, equal opportunities
- 3 Industrial relations (Labour - Management relations including contractors)
- 4 Freedom of association and collective bargaining
- 5 Security practices
- 6 Respect for human rights

SOCIO-ECONOMIC TOPICS

- 7 Increase of local content in staff
- 8 Employment and compensation
- 9 Social infrastructure projects
- 10 Sponsorship and charity
- 11 Supply of electrical power to regional network
- 12 Local content development and its share in procurement of goods, works and services
- 13 Anti-corruption and Compliance
- 14 COVID-19 and its impact on the KPO activities

ECONOMIC TOPICS

- 15 Corporate governance and management approach
- 16 Technologies and innovations
- 17 Estimated proved reserves and production
- 18 Procurement practices and supply chain
- 19 Transparency of payments to the government (EITI)





Drawing by Nazerke Sailau (12 years), winner of the contest 'Energy Saving By Children's Eyes', nomination 'The Best Technique'

The topics disclosed for the reporting period are tracked regularly in the process of multilateral interaction with our Parent Companies, the PSA LLP Authority, various regulatory bodies, contractors, industry 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, social surveys, audits, and by addressing them directly to the Company **GRI 102-43**

STAKEHOLDER ENGAGEMENT **GRI 102-42, 102-43 (2-29)**

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

In 2021, despite the impact of the COVID-19, KPO has successfully completed all its operational plans, including implementation of the expansion projects. The consequences of the COVID-19 pandemic continued affecting the processes of engagement with stakeholders, while there was an increase in terms of the dynamics of contacts and, accordingly, the volume of feedback received. During the year, online format of interaction was continued largely, along with the increase in the number of live meetings, mainly at the higher level. Some events were postponed to the next period.

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 there are loose-leaf feedback forms for readers to fill in. We have also placed an online feedback form on our website.

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 based on the analysis of risks and material topics, and share their experience of engagement in this Report. 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 2021 are presented on the figure 2.

Feedback on 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.

Fig. 2. KPO engagement with stakeholders in 2021 **GRI 102-40, 102-42, 102-43, 102-44 (2-29)**



OUR SUSTAINABILITY PRINCIPLES GRI 103-1 (3-3)

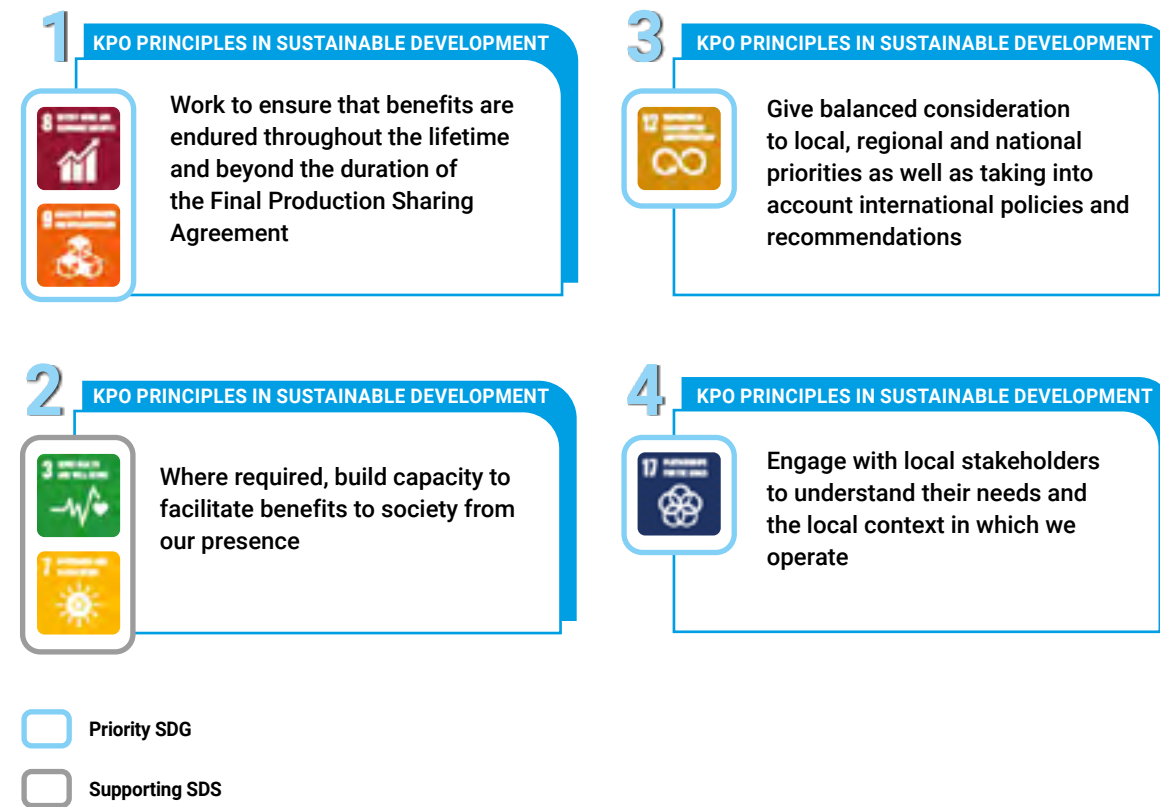
KPO is guided by the 10 principles of sustainable development, which were established in the Sustainable Development Charter.

Amongst the 17 Sustainable Development Goals of the United Nations, we have identified 12 Goals having considered 10 Principles of our Sustainable Development Charter as well as our programmes in occupational health and safety, environmental protection, social investment, local content and other.

Besides, taking into account the opinion of sustainability experts, in 2021 we have identified six key Sustainable Development Goals to focus on while pursuing sustainability. These goals include:

- ▶ **Goal 12** – Responsible consumption and production,
- ▶ **Goal 13** – Climate action,
- ▶ **Goal 8** – Decent work and economic growth,
- ▶ **Goal 9** – Industry, innovation and infrastructure,
- ▶ **Goal 10** – Reduced inequalities,
- ▶ **Goal 17** – Partnership for the goals.

Fig. 3. Achievement of Sustainable Development Goals through principles of the KPO Sustainable Development Charter



OPERATIONS AND PROJECTS

OVERVIEW GRI 102-3, 102-4 (2-1), 103-1 (3-3), OG-1

KPO is the Operator of the Karachaganak oil and gas condensate field (KOGCF) is located in north-west Qazaqstan and covers an area of over 280 km². Karachaganak is a unique field with complex operating conditions also due to extreme continental climate. 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 14.2% of liquids and 13.5% of gas have been recovered as of 2021. **OG-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 31.12.2021 has totalled over USD 28.4 bln. As of end 2020, 4,076 people worked in the KPO organisation. **GRI 102-7 (2-6)**

KPO FACILITIES GRI 102-7 (2-6), 102-4 (2-1)

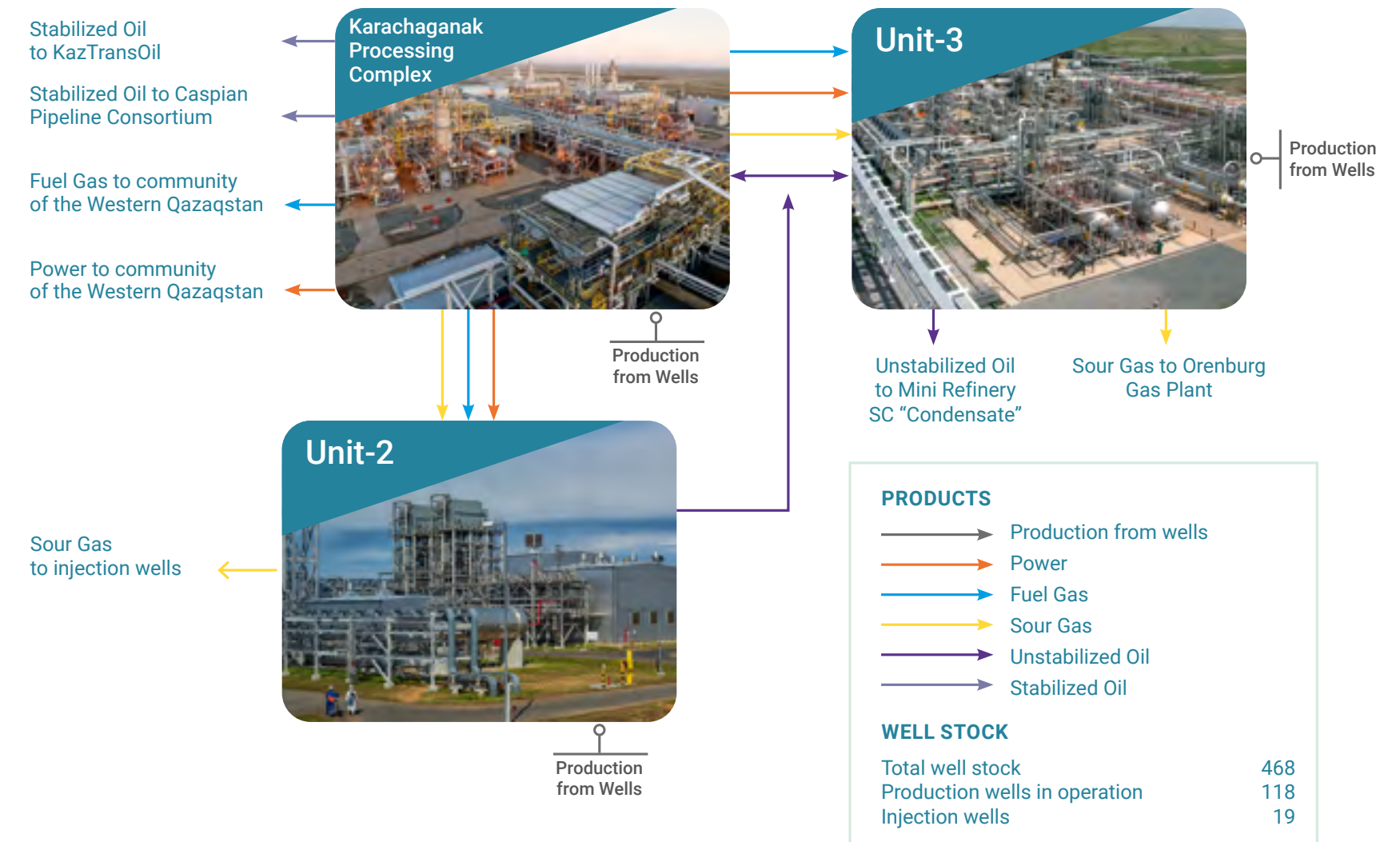
Hydrocarbon production and processing occurs at the three major interconnected units: the Karachaganak Processing Complex (KPC), Unit 2 and Unit 3. Approximately 2,000 kilometres of pipelines make up the infield system linking the major facilities and allowing efficient flows of production from the wells 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 4.

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.

In the first half of 2021, the COVID-19 pandemic has still affected our activities. Drilling was resumed in September 2021.

As of end 2021, 118 producing and 19 re-injection wells were online at Karachaganak, from a total well stock of 468 wells. In 2021, KPO well stock was increased by one new horizontal well compared to the previous year: 468 wells in 2021 versus 467 wells in 2020. One more well has been started in 2021 and ongoing through 2022; two wells were worked over.

Fig. 4. Karachaganak facilities and products (as of end 2021) **GRI 102-7 (2-6)**



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

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 2021, around 99.98% 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. 5). The key marketing objective is to maximize oil export via CPC pipeline, which is the main export route with the highest netback cost. The Atyrau-Samara route is used as an insurance backup in case of disruptions of the export through CPC.

In 2021, KPO exported total of 10.34 mln tonnes of stabilised oil, out of which 10.25 mln tonnes were delivered through CPC. To maximize revenue, nearly 0.085 mln tonnes of oil were exported via the Atyrau-Samara pipeline. As part of maintenance at the Karachaganak Processing Complex during the boilers' washing, liquids were delivered to Condensate SC's refinery.

Fig. 5. KPO export routes GRI 103-1 (3-3)



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 2021, KPO sold 8.2 bln m³ of raw gas to KazRosGaz for processing at the Orenburg Gas Plant.

OPERATIONS AND SALES IN 2021 GRI 102-2, 102-7 (2-6)

In 2021, KPO produced 134.1 mln barrels of oil equivalent (BOE) in the form of stable and unstable liquids and gas. Gas production in 2021 reached 19 mln m³. To maintain reservoir pressure, KPO re-injected ~ 10 bln m³ of gas into the reservoir, a volume equivalent to about 52.7% of the total gas extracted.

Tab. 1. Production in 2021

		2021	2020	2019*
Total Production (gas injection exclusive)	Mboe	134.1	143.9	137.9
Total equivalent stable oil	Kt	10,338	10,941	10,147
Total gas production	Mscm	18,980	20,214	18,614
Gas Injection into a reservoir	Mscm	9,998	10,362	8,710
Sweet Gas for internal needs	Mscm	789	761	685.4

* Full turnaround year

Tab. 2. Sales in 2021

		2021	2020	2019
Total Sales	Mboe	130.7	139.4	134.7
Stable Liquids Oil and stabilised condensate to CPC and Atyrau-Samara	kt	10,366	10,857	10,160
Unstable Liquids Unstabilised condensate to Condensate SC's refinery	kt	1.5	24	9.9
Raw Gas to Orenburg Gas Plant	Mscm	8,182	8,986	9,113
Sweet Gas to the West Qazaqstan Oblast to generate electricity for community	Mscm	70	90	89



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, IT&T Data Centre in Aksai 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 communities with capacity of circa 25 MW in winter and circa 20 MW in summer.

In 2021, at the GTPP minor inspection of gas turbine generators (GTG) #1 and #2 was completed, as well as the overhaul of GTG #3. The overhaul of GTG #4 has lasted from October 2020 to May 2021 due to extra scope of dismantling of the old stator rewinding because of the insulation damage defect identified in the course of the routine inspection. Manufacture, delivery and installation of the new stator winding were carried out at the GTPP without removing the generator to the producer. The activities took longer than expected also due to the COVID impact and delays in spare parts delivery.

Besides, in 2021, the inspection of the hot-gas-path of turbines ##1, 2 and 3 was carried out, as well as the overhaul of turbine #4. During the year, the work was carried out to implement the option of energizing a block transformer from the generator itself on three turbines, which allowed reducing the number of switches and the associated risks when restarting the turbines after repairs.

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 AksaiEnergol LP and Batys EnergolResursy LP, who in their turn supply the power to the communities and other end consumers in West Qazaqstan Oblast.

Throughout 2021, KPO exported power from 20 to 34 MW to the regional grid, while the total volume of power export to WQO equalled ~ 225.6 mln kW-h or about 35% of the total volume of the regional energy consumption. Reduction of the power export in 2021 by some 20% compared to 2020 was due to the unplanned overhaul of the Gas Turbine Generator #4, and the major routine maintenance of other three turbines. That had led to decline of total power generation at the KPO GTPP and, hence the decrease of power volumes available for

Tab. 3. Supply of power and fuel gas, 2019–2021

Description	Unit of meas.	2021	2020	2019
Electrical power exported to West Qazaqstan, including:	mln kW-h	225.56	296.93	330.26
to AksaiEnergol LP	mln kW-h	26.28	26.35	26.28
to Batys EnergolResursy LP	mln kW-h	199.28	270.58	303.98
Use of fuel gas to generate electrical power for West Qazaqstan, including:	mln m ³	75.88	99.35	112.06
Own gas sales	mln m ³	70.98	89.95	88.98
From third party supplier	mln m ³	4.90	9.40	23.08

the region. One more notable factor in the decline was the launch of a new section of the Karachaganak Gas Debottlenecking Project (KGDBN) at KPC, which has led to a gradual increase of KPO's own energy consumption by 7-8 MW starting from the second quarter of 2021.

Supply of power and fuel gas in the period of 2019 – 2021 is shown in Table 3.

In 2021, KPO used mainly its own gas for power generation. Purchases of gas from the third-party supplier to generate power for the WQO needs made circa 6.5% 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 May and October 2021, disturbances (alarm events) have occurred in the external electrical power networks of the West Qazaqstan Regional Electricity Company, leading to trivial losses in KPO's production.

TECHNOLOGIES IN DRILLING

In 2021, KPO continued building on the strong foundation laid in the past years, working on minimization of the impact from drilling and well services operations on the environment. As previously, we continued our journey towards zero emission and applied measures listed below to reduce greenhouse gas (GHG) emissions, and consumption of water and resources:

- ▶ Continued initiatives such as using wireline instead of coiled tubing for post stimulation.
- ▶ Milling of downhole hardware and high-efficient environmental friendly burners to eliminate where possible / reduce the need for flaring and the need for disposal of contaminated fluids.
- ▶ Restarting our drilling campaign, delivering wells that will allow increased oil production offsetting existing high gas producing (GOR) wells.
- ▶ High Rate Well Test setup with High Pressure Separators combined with multiphase high rate flow pumps (High Gas Volume Fraction Pumps – HGVF) to enable 'zero' flaring well test / clean-up activity on new wells. Successfully implemented on 4 wells in 2020 / 2021 with ~24 Kt of CO₂-eq emission reduction and ~53Kbbl of additional liquid production achieved per well.

- ▶ Use of the light workover rigs (ZJ-20) instead of the 3000HP heavy rigs to complete intervention and workovers on wells 628 and RP-4. This ensured lower emissions and lower environmental footprint to achieve our objectives.
- ▶ Our in-field Eco Centre or waste management centre enables recovery of base oil from contaminated drilling fluids and drilled cuttings for re-use in well intervention activities.

The KPO Well Operations team continuously works on developing internal procedures, workflows, technology improvements and innovations aimed at improving efficiency and well operations performance. The following was achieved throughout the year 2021:

- ▶ Development and implementation of a "Business Improvement Plan" to drive efficiency of well delivery with strong focus on digitalisation and performance improvement.
- ▶ Step-up in well integrity monitoring and well integrity status – preventing and reducing the possibility of well integrity related environmental emissions.
- ▶ New technologies like local expander (ability to repair the well locally, thereby avoiding the need to re-drill) and tracer technology – driving efficient production.

Drilling rig № 249



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.

The strategies for the turnarounds in 2021 were affected by the impact of the COVID-19 pandemic, having resulted in transfer of scope to 2021. The major drivers for the turnarounds in 2021 were integrity and reliability. In addition to routine inspections and statutory maintenance, the main scope covered the replacement of nine vessels at Unit 3, and upgrading the centrifugal flash gas compressor. This upgrade resulted in the reciprocating compressors being removed from service as part of long-term Unit-3 Risk Reduction programme.

Unit-3 had train-by-train turnarounds in June – August 2021: scope covering routine Production and Maintenance scope and minor modifications. This resulted in a major reduction in complexity and concurrent operations risks for the total Unit 3 turnaround in September and October 2021.

In September-October 2021, KPC held a Train D turnaround aligned with Unit-3 outage focussing on replacement of the disulphide separator turret, oxidiser

repairs and the upgrading of the top trays in the splitter column, compressor re-bundling apart from regular P&M scopes.

In September 2021, Unit 2 executed routine dry gas seal replacements on re-injection compressors A and B, as well as statutory maintenance, whereas they replaced dry gas seal for compressor C in April short pit-stop. The remote manifold station RMS H jump-over project in Gathering and valve replacements in KOTS were also executed in September 2021.

In addition to the regular HSE control activities and to the standard COVID-19 regulations, HSE Turnaround Plan was created by the KPO Operations HSE department identifying key areas of improvements from the previous turnarounds.

KPO's attention on mitigating the risks of a COVID-19 outbreak focused on encouraging contractor and KPO staff to be fully vaccinated prior to the turnarounds. Contractors were reporting their vaccination percentages weekly for the two-month period leading up to the turnaround. KPO managed and motivated staff to be vaccinated as part of an ongoing company-wide initiative. Staff who had not been vaccinated were required to have weekly PCR tests throughout the turnaround execution. In addition to the vaccination

effort, the statutory protocols and KPO rules were fully applied throughout the turnaround period. Due to strict application of these rules, there were no COVID-19 outbreaks or influence.

Additional risk assessments were held for two main issues at Unit 3. The first sessions related to identifying and mitigating the risks associated with the execution of train-by-train turnarounds in the summer. Also, a workshop was held to assess and mitigate risks associated with the full turnaround including risks associated with the large number of staff on-site while the 190 area of Unit 3 and nearby mini-refinery (MTU) still being in production, and the restart of Unit 3 whilst Train 4 and the condensate/flash gas systems were still in turnaround execution mode.

KPO continued to focus on safe lifting operation including awareness sessions for lifting teams, review of non-routine lifting plan by specialist and focussing on rigger and banksman roles. In addition, management and HSE team agreed that heavy lifting operations would be executed during daylight hours only.

A total of just over 495,527 man-hours were registered during the turnaround: these were completed with zero reportable cases. Overall, the planned scope of the turnaround was delivered ahead of schedule.

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.

From 2014, in order to avoid the increasing gas-oil-ratio causing the existing facilities to become gas constrained, KPO has been working on a programme of production Plateau Extension Projects (PEP) 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.

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 2021, the COVID-19 pandemic impact has been continuing as well, still causing some accumulated delays, including 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. However, the project teams learned to progress and deliver in the emerging and challenging reality with the help of vaccination campaigns, etc.

In March 2021, KPC Gas Debottlenecking project has been successfully completed and the plant has been brought in production. Final project handover to Operations was achieved in December 2021.

The 4th Gas Reinjection Compressor project has been successfully completed and the plant was brought in production in May 2022. Final project handover to Operations is planned for June 2022.

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».



On site activities during the Turnaround 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 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 Project represents the first phase of the KEP1 scope and comprises of the 5th Injection Compressor and associated facilities. The KEP1A

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, early works have been completed ahead of plan, temporary construction facilities were also completed, compressor manufacturing commenced together with long lead items' procurement. In 2022 to date, engineering and procurement are progressing as planned, contractor has mobilised to site and the compressor string test was successfully completed.

The KEP1B Project represents the second phase of the KEP1 scope and comprises of the 6th Injection Compressor and associated facilities. Similarly to the KEP1A, the project has the objective of increasing the liquid recovery by maximization of the production capacities of the existing facilities. The scope of project is also similar to that of KEP1A but also includes additional dehydration capacity to be installed at KPC. In 2021, the team started value assurance activities for KEP1B to be continued in 2022 leading to final investment decision.

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 2021, detailed design has been completed. Critical Long Lead Items, such as the 12-inch and 8-inch line pipes have been delivered; procurement of other equipment and materials has been initiated and proceeding with a good progress. Early civil construction works and double jointing of 12-inch line pipes have been completed and pipe-laying works commenced in Q2 2022.

“One of the KPO's key priorities in execution of KEP1A is maximizing the Local Content aimed at growing the local contractors' competitiveness.”

DIGITAL TRANSFORMATION PROGRAMME

The whole world is going digital and KPO cannot stay apart if we want to keep this business attractive both for the country and for investors. Some of the pilot projects implemented in KPO have already demonstrated a real business impact, such as reducing the personnel exposure, more effective business processes, cost efficiency and many more.

Driven by the Digital Kazakhstan programme introduced in 2017 by the RoK Government, KPO has launched its Digital Roadmap for 2018–2021. The roadmap is aimed in making the organisation safer, more effective and the more agile place. Eleven focus areas were introduced, which cover digitalization opportunities from production optimisation to process efficiency.

For example, the Telemetry Phase I project as part of the Production Optimization focus area was successfully executed in 2021, which allows acquiring real-time data from wells thus helping to significantly reduce the personnel exposure to well sites and better tune the Integrated Network Model for production optimisation purposes.

Also, some smaller projects like, Digital Signature or Launching the drones for remote inspection, being part of the Streamlining Document management focus area, were completed and have already demonstrated their benefits in daily activities.

Warehouse Management including implementation of a barcoding system was also completed, having increased the efficiency in warehouse management and stock reduction.

One of the significant digital projects in the Company is e-Procurement aimed in creation of more efficient

platform with transparent process and direct sharing of data with parties involved in the authorization process. This project is ongoing and will continue in 2022.

Advanced virtual reality room with the technology for training and engineering design will allow KPO personnel to visualize information – static and dynamic data, models, simulations and interact exploiting immersive, collaborative and Virtual Reality-based solutions.

Starting from December 2020, seven E-medical examination units were installed in KPO and at present the systems are fully functional.

Besides, in collaboration with the KAZENERGY Association, KPO annually supports the Student Digital

Fest (SDF) contest having engaged students of major universities in Qazaqstan. The SDF-2021 contest final stage was successfully completed in October 2021.

Since the current Digital Roadmap is scheduled for completion in 2022, KPO is planning to develop a new Digitalization and Continuous Improvement Strategy to be aligned and adopted to the new reality and external trends.

Current Pre-Strategy view is that the New 2022–2025 Roadmap will consist of five buckets around Digital Oil Field, Asset, Processes, HSSE and Enablers. Some of the projects from the new Roadmap have already been started.



Virtual Reality room installation by employees of Digitalization Department

CORPORATE GOVERNANCE

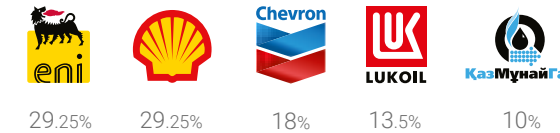
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GOVERNANCE STRUCTURE AND MANAGEMENT APPROACH GRI 102-18 (2-9), 102-44

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 (2-1)**

KPO brings expertise from five international oil and gas companies (hereinafter referred to as the Contracting or Parent Companies), represented by their respective affiliates, named herein:



Well-built management system is the key to the sustained organizational success. KPO established a well-balanced and integrated system of governance, risk management, business planning, internal control and compliance. 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 GRI 102-18 (2-9), 102-44

KPO organisational structure was designed to enable KPO to meet its business objectives and to satisfy the requirements from the Republic of Qazaqstan (the Authority represented by the PSA LLP) and the Contracting Companies by continuously assess its external environment. In order to carry out the petroleum operations stipulated in the FPSA, there is a Co-operatorship model of Karachaganak field represented by Agip Karachaganak B.V. and BG Karachaganak Limited (respective affiliates of Eni Spa and Shell). Shell has officially acquired 100% of BG Group).

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, and in order to satisfy the requirements of the Joint Operating Agreement (between the Parent Companies) and the Operator Participants Agreement (between the Operators

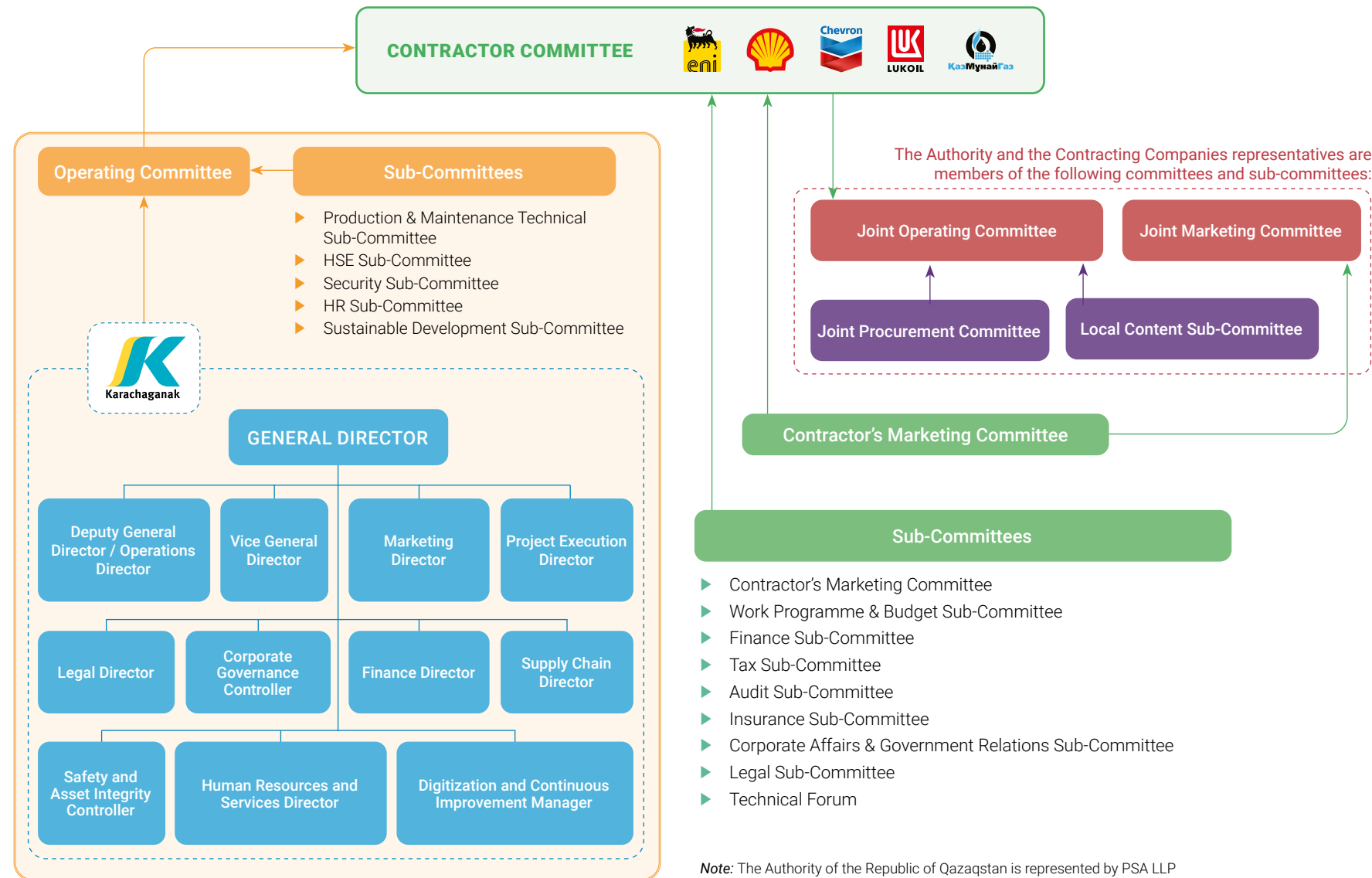
Eni and Shell). There has been established certain sub-committees, at Contractor and Operator level, dealing with specific matters. Graphical view of the full governance structure is given on figure 6. Functions of the committees and sub-committees were described in detail in the [Sustainability Report 2018](#) (pp. 33-34).

The different subcommittees, at Contractor and Operator level, provide professional advice and assurance in specific areas of expertise at operational and corporate levels. Each Sub-Committee has its own purpose and objectives stipulated in the respective 'Terms Of Reference'.

The topics on sustainable development, such as social, economic, environmental topics are captured in Sustainability Sub-committee at Operator level – represented by both Operators and KPO. Its main purpose is to advise on identified issues, concerns and impacts of KPO business on the communities living in KPO's direct impact area.

The Sustainable Development Sub-Committee reviews issues such as the post-resettlement monitoring of the former Berezovka and Bestau villages, engagement with Burlin District and Karachaganak field adjacent communities, NGOs, and sustainability reporting.

Fig. 6. Karachaganak venture senior management structure (as of 01.01.2022) GRI 102-18 (2-9), 102-44



MANAGING RISKS GRI 102-15

Petroleum operations must be carefully managed with respect to people, the environment, and assets. As a responsible oil and gas operator, KPO makes particular emphasis on managing business risks encompassing all dimensions, including, but not limited to:

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

KPO works on reducing negative impacts of the above risks through its management systems and continuous assessment in order to positively shape business strategy and change management.

In 2021, KPO has adopted a new Integrated Risk Management model, which allows to identify, qualitatively assess and effectively manage business and process safety risks. The Integrated Risk Management Procedure and HSE Risk Management Framework define and describe this process, as well as roles and responsibilities across the Company. It also aimed at synchronizing business goals and targets with business risks on each level of the organization.

Corporate Governance Controllorship is responsible for adoption, maintenance, monitoring and continuous improvement of the integrated risk management system. In particular, the risk model summarizes its main business risks in the 'Corporate Risk Register', which contains a list of potential risks, as well as relevant preventive and remedial actions. This process is regulated by the Integrated Risk Management Procedure. All business risks are reported through Corporate Risks Register and reviewed in the KPO Risk Committee meetings participated by KPO senior management. While on the other hand, Key Process Safety risks are recorded in the Barrier Model containing all detailed process safety risks, which are under

management of Safety & Asset Integrity Controllorship and regulated with the HSE Risk Management Framework.

Risk monitoring and review is part of the risk management process and involve regular checking and re-assessment to be carried out through the Risk Management Tool. This tool contains all detailed information reported and reviewed in respect of the integrated risk management matters.

With the purpose of obtaining reasonable assurance that risk management process continues to operate effectively, the following reporting steps are performed:

- ▶ **Twice per year:** by conducting Risk Committee meetings, where the Summary Risks Report is reviewed and agreed; and then shared at Contractor level;
- ▶ **Continuously:** regular assessment and update on risks evolution at Risk Owner level to ensure well-timed and effective implementation of preventive actions to mitigate identified risks, and timely informing the Integrated Risk Management focal point.

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.

KPO MANAGEMENT SYSTEMS GRI 103-2 (3-3)

Good governance is essential for ensuring the sustainability of large-scale investments, and particularly important in a complex governance structure as the one of KPO in which our strong governance, internal controls and assurance processes are vital to our ongoing success.

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:

INTEGRATED HSE MANAGEMENT SYSTEM GRI 103-1, 103-2 (3-3), 403-1, 403-7, 403-8

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

Continuous improvement and commitment are KPO's priority in ensuring the health and safety of the workforce with minimum impact to the environment. In 2021, KPO had passed through the re-certification process to maintain its credentials in relation to ISO requirements. KPO employees and contractor staff work intensively towards maintaining these processes.

The KPO HSE requirements are extensively communicated at internal and external levels, such as to all KPO staff but also with all contractors and subcontractors (i.e. inclusion of HSE requirements in each awarded contract).

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 Assessments, Environmental Culture and Awareness Enhancement Programme, and other.

Moreover, KPO carries out its own HSE internal audit plan on annually basis. For example, in 2021 KPO held 14 HSE audits.

Tab. 4. KPO management systems relevant to sustainable development GRI 103-2 (3-3)

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 and Green Rules; ▶ Security Management System Framework. ▶ HSE Management System Framework ▶ Safety & Asset Integrity Controllership System Manual 	<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; ▶ KPO Business principles; ▶ Anti-Bribery and Corruption and Anti-Money laundering manual; ▶ Legal Department Management System.

ASSURANCE GRI 103-3 (3-3)

For the purpose of internal assurance, KPO has designed two types of processes: i) value assurance process related to main capital expenditures projects decision making process and ii) internal audit.

In relation to assurance processes, all KPO development projects are evaluated to assure adequate rationale in the decisions making process, from identification of opportunities to operation' as well as to optimise the value of investments for the venture. Depending on the level of investment, there are internal and external (engaging Parent Companies) value assurance events in order to guarantee effective performance of the operations.

On the other hand, there is the internal audit process to provide internal and independent assurance designed to verify the compliance in all operations while achieving its business objectives through a systematic and disciplined management approach. This approach helps evaluate and improve the effectiveness of governance, internal controls and processes.

KPO implements its annual audit plan covering 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 the follow-up of identified audit actions.

Secondly, KPO Parent Companies conduct an annual procedural audit to provide an additional independent assurance level in respect of performance and compliance assessing areas of governance, internal controls and risk management. The results of the audit are reported to KPO management and Parent Companies at the Audit Sub-Committee.

Thirdly, the assurance of effectiveness of the KPO's Control Framework and compliance with the international standards and RoQ laws is provided through ISO certification including surveillance audits as mentioned above.

HUMAN RIGHTS ISSUES GRI 103-1, 103-2, 103-3 (3-3)

In conducting petroleum operations, KPO complies with local and international applicable laws and regulations, including the United Nations Universal Declaration of Human Rights and the core conventions of the International Labor Organization in relation to human rights.

Human rights provisions are embedded in the internal procedural framework addressing requirements in terms of social performance, security, human resources, and contracting and procurement. Alongside with this, KPO is committed to conduct due diligence in its procurement processes to ensure fair business opportunities and exclude corruption.

In pursuing the aim of respect and protection of human rights of own people and the local communities, KPO regularly engage with local external stakeholders in order to positively contribute, both directly and indirectly, to the general well-being of the communities in which it operates.

KPO has a zero-tolerance approach to modern slavery and child labor and is committed to identifying and removing any risk of child labor, slavery and human trafficking occurring in its supply chains and in all areas of its business.

Human rights provisions are embedded in the internal procedural framework addressing requirements in terms of social performance, security, human resources, and contracting and procurement.

KPO MANAGEMENT



GIANCARLO RUIU
General Director

Giancarlo Ruiu has twenty years of extensive experience in the oil & gas industry, both in Qazaqstan and overseas, where he held managerial roles covering the full cycle of exploration, development & operation, and business development. In his previous assignment, Giancarlo held the position of Head of Surface Program in ADNOC / UDR, the JV of Eni in Abu Dhabi. Earlier he held the roles of Managing Director in Eni Ghana and Development Phase 1 Director in the North Caspian Operating Company.



ADAM CHARLES LOWMASS
Operations Director & Deputy General Director

Adam Lowmass has almost 20 years of global leadership experience leading teams in operations, capital projects, business transformation, commercial deals, and strategy development. He has a keen understanding on different cultures, having lived and worked in nine countries including Qazaqstan. Adam joined Shell in 2007, and his last assignment prior to KPO was General Manager Production Excellence and Chief Digital Officer at NCOC Atyrau, Qazaqstan.



KUANYSH KUDAIBERGENOV
Vice General Director

Kuanysh Kudaibergenov has a solid top management experience in the oil and gas industry and government agencies of the Republic of Qazaqstan. From 2017 to 2021, he served as Director of Petroleum Industry Development Department of the Ministry of Energy of the Republic of Qazaqstan. Previously, he held various positions at KMG-Kansu Operating LLP, Rompetrol S. A., JSC NC KazMunayGas, Caspian Meruert Operating Company B.V., MNC KazMunayTeniz, CJSC Integra.



ALMASBEK MUKHASHOV
Marketing Director

Almasbek Mukhashov has over 20 years of work experience within Eni group of companies. He has worked in different business functions from external relations, economic analysis and finance to industrial project development, and commercial and negotiations being involved in different projects in Nigeria, Mexico, Turkmenistan, Algeria, Tunisia, Venezuela and Qazaqstan in upstream and midstream. In his previous role, Almasbek worked as New Businesses and Regional Analysis Manager at Agip Karachaganak B.V. Kazakhstan Branch.



JEAN VACQUE
Finance Director

Jean Vacqué has 20 years of global leadership experience through a broad range of financial positions in the oil & gas industry, both in Upstream and Midstream and in eight countries. As a qualified Chartered Management Accountant, Jean has built expertise in Treasury, Financial Controls, Corporate Finance and JV Finance on a variety of management roles, including six years at Basrah Gas Company in Iraq and most recently as the Country Finance Director for Shell's businesses in Mexico.



LIANA RUPNIK
Legal Director

Liana has solid international experience in the area of Legal Management and in Legal Compliance. Her previous appointment was Legal Manager for Project Finance and Mozambique Procurement (Eni spa, UK). Over the past years, Liana has worked in several foreign countries and has occupied a number of senior positions in the industry, including Legal Manager for Qazaqstan, Eni E&P (Nur-Sultan, Qazaqstan).

KPO MANAGEMENT



OSCAR VAN DER WEIDE
Project Execution Director

Oscar has been working for Shell and its subsidiaries since 1990. Before this appointment, he held the position of General Manager Projects Digital, Shell Projects & Technology in Bangalore (India).

Oscar has vast experience in engineering and project management. His professional background includes managerial roles in Shell affiliates in Netherlands, UK, Nigeria, Syria, India and Qazaqstan.



GIOSUE' DELLA BIANCA
Supply Chain Director

Giosue' has been working with Eni since 2004. Before this appointment, he held the post of Head of Upstream Procurement for Europe, Australasia, Americas and Middle East at Eni. Giosue' has worked at various managerial positions in the last decade, during which he has gained broad international experience in procurement. Giosue' has also worked as Procurement Manager in various countries worldwide including Russia, Mozambique, Saudi Arabia, Brasil, Italy and Qazaqstan. Giosue' has a Master Degree in Management Engineering.



DAVIDE MAZZUCHELLI
Human Resources and Services Director

Davide brings vast international experience in the area of HR Management. Prior to this appointment Davide was Human Resources Controller at KPO.

In his career, Davide has occupied a number of senior positions in the industry, including International HR Manager for Europe, Iraq and Middle East (Eni Spa – Upstream), HR & Services Manager at Eni East Africa Spa (Mozambique), Training & Development Manager at Eni North Africa B.V. (Libya), Division Manager / Organization Development & Service Manager at Nigerian Agip Oil Company (Nigeria).



ROBERT WIM DIJKEMA
Safety and Asset Integrity Controller

Robert has been working for Shell since 1991. He brings over 30 years of Oil & Gas experience, including managerial roles in the area of HSE, Operations, Maintenance, Drilling and Audit. His previous assignment was Operations & Project HSE Manager & Deputy HSE Director at Basrah Gas Company in Iraq.

Robert has previous experience working in Qazaqstan for Agip KCO in the role of Onshore HSE Site Head. He also worked in the Netherlands, Germany, Nigeria, UK, Syria and Russia. Robert holds a Master of Science in Aerospace Engineering.



FIDAN GOKTAS TRAUFFETTER
Corporate Governance Controller

Fidan started in Shell in 2002 and worked in a variety of roles across upstream around the globe, and led cross-disciplined teams.

Fidan's previous assignment was in Internal Audit, and her experience includes field development and business planning, well planning and execution, subsurface models and studies, and E&P technology strategy.

Fidan holds a Diploma in applied physics, a Doctorate in physics and anorganic chemistry, and a general MBA from Imperial College, UK. She is a member of the Society of Petroleum Engineers.



ARIADNA GARAY
Corporate Governance Controller

Ariadna started in Eni Spa in 2004, and worked in multiple affiliates in Central Asia, Latin America and Africa leading multicultural teams and delivering multi-billion procurement activities related to major CAPEX projects, drilling and O&M.

Ariadna's previous assignment was Non-Operated JV Auditor where she led JV Partners teams (including partners as ExxonMobil, Shell and Chevron). Ariadna holds a Master of Arts in International Relations and an Executive Certification INSEAD related to Corporate Governance matters. She is also member of Woman on Board (UK Chapter) network.

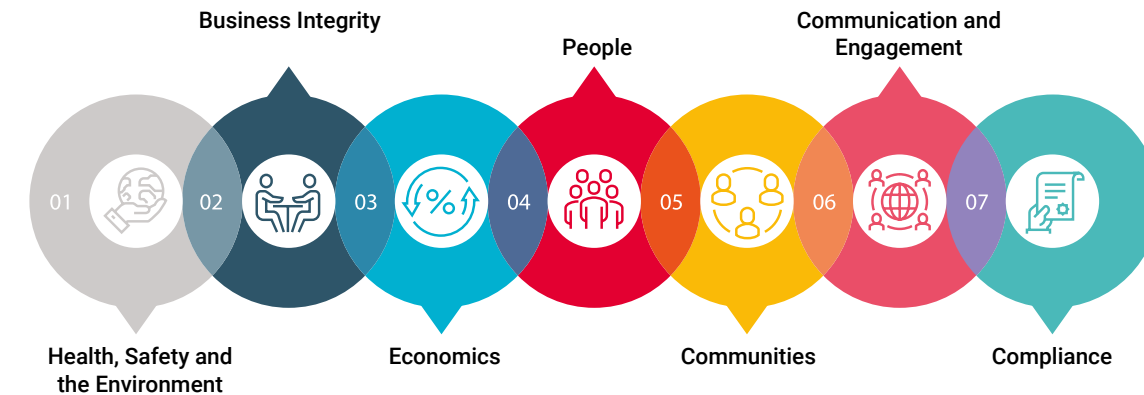
BUSINESS CONDUCT GRI 102-16 (2-23)

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.

Fig. 7. KPO Business Principles cover seven categories:



The full text of the KPO Business Principles and a short video are available on our [website in Business Ethics section](#).

HUMAN RIGHTS

We are committed to complying with applicable laws and regulations, including the United Nations Universal Declaration of Human Rights and the core conventions of the International Labor Organization.

The observance of human rights is a prerequisite of our 'license to operate'. Our activities are based on respect for human rights of our stakeholders starting from our employees, contractors, local communities and authorities.

For this reason, human rights requirements are embedded in the Code of Conduct and in KPO existing framework, manuals and policies. These include:

- ▶ **Social performance** – we have social performance plans and address the social impacts of our operations on local communities.
- ▶ **Security** – company-wide security requirements help keep staff, contractors and facilities safe in a way that respects human rights and the security of local communities.

- ▶ **Human resources** – our policies and standards help us establish fair labour practices and a positive work environment.
- ▶ **Contracting and procurement** – we seek to work with contractors and suppliers, who contribute to sustainable development and are economically, environmentally and socially responsible.

As part of the overall KPO Compliance Framework, KPO has adopted and successfully implemented the new Ethics and Compliance Training Programme which addresses major points of the principles and commitments listed above.

CODE OF CONDUCT

GRI 103-2 (3-3)

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.

2021 was a particularly challenging year for the Company and the consistent application of the Code of Conduct was of an immense importance in the middle of the COVID-19 pandemic. KPO Legal Compliance department helped the leadership in developing a view on the COVID-19 related matters to ensure our staff keep behaving ethically and making right choices when dealing with potential conflicts of interest and other breaches of business ethics in relation to sponsorship. KPO provided medical equipment, materials and medicines to the local hospitals in Aksai and Uralsk. This has enabled the local communities' to alleviate the consequences of the pandemic.

These challenges have impacted KPO's approach to working with suppliers and contractors amid the COVID-19 uncertainties. KPO Legal Compliance Department stepped up in providing ethical due diligence assessments to ensure our suppliers do not compromise ethical conduct of business.

The copy of Code of Conduct is available on our [website](#).

In 2021, despite the Covid-19 restrictions, the Legal Compliance Department continued conducting virtual trainings for staff at "higher risk" that are normally conducted in a regular classroom environment. In total, six sessions were organized.

HOTLINE AND OTHER COMPLIANCE MEASURES GRI 102-17 (2-26), 103-3 (3-3)

AWARENESS TRAININGS ON ANTI-CORRUPTION GRI 205-2

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

All KPO employees receive regular trainings on various compliance topics. In 2021, we introduced the annual anti-bribery and corruption prevention online training course which was completed by 98% of the KPO staff, including secondees and agency staff. 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 ethics and compliance policies and procedures are available on the KPO intranet for each employee.

To support the Company's Ethics and 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 Legal Compliance Department for review and to determine the appropriate actions. KPO employees can also report concerns directly to the Legal Compliance Department, HR or their respective line managers.

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All KPO employees receive regular trainings on various compliance topics.

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In 2021, Legal Compliance Department received 169 new reports. All of the reports were duly considered and the appropriate actions taken. Most of the complaints were related to the workplace relationship matters, whereby 150 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 investigates the received reports and, in case the allegations are substantiated, consequence management actions are identified and carried out. In 2021, KPO adopted a new investigation procedure to enhance its internal investigation capability and consistent application of the consequence management actions throughout the organization.

Taxes are an important source of revenues for the RoQ that enable for funding of such areas as education, healthcare, social infrastructure, etc.

PAYMENTS TO GOVERNMENT

GRI 207-1, 207-2, 207-3

Based on the Uchet.kz data, KPO was recognized as the second largest taxpayer in the country among the 50 largest companies included into the list compiled by Grant Thornton. The Venture pays a significant part of all tax revenues to the state budget of the Republic of Qazaqstan (RoQ).

The KPO tax regime is regulated by the Production Sharing Agreement and the applicable tax legislation of the RoQ.

Taxes are an important source of revenues for the RoQ that enable for funding of such areas as education, healthcare, social infrastructure, etc.

Wherever possible, KPO strives to build an open dialogue and collaborative relationship with tax authorities based on mutual respect and transparency, and to contribute to creating a favourable environment for the development of business and social sector in West Qazaqstan Oblast. Whenever tax exemptions are applied, KPO also strives to ensure their transparency and compliance with legal and regulatory frameworks.

In practical terms, KPO tax strategy is to calculate taxes correctly, minimize risks of double taxation and prevent

any disputes with tax authorities. Therefore, Company's key principle is to timely pay taxes and to provide all requested information to relevant authorities, as might be required by law or as part of due diligence.

Currently, in Qazaqstan there are risk management systems (RMS) in place that cover planning and organization of tax audits; the risk assessment criteria have also been developed and approved. This system represents a set of measures implemented in order to assess the likelihood of taxpayer's non-fulfilment and/or incomplete fulfilment of tax liabilities that can cause damage to the state. RMS also includes measures used by the tax authorities to identify and prevent risks. Types of tax control will be applied differentially based on the outcome of the risk assessment. Thus, as of the beginning of 2022, a low level of risk was assigned to KPO.

KPO strictly complies with tax regulations of the RoQ, and also works to ensure its taxes are appropriated in accordance with the global standard of the Extractive Industries Transparency Initiative (EITI), which serves as a watchdog for income transparency and accountability in the energy and mining sectors.

EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE

GRI 102-13 (2-28)

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 RoQ.

In 2021, KPO paid taxes and mandatory payments to the RoQ budget in the amount totalling US\$ 1.6 bln (at the exchange rate of KPO SAP accounting system) according to the EITI submission requirements. This data is reported in the 17th National Report on Implementation of the RoQ Extractive Industries Transparency Initiative for 2021.

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

History of KPO payments from 2014 through 2021 is shown in Table 5.

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/receipts from payers of oil & gas and mining sectors of the RoQ').

Tab. 5. Taxes and mandatory payments paid by KPO to the RoQ Budget in 2014–2021 (in US\$)

2014	2015	2016	2017*	2018	2019	2020**	2021
2.1 bln	1.2 bln	0.369 bln	0.746 bln	1.9 bln	1.6 bln	0.971 bln	1.6 bln

Note:

* Variance against 897 mln, which was published in the KPO Sustainability Report 2017, is explained by reflection of the refund amount post data reconciliation between taxpayer and recipient at a later date.

** 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 RoQ National Bank at the end of a reporting period.

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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 RoQ.

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US\$ **1.6** bln

SOCIAL IMPACT

03

- 37 Safety
- 45 Occupational Health
- 50 Emergency response
- 53 Asset Integrity
- 56 Security
- 58 People and skills
- 68 Community engagement

SAFETY GRI 102-15

In order to minimize safety risks and impact of the Company, we have set a number of targets. The results of their implementation are presented further in the table.

Tab. 6. Our targets in safety GRI 103-2 (3-3)



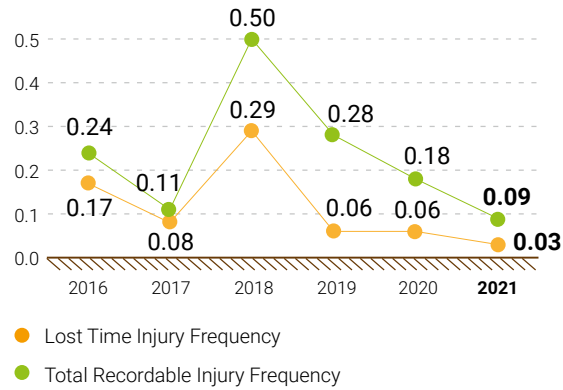
Our targets in 2021	Status	Actions taken to implement targets in 2021	Targets for 2022
Continue implementation of the Safety Continuous Improvement Journey	91% completed	The Plan was implemented through raising awareness on Life Saving Rules (e-learning) and consequences management, as well as, leadership and coaching, HSE competency assessments and management presence at work sites, procedures simplification. The name of the Plan was amended to highlight leadership.	Continue implementation of the Safety Leadership Improvement Journey
Complete competency assessments by 10 HSE elements for KPC supervisors	100% completed	HSE Competence Assessment of KPO Supervisors has been completed.	–
Implement HSE Communication Plan for 2021	97% completed	The plan was implemented through raising HSE awareness, incentive mechanism, implementation programmes and campaigns, engagement meetings and workshops.	Implement HSE Communication Plan for 2022
Implement Road Safety Improvement Plan	90% Completed	14 out of 22 actions of the Plan were completed, the rest 8 actions are continued in 2022. See details in 'Road Safety' section.	Obtain ISO 39001: Road Traffic Safety Management System Certification
	New Target		Conduct assessments to understand the level of HSE Culture in KPO

Why is it important to us?

Health, safety and asset integrity are the key elements for successful development and operation of any oil and gas condensate field. Safety of personnel in operations related to risks of H₂S, potential leaks and road incidents is of paramount importance for our Company. Our goals are that every employee is to come back home safe and sound and production leaks are entirely excluded. GRI 103-1 (3-3), 102-15

KPO utterly commits to support effective HSE culture both internally and externally.

Graph 1. LTI and TRI frequencies: KPO and contractors, 2016–2021 GRI 403-9



Note: KPO uses the following method to calculate LTI and TRI frequencies:

In 2021, KPO TRIF made up to

0.09

In 2021, KPO LTI was

0.03

HEALTH AND SAFETY PERFORMANCE GRI 103-3 (3-3), 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 2016 – 2021 with a focus on 2021.

Graph 1 demonstrates Lost Time Injuries Frequency (LTIF)² and Total Recordable Injury Frequency (TRIF)³.

In 2021, the total number of recordable injuries in KPO reduced by half. The number of Lost Time Injuries decreased as well from two in 2020 to one injury in 2021. In 2021, LTIF was 0.03 (vs 0.06 in 2020) and TRIF – 0.09 (vs 0.18 in 2020). The main reasons for incident decrease are continuous implementation

of the Safety Leadership Improvement Journey, completion of HSE Competence Assessment of KPO Supervisors, implementation of the HSE Communication Plan. We investigate all incidents to avoid reoccurrence. In addition, we share learnings from incidents with our contractors and other interested parties and adopt safety improvement practices from other companies.

Table 7 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.

Tab. 7. Lost Time Injuries frequency: KPO vs contractors, 2019–2021 GRI 403-9

Performance Indicators	2021	2020	2019
Lost Time Injury Frequency (KPO)	0.14	0.00	0.13
Lost Time Injury Frequency (contractors)	0.00	0.07	0.04

Table 8 represents KPO TRIF versus contractors' TRIF.

Tab. 8. Total Recordable Injury Frequency: KPO vs contractors, 2019–2021 GRI 403-9

Indicators	2021	2020	2019
Total Recordable Injury Frequency (KPO)	0.14	0.00	0.13
Total Recordable Injury Frequency (contractors)	0.08	0.22	0.33

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

² Frequency of Lost Time Injuries (LTIF) = number of Lost Time Injuries (lost work day cases + fatalities) x 1 000 000 / man-hours.

³ Frequency of Total Recordable Injuries (TRIF) = number of recordable incidents (lost work day cases + medical treatment cases + restricted work day cases) x 1 000 000 / man-hours.

KPO strives to make work places safe. Despite this, during 2021 there were three incidents, resulting in various injuries of KPO and contractor' employees.

Tab. 9. Incidents in 2021 GRI 403-9

Injury Type	Description	Number
Lost Work Day Case	Eyes injury (chemical burn) as a result of caustic soda solution release	1
Total Recordable Injuries, where employee returned to work after medical treatment or was transferred to restricted work	Forearm injury (cut) by sharp object	1
	Arm injury as a result of slipping and falling	1
TOTAL		3

No severe Road Traffic Incident (RTI) was reported in 2021. The RTI frequency per 1 million km driven remained zero in 2021 the same as in 2020. The zero rate is associated with the implementation of Road Safety Improvement Plan, driving competence assessment and other achievements as described in the Road Safety section.

In 2021, the kilometers driven by KPO vehicles amounted to 40.2 million km, compared to 37.9 million km in 2020.

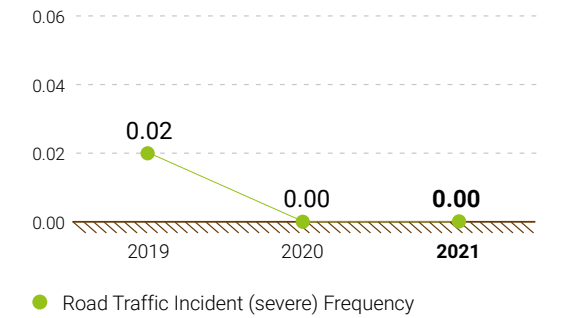
Tab. 10. RTIF: KPO vs contractors, 2019–2021 GRI 403-9

Performance Indicator	2021	2020	2019
Road Traffic Incident Frequency (KPO)	0.00	0.00	0.00
Road Traffic Incident Frequency (contractors)	0.00	0.00	0.03

Tab. 11. Fatality Frequency: KPO vs contractors, 2019–2021 GRI 403-9

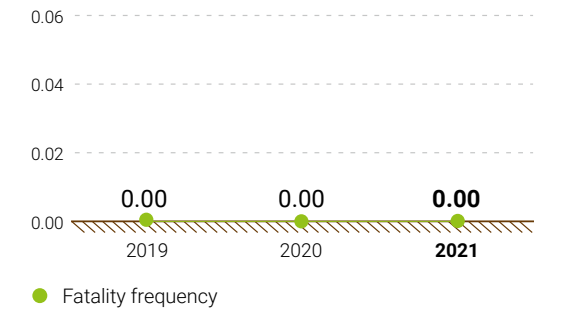
Performance Indicator	2019	2020	2021
Fatality Frequency (KPO)	0.00	0.00	0.00
Fatality Frequency (Contractors)	0.00	0.00	0.00

Graph 2. Frequency of severe RTI: KPO and contractors, 2019–2021 GRI 403-9



Note: KPO RTIF calculation method: RTIF = number of RTI (severe) x 1,000,000 / km driven.

Graph 3. Fatality Frequency: KPO and contractors, 2019 – 2021 GRI 403-9



Note: Fatality frequency calculation method used by KPO: fatality frequency (per million man-hours worked) = number of fatalities x 1,000,000 / man-hours worked.



In 2021, KPO and contractors' employees worked 32,265,055 man-hours: 21% of them (6,924,081 man-hours) worked by KPO employees and 79% (25,340,974 man-hours) by contractors' employees.

Tab. 12. Man-hours worked: KPO vs contractors, 2019 – 2021 GRI 403-9

Indicators	2021	2020	2019
Man-hours worked (KPO)	6,924,081	7,269,825	7,829,313
Man-hours worked (Contractors)	25,340,974	26,955,757	27,339,092
Total	32,265,055	34,225,582	35,168,405

In 2021, only one high potential incident was recorded in KPO: process incident with asset damage.

Tab. 13. High Potential Incidents*: KPO vs contractors, 2019 – 2021 GRI 403-9

Indicators	2021	2020	2019
High Potential Incidents (KPO)	0	1	3
High Potential Incidents (Contractors)	1	1	8
Total	1	2	11

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

In 2021, 64 near misses were registered in the Company: of which 39 (61%) were reported through the Incident Notification Procedure, and 25 (39%) – 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. 14. Near misses*: KPO vs contractors, 2019 – 2021 GRI 403-9

Indicators	2021	2020	2019
Near misses (KPO)	21	27	47
Near misses (Contractors)	43	46	64
Total	64	73	111

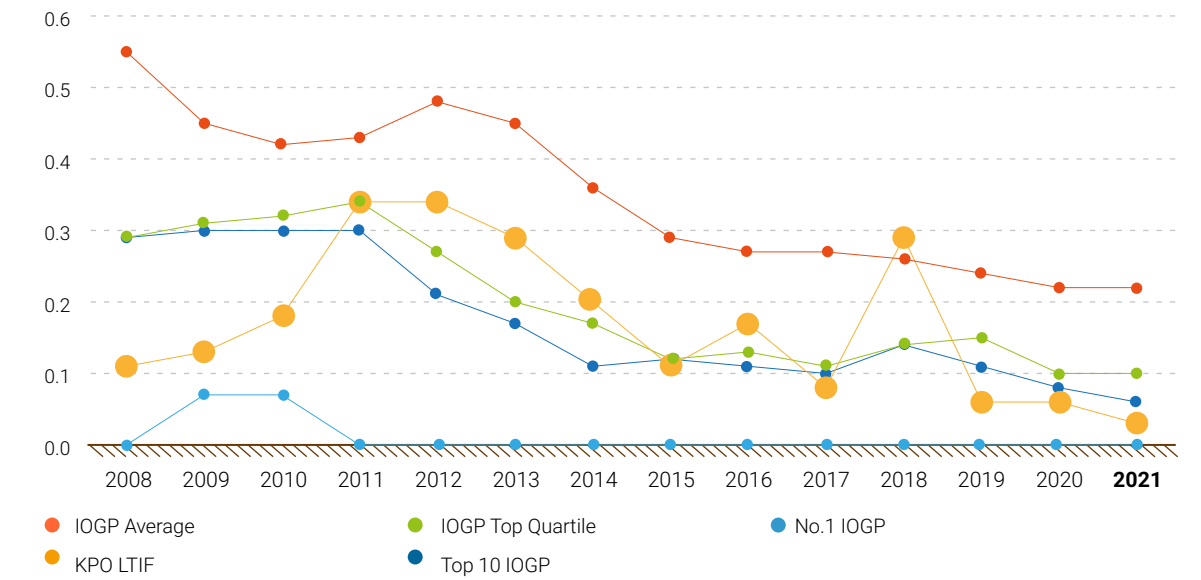
*Near-miss – any unplanned or uncontrolled event or chain of events that could have resulted in injuries to be accounted for, asset damage, the environment, or an incident related to process safety, but such consequences, by coincidence, were avoided.

PEER COMPARISON GRI 103-3 (3-3)

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 2021, the number of Lost Time Injuries in KPO decreased (1 LTI in 2021 versus 2 LTIs in 2020). If compared with other peer companies in 2021, KPO LTIF is better than the performance of IOGP 10 top and IOGP average (see graph 4).

Graph 4. KPO Performance versus IOGP, 2008 – 2021 GRI 103-3 (3-3)



Annual rewarding of employees for HSE contributions in 2020

HSE IMPROVEMENT PLAN FOR 2021 GRI 102-11 (2-23), 103-3 (3-3), 403-7

The overall objective of KPO HSE Improvement Plan is to improve Health, Safety and Environment management, to further control risks and to prevent harm to people and the environment. This is done by implementing Key Focus Elements that are over and above KPO's day to day business activities to deliver tangible benefits and improvements.

- ▶ In 2021, KPO has adopted a structured approach in preparation of the HSE Improvement Plan to ensure the Plan and the KPIs support each other and HSE objectives are achieved.
- ▶ 2021 KPO HSE Improvement Plan consisted of level I-II-III interlinked objectives:

LEVEL I (main goal):	No harm, no leaks
LEVEL II (supporting goals):	<ul style="list-style-type: none"> ▶ Behaviours and Leadership ▶ Personal Health ▶ Personal Safety ▶ Asset Integrity and Process Safety ▶ Road and Infrastructure Safety ▶ Minimized Environmental Impact
LEVEL III (how this will be achieved):	Strategy and Key Focus Elements

- ▶ The subordinate plans were developed to address these objectives;
- ▶ All KPO stakeholders owned and shared objectives and subordinate plans;
- ▶ KPO worked together to implement the plans and strengthen the barriers, in order to achieve the common highest goal.

Monitoring of the Plan was arranged by means of Traffic Light system (Green, Yellow, Red) applied to Levels I, II and III.

In the following paragraphs, we present the activities of our Safety Leadership Improvement Journey and road safety. Environment protection, Asset Integrity, risk management and Health are presented in relevant chapters.

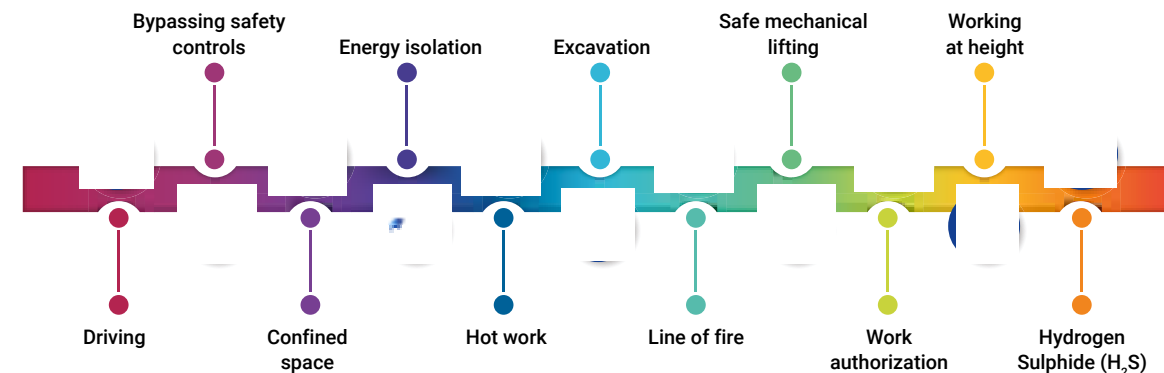
KPO GOLDEN RULES AND LIFE SAVING RULES GRI 103-3 (3-3), 403-1, 403-2, 403-7

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.

Fig. 8. Types of activities with high 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.

In order to continue improving the personnel awareness on the Life Saving Rules, in 2021 a Life Saving Rules In-depth Learning campaign was launched including the training materials and tests to ensure effective understanding. Results obtained by the employees are:

- ▶ "Bypassing Safety Controls" test – completed successfully by 3,589 employees;
- ▶ "Line of Fire" test – completed successfully by 3,571 employees.

CONSEQUENCES MANAGEMENT GRI 103-3 (3-3), 403-1

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

In 2021, activities on raising awareness of the Company and contractor employees were continued via Skype. 90% of high and medium risk contractors were covered. Awareness sessions on HSE Behavioral Accountability and Consequences Management Model will be continued for KPO Management staff, so that Managers support implementation of Consequences Management Model across the Company.

HSE LEADERSHIP AND CULTURE

HSE Leadership and Culture Programme was developed to reinforce health and safety continuous improvement and to develop and enhance the skills of frontline supervisors to enable them to coach frontline workers to implement safe working practices.

The Programme' implementation continued in 2021. "Coaching, involvement and intervention" courses were organized for the Well Operation department, Project Execution Directorate and their contractors. Also, with the support of the Corporate Safety Department, KMG-Parker Drilling Contractor initiated the Coaching Tool Pusher "Stop Work" Programme amongst its employees. The Corporate Safety Department, at the initiative of the Social Projects Department, held introductory mini-sessions on coaching, involvement and intervention for supervisors of the Social Projects contractors in Uralsk.

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 2021, the total number of HSE Leadership tours amounted to 127 compared to the planned 70 having resulted in 181% plan completion.

ROAD SAFETY GRI 103-3 (3-3), 403-9

With a target to ensure more sustainable road safety performance, KPO continues implementing its Road Safety Improvement Plan. In 2021, the Company completed 90% activities of the plan.

Key road safety achievements/implemented activities in 2021:

- ▶ Implementation of the new In-vehicle monitoring system (IVMS) parameters for both KPO primary and secondary logistics aligned with best international practice for further improvement of drivers' behaviour;
- ▶ Driving competence assessment of more than 170 KPO and Contractors' drivers both randomly and by applying risk-based approach, e.g. based on the IVMS RAG reports, vehicle type, load type, kilometres driven;
- ▶ Road traffic safety assurance review of 6 top low-performance contractors;
- ▶ Main Field roads potholes repair, road signs renewal, road marking;
- ▶ Arrangement of Winter road safety stand-down for KPO and contractors' drivers on risks of driving in winter, including risk of hitting animals on the roads;
- ▶ ISO 39001: Road Traffic Safety Management System – successful zero non-compliance pre-certification. KPO plans a certification on this standard in 2022.



HSE CULTURE

GRI 103-3 (3-3), 102-11 (2-23), 403-5

In 2021, a new HSE Communications Plan was introduced involving all HSE functions: Safety, Asset Integrity, Operations HSE, Projects Execution HSE, and Corporate Environment – in order to coordinate all HSE activities, including upcoming and current events, meetings, schedules. 97% of the planned joint activities were implemented as per schedule.

As a part of the HSE Communications Plan, the KPO and Contractor Senior Management HSE Forum was held in December 2021. KPO Senior Management and representatives of 54 contractor companies participated in the Forum which was conducted in a hybrid format – some attendees were present offline in the Forum venue and others participated online. The purpose of the Forum was to jointly review HSE performance, experience and hold conversations about Safety culture and its elements, the level of Safety Culture ladder the Karachaganak project implements and what can we do in order to improve it.

The new “Learning from Incidents” database was rolled out in the past year where everyone can find Lessons Learnt archive both for internal (KPO) and external incidents, as well as useful Safety Moments for different HSE topics. It includes an advanced search engine which allows finding a particular case upon specific parameters (i.e. Related Life Saving Rules or types of injuries, activities, etc.).

In order to support and boost-up the KPO COVID-19 Vaccination Programme, the vaccinated employees were suggested to share their experience and their motivation to take the vaccine. All the stories were transmitted via pop-up messages on PC screens.

Together with Radio-Aksai we conducted a drawing contest amongst the kids of Aksai, dedicated to the International Day for Protection of Children, to make them think and talk about road safety. The award was held through radio and Instagram. In addition, the “Safety Starts at Home” presentation was rolled-out for review and discussion by KPO employees. It described the risks and hazards their kids could have faced in daily life, and what needs to be done to avoid adverse consequences of unsafe actions.



Marat Dusinbaev, winner of the ENI Award 'HSE Champion 2021'

OCCUPATIONAL HEALTH

In order to minimize risks and impact of the Company on occupational health, we have set a number of targets. The results of their implementation are presented further.



Tab. 15. Our targets in health protection GRI 103-2 (3-3)

Our 2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
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. 	Partially achieved	<ul style="list-style-type: none"> ▶ Resilience Programme was suspended due to COVID-19 restrictions. Attempts to conduct sessions online had limited success. ▶ Employee Assistance Programme (Mental Health Programme) was successfully implemented in 2021. 	<ul style="list-style-type: none"> ▶ Revitalize the Resilience Programme once pandemic restrictions have eased. ▶ Continue Mental Health Programme.
Proceed with routine and unscheduled inspections of sanitary and living conditions at the contractors’ facilities	Achieved	Contractors’ welfare facilities were the focus of audits in 2021 as part of the Care for People Programme. Six audits were conducted.	Support Project Execution and Industrial Relations divisions in conducting contractor welfare facility inspections particularly in relation to the planned Turnaround in September 2022
Implement the Fatigue Risk Management Programme in the Company	Achieved	Fatigue risk assessments were carried out and risk management plans developed by Project Execution Directorate, Transport and Security Departments.	Continue implementing Fatigue Risk Management Programme across KPO. Special attention will be paid to Turnaround in 2022.
Consider changing the concept of the Global Challenge programme in the context of current restrictions	Not achieved, cancelled	Global Challenge initiative was cancelled due to the COVID-19 pandemic. No plan to pursue the programme in 2022 as is.	
Install 10 automated external defibrillators (AEDs)	Partially achieved	Re-training of First Aiders was completed. 10 Automated External Defibrillators (AED) were purchased and installed in KPO offices in Aksai.	Purchase further 10 automated external defibrillators (AEDs) install in the Field offices
Purchase five units of Electronic Pre-shift Medical Examination System (ESME) and install them at all KPO sick bays	Completed	Seven units of ESME installed and operated within 2020–2021 in five KPO sick bays. ESME system is replacing manual pre-shift medical examination. Scope is BP, pulse, body temperature, breathalyser. Results are available for checking by supervisors online.	
Consider conducting an audit of the implementation of the Legionnaires’ disease risk reduction plan taking into due account the epidemiological situation	Achieved	The implementation status of the Legionella risk reduction plan was checked. The actions set in the Plan were implemented in most sites.	Continue implementing requirements to prevent Legionella risks

Why is it important to us?

Occupational health is very important, not only because we spend almost one third of our life at work and workplace factors impact our general health, but also because of an interaction between non-occupational illness and our ability to work.

KPO has a transparent Fitness to work procedure that prevents bias or discrimination. As a responsible employer, KPO pays great attention to complying with statutory requirements in regards to fitness to work of its employees. Using the pre-employment medical examination as a baseline, we monitor our people's health both in terms of their ability to continue working and of any impact on their general health.

The aim is to prevent and mitigate any negative impact of the workplace factors. This is achieved by providing and maintaining safe work environments, modifying workplaces to fit the worker or reassigning them to other jobs, and, finally, by referring them to specialist care. **GRI 103-1 (3-3), 102-15**

IMPROVING THE QUALITY OF EMERGENCY CARE

GRI 103-3 (3-3), 403-3

Emergency care preparedness and quick response are crucial in KPO.

KPO Medical Support team has established a system of Emergency Response of 24 hours provision of emergency pre-hospital care for the employees. Provision of pre-shift medical examination for employees and availability of 4 sick bays is arranged to reduce health, safety and environment risks in the field work environment.

Tab. 16. Healthcare deliverables in 2021

Medical Support Indicators 2021	
Number of patients visited clinics	1,075
Number of patients transported to medical facilities	49
Number of exercises and drills participated	274
First Aid training provided to employees	230
Number of medevacs / repatriations	1
Pre-shift medical examinations (drivers / operators / electricians)	
Number of examinations	90,479
Cases of unfitness to work	9
Random alcohol tests	977
Positive random alcohol test results	5
Medical Support Emergency indicators	
Number of emergency calls	49

HEALTH DEPARTMENT ACTIVITIES DURING THE COVID-19 PANDEMIC

GRI 403-2, 403-3, 403-6

For the period from January to September 2021, 88 patients with COVID-19 were monitored by medical personnel in the KPO medical facility at Czech Camp. 53 patients with COVID were evacuated from their workplaces in Aksai and the Field. PPE (masks, gloves,

hand-sanitizers) was provided to all KPO employees on a monthly basis.

The COVID Care Team consisting of Health Department staff and volunteers from other departments continued helping the Company in its efforts to manage the pandemic's impact.

KPO and Contractors conducted over 170,000 PCR tests in 2021. It helped control the spread of disease in the workplace and community.

During 2021, the Sanitary Laboratory has conducted 47 inspections throughout the Company facilities to check compliance with infection control measures.

Disinfection of workplaces after the COVID cases was arranged by outsourcing the activity.

VACCINATION PROGRAMME

In 2021, KPO supported the RoQ vaccination efforts against COVID-19 by setting up a Vaccination Centre at the Aksai Hospital. More than 94% of eligible employees have been fully vaccinated. This was achieved thanks to using a range of tools:

- Communication and education (dedicated webpage, "Ask the Doctor" sessions, posters, banners and pop-up messaging, vaccination stories, etc.);

- Exemption from PCR testing for the vaccinated;
- Lottery with valuable gifts;
- Bonus for achieving the vaccination targets.

AKSAI HOSPITAL UPGRADE PROJECT GRI 102-44, 203-1

The Aksai Hospital Upgrade Project was launched in January 2020, with the aim to upgrade the Aksai Hospital's emergency and intensive care capability by achieving international standards within five years (2020 – 2025) via the KPO's Social Infrastructure Projects. It includes improvements in equipment and infrastructure, as well as development of competence, and management systems.

Good progress was demonstrated on project delivery, as well as a significant impact on objective health outcomes (e.g. surgical mortality rates, and overall mortality rates). Positive case reports actual lives saved from new techniques and protocols. There was an overwhelming positive response from the medics and local community on social media.

The co-operation between KPO Health team, the Health Department of the WQO Akimat and the management of the Aksai District Hospital steer the activities of a joint effort for the benefit of the Burlin District's community and KPO. The Project is overseen by the Joint Operators' Oversight (JOO) comprised of health experts that had been established through the joint provision of technical advice to support achieving the goal.

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

MEDICAL INSURANCE

A medical insurance benefit is offered to KPO employees that covers medical services in addition to those available through guaranteed free health care and mandatory medical insurance. Health insurance covers a range of services, from outpatient care to inpatient care and reimbursement of medicines and dental services. Employees with chronic conditions are referred to medical surveillance for regular check-ups and treatment.

AUTOMATED EXTERNAL DEFIBRILLATORS

In a cardiac arrest, chances of survival are reduced by 10% every minute of delay. In KPO, delays to defibrillation can be as long as 15 minutes. Automated External Defibrillators (AED) allow First Aiders (i.e. trained laypersons) to defibrillate the patient. In 2021, the following activities were implemented:

- Re-training of KPO First Aiders completed;
- 10 AEDs are purchased and installed in Aksai-based KPO offices;
- Budget for more AEDs is requested.

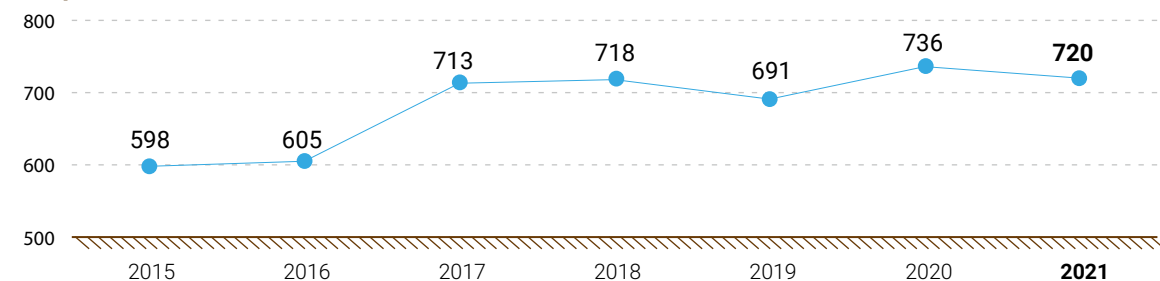
ELECTRONIC SYSTEM OF MEDICAL EXAMINATION

Electronic system of medical examination (ESME) – the project of digitalization and optimization of the process of pre-shift medical examination, which will replace the manual examinations. In 2021, ESME units were purchased and installed in five KPO clinics.

ABSENTEEISM MONITORING GRI 403-3, 403-10

In 2021, absenteeism at KPO was slightly down from the previous year.

Graph 5. KPO absenteeism rate, 2015–2021



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

Oil and gas industry features various occupational hazards (hydrogen sulphide, chemical reagents, noise and vibration, climatic factors, biological and psychosocial factors, etc.) that require identifying, assessing and managing associated health risks. These processes in KPO are well established and provide robust control mechanisms.

During 2021, Health risk assessments were carried out at Eco Centre. The results were used to prepare a corrective action plan that was handed over for implementation.

In 2021, there were no occupational diseases registered among KPO employees.

FITNESS TO WORK GRI 403-2, 403-3, 403-6

Through pre-employment fitness to work assessments (FTW) providing a baseline and periodic medical examinations monitoring for any adverse changes, KPO strives to ensure that employees can complete tasks safely, without unacceptable risks to themselves, the Company or a third party.

The relevant Republic of Qazaqstan regulations as well as International Association of Oil and Gas Producers (IOGP) guidelines provide the legal and technical framework for KPO's Fitness to Work procedure.

One of the key elements is the provision for employees of access to an appeal process in cases where they are unsatisfied with their FTW evaluation outcomes.



Employees of KPO Health department during the reanimobile equipment check

PROMOTION OF HEALTHY LIFESTYLE

GRI 103-2 (3-3), 403-6

EMPLOYEE ASSISTANCE PROGRAMME

Employee Assistance programme is aimed at preventing harm to KPO employees arising from mental health problems, such as anxiety, depression, self-harm and suicides.

The programme involves confidential consultations by qualified third-party psychologists using multimedia, video, or face to face sessions available 24/7 via a set hotline. The programme also offers group sessions, lectures, discussions, and mental health education. Urgent psychological support is provided in cases of post-traumatic stress disorders resulted from a disaster, multiple casualty accidents, terrorism or other.

FATIGUE RISK MANAGEMENT

Fatigue is a lack of mental alertness arising from lack of sleep. The oil and gas industry has a number of characteristics, which can contribute to fatigue.

In 2021, the results of pilot application of the FRM were considered in planning of drivers' work schedules by Transport department. KPO has implemented a Fatigue Risk Management Procedure that outlines the management processes that minimise the risks of work-related injury or incidents due to fatigue.

OPERATIONAL CONTROL OF INDUSTRIAL FACILITIES GRI 403-3

Both a statutory requirement, and one of the staples of industrial hygiene, sanitary compliance monitoring is conducted in KPO production facilities. Table 17 shows the monitoring data for the last three years.

Every case of non-compliance with the regulatory limits is analysed and relevant actions are taken. For example, fluorescent lamps that were responsible for low lighting levels started being phased out.

Noise is intrinsic in production facilities such as compressor houses. The Hearing Conservation Programme implemented in KPO is an example of control measures aimed at reducing worker exposure to excessive noise.

WORKPLACE ATTESTATION

Statutory attestation of production facilities, which is conducted every five years, is aimed to evaluate working conditions.

In 2021, attestation of Eco centre was carried out by a licensed contractor company. 14 jobs were evaluated, of which 5 were graded as harmful. Corrective action plans were prepared following the outcomes of the attestation and submitted to the responsible persons for further actions. In 2022, large facilities such as KPC, Unit 2 and Unit 3 are due for the attestation.

Tab. 17. Monitoring of physical factors, 2019–2021

Occupational hazards	2021		2020		2019	
	No. of measurements	No. of non-conformances	No. of measurements	No. of non-conformances	No. of measurements	No. of non-conformances
Noise	368	83	398	110	440	114
Vibration	63	12	63	15	78	25
Electromagnetic fields	3,676	50	3,500	35	4,164	36
Electrostatic fields	2,048	0	1,737	0	2,322	0
Lighting	2,743	730	2,861	660	3,085	703
Microclimate	5,250	360	5,670	430	6,630	502
Workplace air	12,342	0	11,607	0	15,741	0
TOTAL	26,490	1,235	25,836	1,250	32,190	1,380

Why is it important to us?

Emergency response and crisis management are the key processes in KPO management in case, if an emergency situation escalates, KPO and contractors' personnel, as well as the neighbouring communities, may happen to be within the possible hazard impact area.

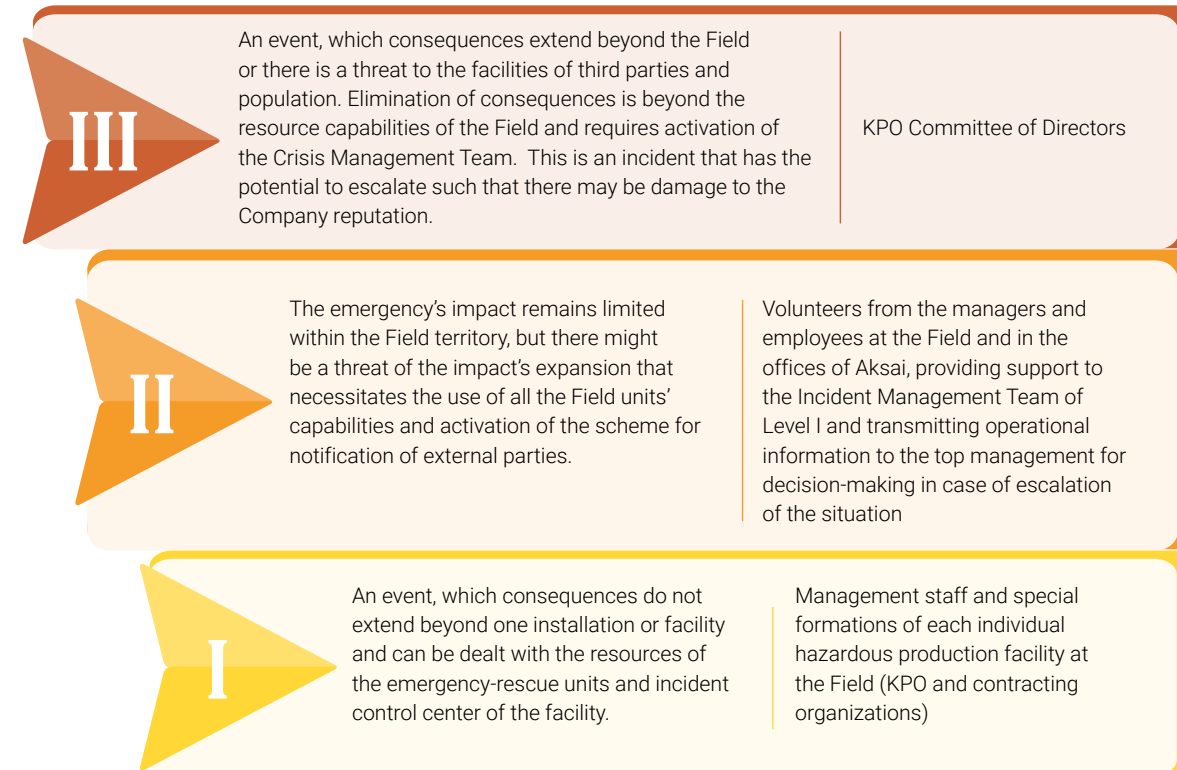
Emergency preparedness and response implies a recognition of possible irregularities and accidents, as well as organization of structure and resources for the mitigation of impacts of such accidents on people, the environment, the Company's assets and reputation. These resources are also used to support the Burlin District state emergency and rescue teams in fighting fire on residential and agricultural lands, as well as in combating floods. **GRI 102-15, 103-1 (3-3)**

EMERGENCY RESPONSE

GRI 103-1 (3-3), 103-2 (3-3), 102-11 (2-23), 102-44

In case of any incident, accident or emergency, KPO operates a robust three-level Emergency Response system used to trigger a prompt response, to assess emergency scale, to plan and implement actions of localizing and eliminating emergency and its consequences. The system is graphically shown on the figure 9.

Fig. 9. KPO Emergency Response System GRI 103-2 (3-3), 403-5



In 2021, KPO has implemented a number of measures geared to enhance the efficiency of the emergency management system. For instance, level II Field and Aksai Incident Management Teams were merged in an integrated team to improve the performance of the Incident Management Centre (IMC), including:

- ▶ improved communication among personnel;
- ▶ reduced decision-making time as no information is duplicated;
- ▶ created a contingency team of volunteers with different functions, which in turn created an opportunity to engage additional personnel in case of protracted emergency situations.

Besides, activities continued to enhance the performance of incident command centres. Video-communication has been set up between Aksai and

Field Incident Management Centres in a roundtable format. Which made it possible carrying our IMC activities under strict quarantine restrictions, and remotely engage certain personnel in the centre's activities.

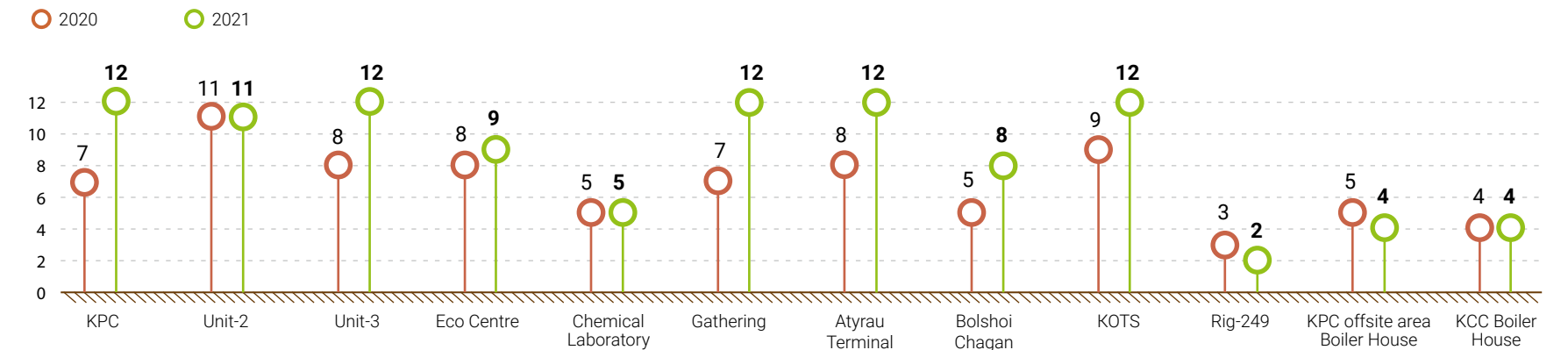
In 2021, as part of ensuring the readiness of level I forces and resources, all Company's hazardous production facilities conducted monthly emergency response drills with involvement of the Facility Incident Command Team (ICT), emergency rescue teams and personnel of KPO and contractors.

In 2021, the total number of emergency response drills conducted at KPO facilities for the purpose of exercising the actions of level I incident command teams and emergency rescue units amounted to 103 drills (80 in 2020).



Fire drill

Graph 6. Emergency response drills completed in 2020–2021



The level II and III centres' members took part in the following real mobilizations and drills, which allowed maintaining the readiness level: **GRI 103-3 (3-3)**

Tab. 18. Level II and III drills conducted in 2021

Type of drill	Date	Objectives	Participants
Integrated Exercise "Aurora"	August 2021	Check the personnel's understanding of the existing procedures and develop skills of the IMT members who has recently had training	Level II Incident Management Team, Level III Crisis Management Team
Table Top exercise	August 2021	Exercise actions of forces and resources in deployment of booms at Kushum channel for the interception of an oil spill in case of an accident at KATS.	Bolshoi Chagan OPS Incident Command Team, firefighting team

Weekly theoretical and practical drills and exercises were conducted throughout 2021 with the observance of all sanitary norms and requirements for social distancing engaging KPO emergency rescue teams, namely:

- ▶ firefighting teams;
- ▶ gas rescue team;
- ▶ voluntary gas rescue units;
- ▶ medical personnel;



KPO employees at the Karachaganak Processing Complex

Besides, in 2021, KPO continued training of staff in civil protection via the e-learning system, as required by the RoQ legislation.

Throughout 2021, representatives of KPO emergency rescue teams and units responded to 25 calls by going out to settlements to provide assistance in extinguishing steppe fires at agricultural facilities, household outbuildings, and forest belt fires.

COMMUNITY PREPAREDNESS
GRI 102-11 (2-23), 103-3 (3-3), 102-44

KPO monitors the community's awareness of the procedure for emergency response in case of an emergency at the Karachaganak Field. In 2021, as per the approved plan, four meetings were held with Akims of rural districts and residents of villages located around the field, covering 40 persons. The discussion topics were errant cattle as a hazard, the role of a central monitoring station, village alarm stations and familiarization with their equipment.

In order to maintain constant readiness of village alarm stations, throughout 2021, the Community Protection Specialist of KPO Emergency Response Team jointly with contractor representatives carried out monthly testing of emergency alarm signals and public address systems, as well as the maintenance of this equipment. Such village alarm stations are installed in eight villages that are situated around the field.

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

ASSET INTEGRITY GRI 103-2 (3-3), 102-11 (2-23), 403-7, OG-13

KPO monitors potential threats to its operations and mitigates Asset Integrity risks through its barrier management system. The Asset Integrity department together with the Units continuously assess the health status of the safety barriers to identify weaknesses, implement mitigating measures and establish plans to

re-instate these barriers to its original design to prevent any major accident.

In order to minimize asset integrity risks, we have set a number of targets. The results of their implementation are presented further in the table.



Tab. 19. Targets in Asset Integrity GRI 102-11 (2-23), 403-7, 103-2 (3-3)

2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
Roll out a new Barrier Model tool and conduct awareness sessions for all KPO front line staff	Done with further activities planned	Rolled out the new Barrier Model tool as part of the Barrier Management Process. Conducted awareness sessions for key staff. Implemented the monthly review meetings with the Units.	<ul style="list-style-type: none"> ▶ Further implement the Barrier Model tool, increase understanding and ownership of this tool by the Units. ▶ Further develop enhanced functionality of the Barrier Model tool.
Continue the Process Safety Awareness campaign and develop an action plan based on the revised IOGP standards	Done with further activities planned	Updated the Process Safety Fundamentals Guideline and documentation as per the IOGP 2020 new release; launched PSF E-Learning and developed PSF videos. Distributed hand-out materials to KPO front line staff and contractors.	Review the effectiveness of the implementation of the Process Safety Fundamentals

The Asset Integrity Management Framework is a set of processes to prevent major accident hazards and to raise Asset Integrity and Process Safety awareness amongst the KPO employees, contractors and subcontractors working at the Karachaganak field.

The Asset Integrity Framework Management System consists of the following key processes:

- ▶ **Barrier Management** – through the application of a structured process supported by the using of the Barrier Model tool;

Why is it important to us?

The main objective of Asset Integrity is to prevent major accidents and reduce the risks to people, environment, assets, and the Company's reputation. It is an outcome of good design, construction, operating and maintenance practice.

Asset Integrity is achieved when facilities are structurally and mechanically sound and perform the processes to produce the products for which they were designed. Barriers that relate to the plants, people and processes are defined to reduce the risk for a major accident to a level that is as low as reasonably practicable.

GRI 103-1 (3-3), 102-15

SPILLS GRI 306-3

In 2021, no cases of significant spill⁴ were recorded at the territory of the Karachaganak field.

⁴ The definition of a significant spill is applied to an incident, which has caused contamination of the environment through hydrocarbon/chemical spills to land or water and volume of spilled hydrocarbon/chemical exceeding 1,000 litres (as per KPO Incident classification).

- ▶ **Asset Integrity Performance Analysis** – through the use of Key Performance Indicators;
- ▶ **Management of Change system for Brownfield Modifications** – through the use of the Management of Change database;
- ▶ **Asset Integrity Assurance** – through the use of reviews, audits, verifications and assessments;

- ▶ **Asset Integrity Improvement Culture initiatives** – through the production of e-Learning modules on the Mechanical Isolation Procedure, Process Safety Fundamentals and the Barrier Model process. Within 2021, KPO has undertaken a number of activities addressing the key risks or barriers in the KPO asset integrity. In the table below, we present the completed

activities in 2021 and the current status of the ongoing ones.

These completed activities allowed a reduction of the risk at Unit 3 and provided assurance on the robustness of some Process Safety process.

The activity currently ongoing will allow reducing the Process Containment and Ignition control risks field wide.

Tab. 20. Activities addressing the key risks or barriers in the KPO asset integrity GRI 103-2, 103-3 (3-3)

	Barrier Impacted – finding and site place	Continuous Improvement Activities in Asset Integrity
ACTIVITIES COMPLETED IN 2021	Process Containment – 9 Vessel with integrity issue and Obsolete Flash Gas Compressors at Unit 3	Nine vessels were identified with integrity issues during the site inspection in the past years. These were replaced during Turnaround 2021. Flash Gas Compressors with integrity issues were identified as one of highest risk areas in Unit 3. They were taken out of service in 2021.
	Soft Barrier – Safety Critical Elements at KPC/KGDBN	The KGDBN project at KPC has been completed and as part of the Handover to the Operations, the identification of the relevant safety critical element (SCE) of the KGDBN project has been carried out by a multidisciplinary team.
	Soft Barrier – Mechanical Isolation Procedure at Unit 2 and Unit 3	In order to verify compliance with the KPO procedures, an assessment was carried out on the Mechanical Isolation Procedure.
	Soft Barrier – Inhibits and Overrides procedure at Bolshoi Chagan, Atyrau Terminal, KPC and Unit 2	In order to verify compliance with the KPO procedures, an assessment was carried out on the Inhibits and Overrides procedure.
ACTIVITIES STARTED IN 2021 ONGOING THROUGH 2022	Process Containment – Undersized pressure safety valve field wide	A Safety review done by Engineering department highlighted potential undersized PSV's in the facilities. The undersized PSV's identified, mitigation action taken, design and procurement initiated, replacement scheduled for Turnaround 2022.
	Process Containment – Valves with banned materials field wide	Site inspection ongoing to finalize the list of valves with banned materials. During the 2021 year several valves already changed out, remaining valves scheduled for replacement in Turnaround 2022.
	Ignition Control – EX Equipment field wide	EX item review for all the facilities showed equipment with some gaps on the certification and maintenance. Site inspections completed, most critical items repaired/replaced, remaining scope being addressed.

BARRIER MODEL
GRI 102-11 (2-23), 103-2 (3-3), 403-2, 403-7

In 2021, the KPO Asset Integrity Department has worked on the new operational Barrier Management software tool. The new Barrier Model software was customized based on the KPO requirements in order to improve transparency and efficiency of the barrier management process with increasing use of “live data”. All new projects, upon completion, are put through the Barrier Model, such as the KGDBN project, which was delivered in 2021.

LOSS OF PRIMARY CONTAINMENT
GRI 403-2, OG-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 Annual Loss of Primary Containment Report for 2021 provides an analysis of the LOPC incidents that occurred during 2021 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.

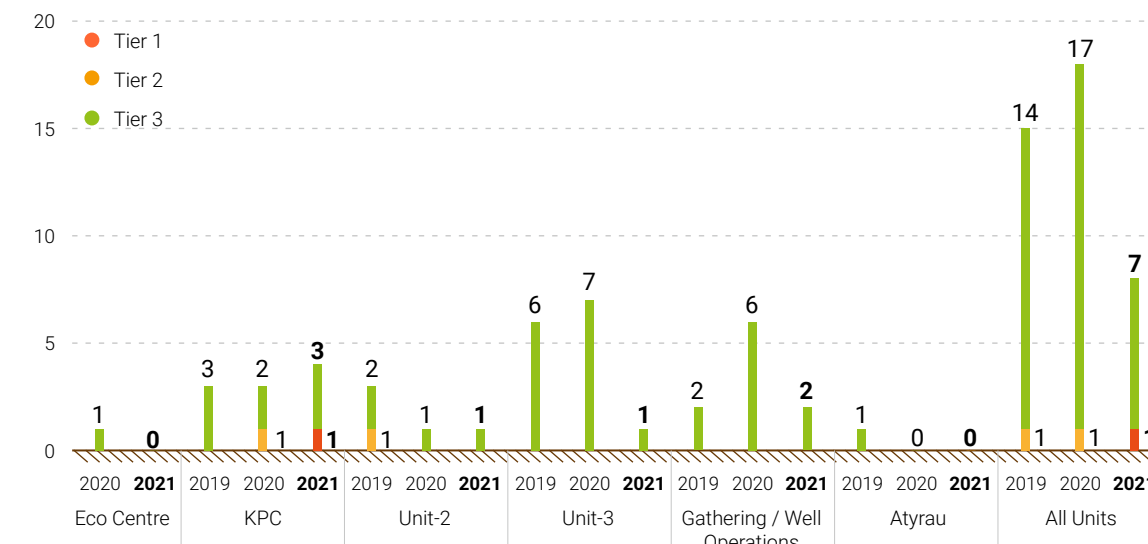
Analysis of Process Safety Events is the key to prevent or reduce the likelihood and severity of Process Safety Events. Once a Process Safety event occurs, an investigation process is initiated, root causes are determined and recommendations are defined and followed up through the Synergi database.

Statistical analysis for 2019–2021 shows that the number of LOPC events decreased by 44.4% in 2021 compared to 2020.

One Tier 1 Process Safety event occurred at KPC where a release of caustic soda solution splashed into the face of a KPO Lead Operator during the pressure leak testing activity. The injured person immediately used an eyewash in the safety shower and received first aid and further medical examinations; his eyesight was not impacted, however the sick list was issued.

No Tier 2 LOPC's occurred in 2021. The number of Tier 3 LOPC's was reduced from 17 in 2020 to 7 in 2021.

Graph 7. Loss of Primary Containment at KPO by process facilities, 2019–2021 OG-13



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

Why is it important to us?

In order to mitigate any potential risks for security and social stability, KPO takes every possible effort to ensure integrity of operational facilities and security of all personnel at the Karachaganak field including contractors. **GRI 103-1 (3-3), 102-15**

HRSP training covered

100%

contractor security personnel

0

illegal taps in the KPO export pipelines

SECURITY

To minimize security risks and the Company's impact resulting from its activities, we have determined several targets which implementation results are presented below.

Table 21. Our targets in security GRI 103-2 (3-3)



Our 2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
Ensure zero illegal taps in the KPO export pipelines	Done	Regular monitoring of the export pipelines was provided by mobile patrol teams and the Sintela monitoring and notification system.	Ensure zero illegal taps in the KPO export pipelines
Implement a number of activities required to prevent illegal actions and to reduce incidents	Completed	During the year regulations were updated and training activities were carried out.	Install metal detectors and automatic breath test systems at the security check points of Unit-2, Unit-3 and KPC red zones in order to prevent unauthorized removal of assets and monitor physical condition of personnel
Continue training on Human Rights and Security Principles (HRSP) for security personnel	Completed	As of end 2021, the training covered 100% contractor security personnel. GRI 410-1 Conducting the HRSP training has been 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, as well as for new personnel
<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. 	Partially completed	<ul style="list-style-type: none"> Due to changes in pricing for the equipment to be purchased, it was decided to reassess the budget based on the completed detailed engineering of the security systems. Tender for engineering services for the security systems at Bolshoi Chagan OPS was successfully completed. 	Complete the tender for a provider and installer of the security systems at KPC, Unit-2, Unit-3 and EOPS. Proceed with the project implementation.

Table 21. Our targets in security (continued)

Our 2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
	New target		Define the scope of work covered by the Security Management System project at the facilities: Bolshoi Chagan OPS, Pilot Camp and Waste Disposal Centre
Integrate several different types of electronic badges/certificates applied into one card	Completed	The pilot project on integration of different cards into one was successfully completed.	<ul style="list-style-type: none"> Continue replacement of simple electronic cards with electronic chip cards; Identify and purchase required quantity of readers for further implementation of the project.

Following the results of activity of the Security and Industrial Relations Department in 2021, 992 violations were found, and 17 internal investigations were conducted. These included four applications, which were submitted to law-enforcement agencies.

During 2021, KPO revealed and prevented cases of unauthorized removal / relocation of KPO and contractors' assets worth approx. KZT 40 mln.

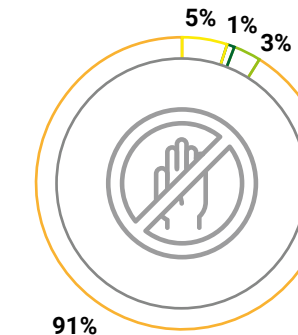
Employees of the security company providing complex security services on the export pipelines have rendered assistance to the WQO law-enforcement agencies in detaining persons who illegally crossed the RoQ Border.

The use of the new Sintela security software has significantly increased overall monitoring quality, including more precise threat identification and improvement of patrolling. **GRI 103-3 (3-3)**

During force-majeure and state of emergency in January 2022, the Company has implemented a number of measures to improve security at the operational facilities, such as:

- safe transportation of KPO and contractors' personnel between Aksai and KPO facilities;
- additional measures were taken to ensure security on sites, including increase of security personnel at the posts and the security check points, strengthening of access control, temporary blocking/closing off the access roads, relocation of mobile patrol teams, mobilization of the rapid response teams;
- action plan to prevent destabilization of public order in partnership with law-enforcement agencies and public authorities. **GRI 102-44**

Graph. 8. Violations evidence in 2021



- Violation of inventory transfer (48 cases)
- Violation of anti-alcohol policy (7 cases)
- Violation of the border of the Field perimeter (33 cases)
- Violation of strategy on ensuring protection of people in the event of H₂S incidents (904 cases)

“During 2021, KPO revealed and prevented cases of unauthorized removal / relocation of KPO and contractors' assets worth approx. KZT 40 mln.”

Why is it important to us?

Developing and operating the Karachaganak Field requires thousands of dedicated and talented employees in a wide range of disciplines, from petroleum engineers and technicians to accountants and logistics specialists.

Our people are the key to our success. Company invest in the development of our national workforce using the international expertise of our Parent companies, appropriate classroom training and renowned educational institutions.

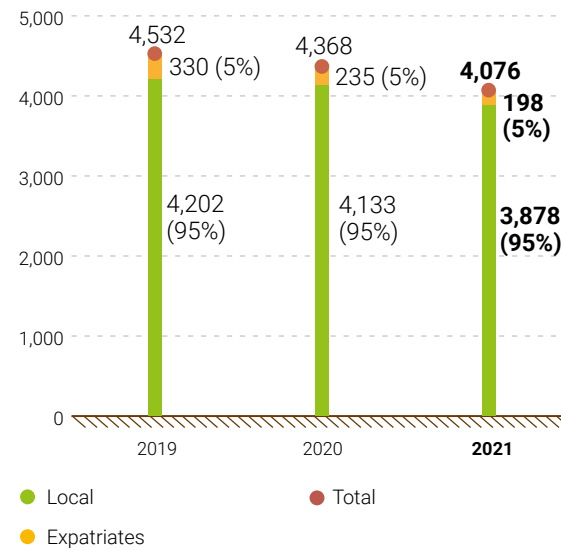
GRI 102-15, 103-1 (3-3)

As of end 2021, total number of KPO employees made up **4,076** people

PEOPLE AND SKILLS

As of end 2021, the total number of employees in KPO, including those working on temporary projects, made up 4,076 people with 3,878 of them being Qazaq nationals and 198 expatriates.

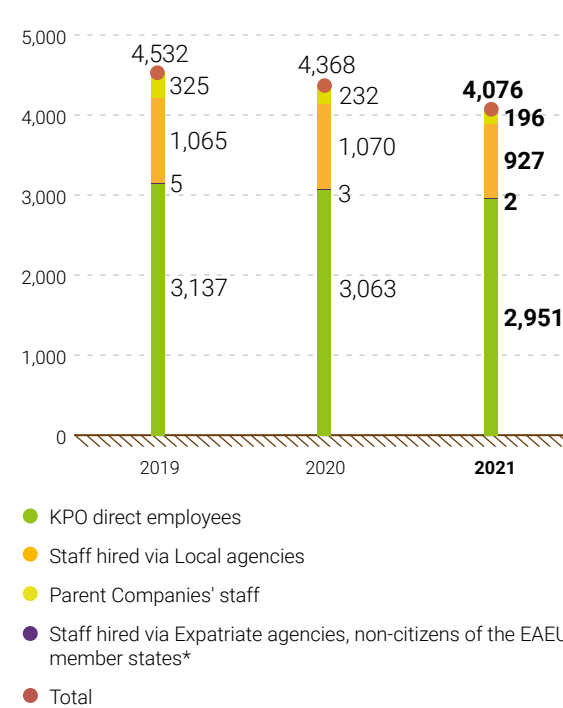
Graph 9. KPO employees, 2019–2021
GRI 102-7, 102-8 (2-7), 405-1(b)



* The EAEU – the Eurasian Economic Union – is an association within the framework of international economic cooperation of several states of the Eurasian region – Russia, Kazakhstan, Kyrgyzstan, Belarus and Armenia.

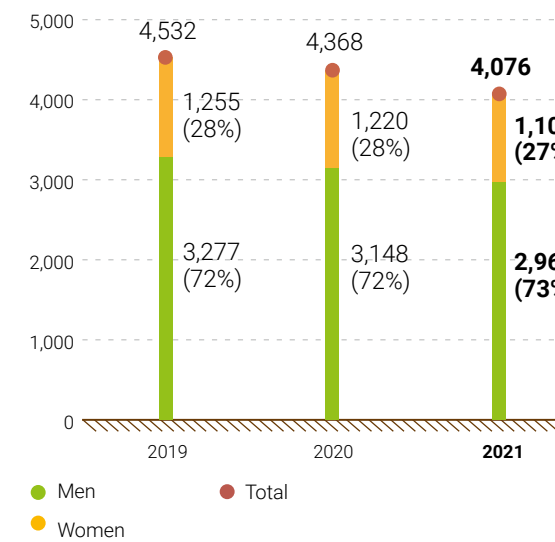
The graph 10 shows the ratio of employees, taking into account the specifics of labour relations, to the total headcount of the Company at the end of the reporting period, broken down by years.

Graph 10. KPO employees by type of employment, 2019–2021
GRI 102-8 (2-7, 2-8)



Graph 11 shows the ratio of employees by gender. In 2021, 2,968 men and 1,108 women worked at KPO.
GRI 102-8 (2-7)

Graph 11. KPO employees by gender, 2019–2021
GRI 102-8(2-7), 405-1(b)

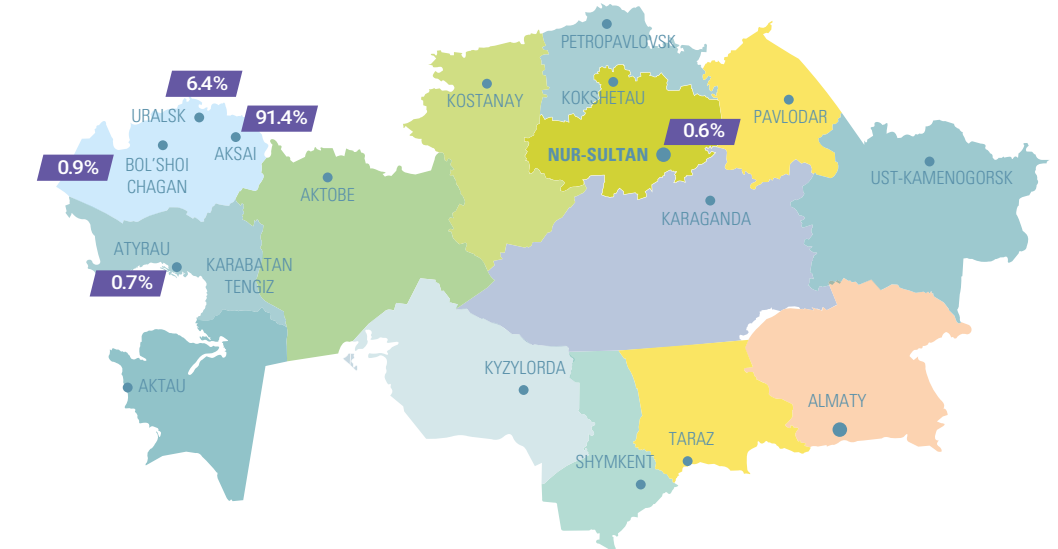


As of end 2021, the number of temporary employees⁵ totalled 73. GRI 102-8, (2-7), 405-1(b).

⁵ 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.

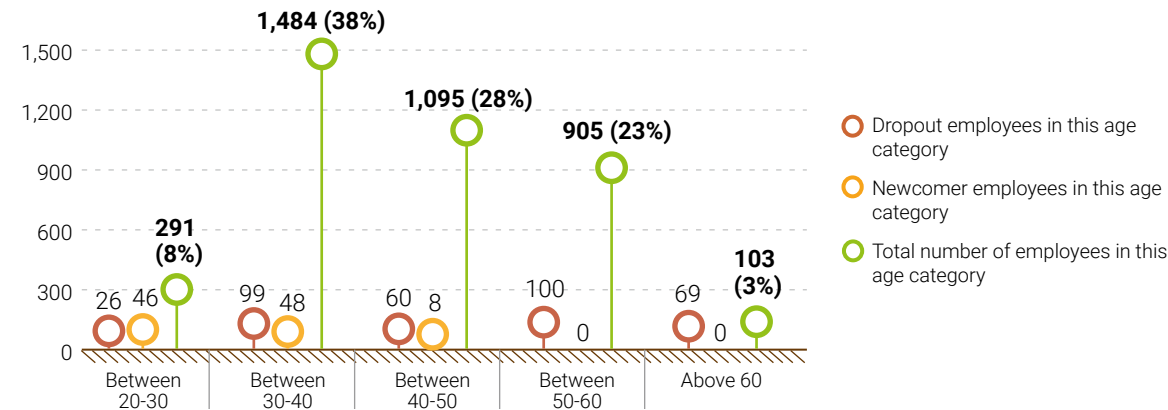
The map describes the geography of where KPO employees reside across the country.

Fig. 10. KPO employees by region, 2021
GRI 102-8 (2-7), 103-1 (3-3)



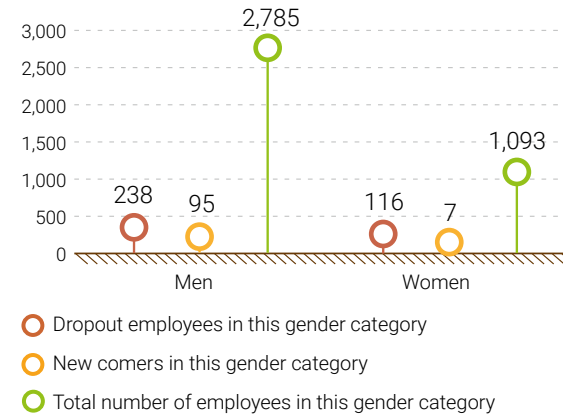
Graph 12 shows the turnover of local employees in 2021 broken down by age groups regardless of the type of contract. **GRI 401-1**

Graph 12. Personnel turnover by age, 2021 (local) GRI 401-1, 405-1(b)



Graph 13 shows the turnover of local employees in 2020 broken down by gender. In 2021, the new employees hired in KPO made up 2.6% of the average number of employees, in comparison to 2020 – 2.3%. The dropout made up 9.1%.

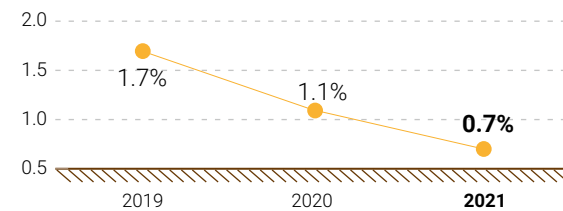
Graph 13. Personnel turnover by gender, 2021 (local) GRI 401-1



The turnover made 0.7% in 2021 versus 1.1% in 2020 (see Graph 14). **GRI 401-1**

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

Graph 14. Dynamics of local personnel turnover, 2019–2021 GRI 401-1, 103-3 (3-3)



Note: Calculation of local turnover indicator is performed according to the following formula: $\text{personnel turnover} = \frac{\text{the number of personnel, who voluntarily resigned during the reporting year}}{\text{the average number of employees for the same period}} \times 100$.

EMPLOYEE RELATIONS **GRI 102-44**

ENGAGEMENT WITH TRADE UNIONS

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".

At the end of 2021, the trade unions and the employer signed a new Collective Agreement for the period 2022–2024. Provisions of the Collective Agreement are applied to all KPO employees regardless of their membership in the Trade Unions. **GRI 102-41 (2-30)**

In particular, under the terms of the New Collective Agreement, a number of new social payments and benefits were increased and introduced, such as the provision of advance payments, social assistance to families of employees raising disabled children, assistance to families of employees raising three or more children of school age, including children of 18 years old, the percentage of payment for combining duties has been increased in the amount of at least 10% of the monthly base salary. In addition, a number

of benefits were agreed for veterans who retired from the Karachaganakgazprom JSC or the Company, including an increase in the amount of bonuses for the Oil and Gas Complex Workers Day.

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**

Along with this, the Employee Relations Sector is working to control the funds allocated under the Collective Agreement for the Trade Unions to carry out socially oriented, cultural, mass and physical education work.

GRIEVANCE MECHANISMS

GRI 102-17 (2-26), 103-2, 103-3 (3-3)

At present, the Company has a few grievance mechanisms: applications to HR Controllorship either directly or through Trade Union, and via the anonymous Hotline.

In 2021, HR received 97 applications, including grievances. The received grievances addressed such issues as labour misconduct, employment, conflict resolution, abuse of power, misconduct with contractor employees. Also, employees gave feedback on the new Collective Agreement. All received grievances were reviewed and resolved, including in the pre-trial procedure and at the stage before the cases' consideration in the Conciliation Commission.

Why is it important to us?

Employee relations are based on an agreement between the employee and the employer on the performance of the employee's labor function and the provision of the necessary conditions and remuneration by the employer.

Employee relations in KPO are regulated by the Labor Code of the Republic of Qazaqstan. If the terms of the employment agreement are not observed by both the employee and the employer, there are risks of human rights violation such as: the right to work in just and favorable conditions, protection against unemployment, the right to equal pay for equal work, the right to just and favorable remuneration, the right to form and to join trade unions to protect their interests, the right to reasonable limitation of working hours and paid leave. **GRI 102-15, 103-1 (3-3)**

”

In 2021, HR received 97 applications, including grievances on such issues as labour misconduct, employment, conflict resolution, abuse of power and etc.

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VOLUNTARY DISSOLUTION OF EMPLOYMENT RELATIONSHIP

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 programme applies to men aged 58-63 and women aged 53-58. In 2021, 43 KPO employees applied for the voluntary dissolution of employment relations (43 employees in 2020, 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, in the end of 2021 the Company repeated the experience of Programme for Voluntary Dissolution of Employment Relations. 20 applications were approved under this programme in 2021.

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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)

“

INDUSTRIAL RELATIONS GRI 102-11 (2-23), 407-1

To avoid violations of the rights of contractors and subcontractors' employees monitoring and analysis of the situation in work collectives are regularly carried out in order to reveal and correct potential factors, as well as causes and conditions resulting in social and economic violations, impairment of employees' legal rights. The causes of such risks can be lack of acceptable social and living conditions and non-observance of legal regulations by contractors and subcontractors.

In the process of inspections of violations of human/employee rights KPO makes efforts to ensure comprehensive and timely review of claims/reports, as well as to resolve issues in due time. During considerations, views of all sides are taken into account and analysed, and possible measures are taken to protect and restore employment rights in accordance with the RoQ legislation and the Company's procedures.

The operational targets at the Karachaganak field and activities for the implementation of the projects for further enhancement are mainly carried out with participation of contractor companies. Thus, successful fulfilment of the set targets and achievement of process performance depends on how balanced labour relations are both in KPO and in collectives of the involved contractors and subcontractors.

In 2021, Industrial Relations personnel carried out 177 trips and visited 260 work sites and camps. Also, 19 joint audits were conducted.

In 2021, 19 complaints from contractors' employees on various issues were received and closed. Social and

living conditions were inspected: work places, catering facilities etc. Following the results of monitoring, audits and considerations of the received applications of 43 contractors coordinated by Industrial Relations Section, measures for improvement of accommodation and labour conditions were taken. That, in its turn, had a positive effect on maintaining stable moral and psychological climate in the working collectives.

As part of the activities for prevention of violations of employees/workers' rights, monitoring of compliance with the declared working and social and living conditions is conducted. In the process of the specified activities a comprehensive approach is applied: each claim/application is considered through analysis and ensuring completeness of information.

One of such examples was an application of a contractor employee to KPO regarding violation of the labour law, specifically non-admission to work due to not having vaccination against COVID-19 and refusal to increase the wages. As a result of the inspection, the claimant's employer admitted the employee to the work place and increased the wages by 25%.

As part of support for local providers of goods and services, from the end of 2020 KPO had been facilitating the implementation of mandatory PCR-testing of contractor personnel. During 2021 the Company continued full reimbursement of these costs at its own expense.

In addition, the Company has provided support in increasing the number of vaccinated contractor personnel as a leader and positive example.

COMPENSATION AND BENEFITS

The success of any business largely depends on the team qualifications, therefore KPO's HR policy is aimed at strengthening the leading position in the market and achieving strategic goals through the creation and development of a professional team, as well as increasing its motivation.

In order to ensure the employee right to pay as per qualifications, complexity of work, quantity and quality of work performed, as well as working conditions, KPO applies the following tools:

- ▶ The remuneration system based on a consistent approach in setting wages, which ensures fair remuneration for all staff;
- ▶ The job evaluation process regulation for effective organizational structure management, as well as to ensure the validity of remuneration;
- ▶ Performance and Development Review (PDR) application;
- ▶ Maintaining fair work conditions through a variety of 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, (2-30b)**

Most rewards are included in the Collective Agreement. Agreement signed in 2019 remained effective for the period 2019–2021. During 2021, preparations were

made for the signing of the new collective agreement version, and in December 2021 an agreement was reached. The new version contains a number of improvements regarding, among other, the employees' social conditions. This Collective Agreement will be valid from 2022 to 2024. **GRI 102-41, (2-30)**

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.

In January 2021, an 8% general salary increase was made reflecting the inflation level for the previous year.

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 2021 was higher than an average salary in the West Qazaqstan Oblast (WQO). As a result of this analysis, no additional salary adjustment was proposed in 2021. **GRI 202-1**

It should be noted that in December 2021, the Company was awarded the Grand Prix of the Paryz-2021 Republican competition on corporate social responsibility for achieving high results in the areas of corporate social and environmental responsibility.

Why is it important to us?

Attracting and retaining qualified and talented professionals are our main risks. KPO strives to ensure competitive labour market conditions among oil companies in Qazaqstan, which helps to attract high-potential candidates and reduces the risk of staff turnover.

One of the reasons for the KPO attractiveness as an employer is due performance of duties undertaken by the Company and respect for the employees' labour rights. **GRI 102-15, 103-1 (3-3)**

”

in December 2021, the Company was awarded the Grand Prix of the Paryz-2021 Republican competition on corporate social responsibility for achieving high results in the field of corporate social and environmental responsibility.

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Why is it important to us?

The strategic approach of KPO HR to the process of local content increase involves both replacing expatriate personnel with national staff and implementation of the local staff professional training and development. This ensures that all operations are carried out competently, with high quality and in compliance with international standards. This approach contributes to the replacement of foreign personnel with minimum risks for production activities, and the achievement of the set goals with the highest quality.

Without the annual Training Plan the Company would have faced the following risks:

- ▶ Failure to fulfil its obligations under the FPSA.
- ▶ Incompliance with legislative requirements in industrial safety, environmental and labour protection.
- ▶ Lack of competent workforce to fulfil the Company resourcing needs.
- ▶ Delay or failure to achieve targets for local content in staff. **GRI 102-15, 103-1 (3-3)**

PERFORMANCE AND DEVELOPMENT REVIEW **GRI 404-3, 103-3 (3-3)**

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.

DEVELOPMENT OF NATIONAL PERSONNEL

GRI 405-1, 103-3 (3-3)

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

In 2020, KPO in conjunction with the Authority approved the 2020–2025 Programme for Local Content Increase in Staff. The outcomes of the previous programme were also taken into account while developing the new one.

In 2021, 13 positions previously held by expatriate personnel were nationalised, 45 positions were abolished. Local employees made up 95% of the total Company's staff as of December 2021. In total, 246 expatriate specialists were replaced with national employees and 284 positions held by expatriate employees were abolished in the period of 1999 – 2021. The breakdown by categories is presented in table 22. **GRI 103-2 (3-3)**

Tab. 22. Increase of Local Content in KPO staff by categories of employees **GRI 202-2, 103-3 (3-3)**

Category	Description	RoQ legal requirement	Local content in staff		
			2021	2020	2019
1+2	Executive management and their deputies, Department / Unit management	Minimum 70%	85%	83%	79%
3+4	Professional staff / qualified workers	Minimum 90%	98%	97%	96%

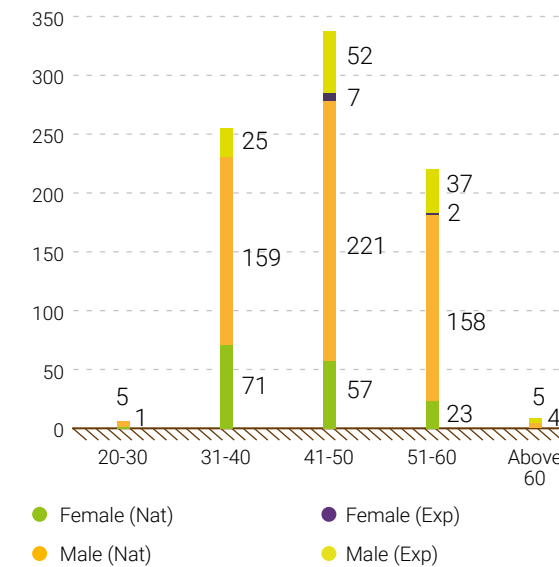
Ratings distribution scale includes "Strong", "Fully Effective" and "Needs Improvement".

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

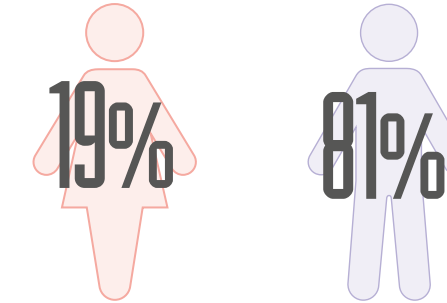
Additionally, in accordance with the goals set in this Programme, KPO keeps tracking the local content in contractor personnel registered in the West Qazaqstan Oblast. In 2021, 43 companies provided their quarterly, biannual and annual Local Content in Staff reports. The local content in staff within these organizations made up to 90% in the category 'Department / Unit Management' and 97% in the category 'Professional staff / Qualified workers'. The Local Content increase in KPO and in contractor companies during 2021 is due to COVID restrictions, which put a strain on expatriate specialists' arrival to work and due to completion of several major projects.

Graph 15 presents the total number of expatriate and local senior and mid-level management of the Company split by age and gender. This includes KPO core structure and temporary projects.

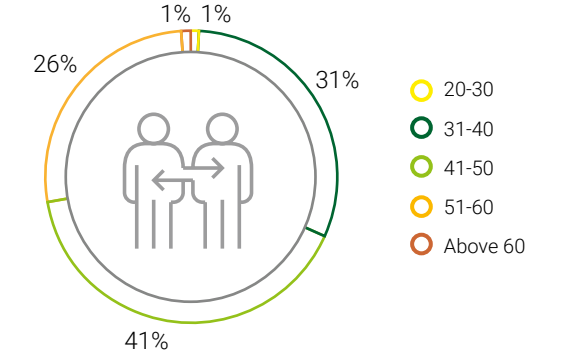
Graph 15. Number of local and expatriate managers by age and gender, 2021 **GRI 405-1(a)**



Percentage of local and expatriate managers by gender



Percentage of local and expatriate managers by age



Why is it important to us?

Personnel training and development programmes in KPO are aimed at developing personnel competency, practicing the knowledge acquired and ensuring compliance with international standards by applying best international practices.

Provision of training programmes allows the Company:

1. to fulfil the requirements of FPSA Annex 7 related to the training, re-training and professional development for Qazaqstani employees consistent with International Good Oil Field Practices, as well as HSE and industrial hygiene requirements.
2. to deliver programmes that enable for the local content increase in staff and supply the organization with skilled, qualified and competent workforce.
3. to undertake training activities related to operational requirements and personnel professional development in order to achieve production and exploration targets.
4. to deliver specific and mandatory HSE certified training programmes for the Company's personnel, required by RoQ legislation, the Company's internal procedures and best international practices. **GRI 102-15, 103-1 (3-3)**

PERSONNEL TRAINING AND DEVELOPMENT

PERSONNEL TRAINING **GRI 103-1, 103-3 (3-3)**

Every year, KPO conducts training programmes aimed to achieve the following objectives:

- ▶ to enhance the employees' individual job-related competencies, and address operational and career development needs.
- ▶ To teach mandatory skills required to perform the job at hazardous production facilities. The training obligations are subject to the RoQ legislation and the Company procedures.

In 2021, 91% of the Company's local employees were trained or engaged in various professional development programmes, professional training and retraining, and took part in online seminars and conferences.

Besides, in 2021, KPO continued conducting training for employees on the specialized international programmes (see table 23), language skills, and professional and mandatory HSE courses.

Tab 23. KPO personnel trained on the International Qualification certified programmes in 2018 – 2021

Programme name	2018	2019	2020	2021
Well control/well pressure control during gas, oil and water shows (IWCF)	39	59	13	61
Non-destructive testing certification (NDT)	30	33	3	13
CIPS International diploma (certified programme of Chartered Institute of Procurement and Supply)	11		10	13
Emergency response training course MEMIR by OPITO standard	43	19		17
International certificate in Health, Environment and Safety (NEBOSH)		11	12	9
Certified internal auditor (CIA)		2	3	
OPITO Expert competency assessment		15		
ACCA Diploma in International Financial Reporting (DipIFR)			3	2
Master of Business Administration (MBA)			1	1
American Petroleum Institute certification (API)			6	10
Project Management Professional (PMP)® Certification				1
IEMA International certificate in Environmental Management (IEMA)				1

TRAINING STATISTICS **GRI 404-1, 403-5**

As responsible organization, KPO ensures mandatory HSE training both for its own staff and personnel of its contractor organizations.

In 2021, 405,221 hours of training (445,122 hours in 2020) were held, of which 250,581 were provided to KPO employees (295,495 in 2020). The remaining 154,640 hours (201,128 hours in 2020) were spent on the HSE mandatory courses for the contractor organizations' employees.

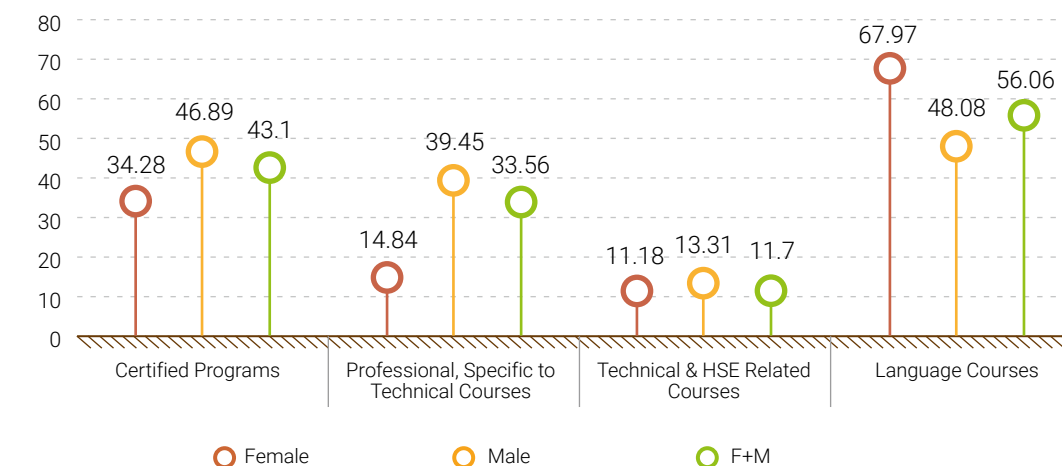
Totally, in 2021 20,169 people were trained, 3,644 of them – KPO employees and 16,525 – contractor personnel. Average training hours are given in graph 17.

Training arranged for KPO employees in 2021 by categories is shown in Table 24.

Tab. 24. Training of employees by categories, 2019–2021 **GRI 404-1**

Category	2021	2020	2019
1. Managers and supervisors	121 people (34.72 hours per 1 employee)	92 people (73.99 hours per 1 employee)	161 people (66.60 hours per 1 employee)
2. Qualified specialists / supervisors	1,636 people (49.35 hours per 1 employee)	1,439 people (81.93 hours per 1 employee)	1,250 people (88.96 hours per 1 employee)
3. Technical personnel	1,715 people (94.01 hours per 1 employee)	1,484 people (113.01 hours per 1 employee)	2,044 people (111.73 hours per 1 employee)
4. Office and administrative personnel	1,172 people (25.72 hours per 1 employee)	119 people (25.81 hours per 1 employee)	150 people (86.53 hours per 1 employee)

Graph 16. Average number of training hours per one training course passed by nominated KPO employees in 2021, by type **GRI 404-1**



ENHANCED DEVELOPMENT PROGRAMME **GRI 404-2**

In order to ensure the continuity of workforce planning and increase local content in staff, KPO implements the Enhanced Development Programme.

In the second half of 2021, KPO launched the 4th intake of the Talent Pool Enhanced Development Programme for the period of 2021–2024. Based on the plan to increase local content in staff, the departments' heads nominated high-potential employees for further participation in the selection stages of the Programme. Implementation of next steps is scheduled for 2022.

Why is it important to us?

Trust, mutual understanding, cooperation and respect for the rights of the local communities are the major factors of Company's success.

Building up good neighborhood and constructive dialogue with local communities is embedded in the KPO Sustainable Development Charter and is essential because this help us maintain our 'social license to operate'. **GRI 102-15, 103-1 (3-3)**

In its operations, KPO works to prevent or minimize negative impacts and maximize the benefits from its presence by continuous engagement with local communities, and creating conditions for their well-being and economic growth.

Aiming to implement initiatives in the area of corporate social responsibility, KPO applies policies, standards and procedures based on the Performance Standards of International Finance Corporation. **GRI 102-12**

COMMUNITY ENGAGEMENT

GRI 102-44, 103-1 (3-3), 103-2 (3-3), 413-1, OG-12

The targets in table 25 are aimed at support of the local communities living in three rural districts of Burlin district – Priuralnyi, Zharsuat and Uspenovskiy villages located adjacent to the Karachaganak Field and Aksai town.

In order to maintain effective dialogue with local communities on social and infrastructural support, KPO conducts meetings and consultations in the form of Village Council meetings with participation of Company employees and representatives from rural districts.

In 2021, nine Village Councils meetings were held in the Priuralnyi, Zharsuat and Uspenovskiy rural districts, three of which were arranged online due to the COVID-19 restrictions. During the meetings, the local residents were informed of the KPO

Community Development Programmes for 2021, KPO Environmental Monitoring Programme, as well as on the progress of seven second-year students from these rural districts who study in colleges and universities of Uralsk under the KPO Scholarship Programme. Overall, 18 local residents received education over the period of the Scholarship programme from 2010 to 2021.

As part of the Community Development Programme, KPO provided 65 vouchers for the elderly of Burlin district for health recreation in the Akzhaiyk Sanatorium. Given the strict sanitarian and epidemiological requirements during the Coronavirus pandemic, the vouchers were provided for vaccinated pensioners only.



Tab. 25. Targets in community engagement GRI 103-2 (3-3)

2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
Implement Community Development Programme as per approved budget	Completed	Due to the COVID-19 restrictions, the summer camp for community children was cancelled; the Akzhaiyk sanatorium recreation for the elderly community members was partially implemented. The Scholarship Programme for rural school graduates successfully continued.	Implement the 2022 Community Development Programme as per approved budget
Conduct 9 Village Council meetings in three rural districts on social and environmental issues	Completed	In 2021, 9 Village Council meetings on social and environmental development aspects raised by the local residents were held in three rural districts (Priuralnyi, Zharsuat and Uspenovskiy). Along with this, additional meetings outside of Village Councils were held to answer the residents' questions.	Conduct 9 Village Council meetings on social and environmental topics involving three rural district communities: Priuralnyi, Zharsuat, Uspenovskiy
Review and timely close all incoming grievances and applications	Completed	All received grievances were reviewed and effectively closed out	Review and timely close all incoming grievances and suggestions from the communities

COMMUNITY FEEDBACK MECHANISM

GRI 103-2, 103-3, 413-1

In accordance with KPO Community Grievance Procedure, we received 10 complaints and requests from the local community, including three gas odor complaints and seven requests and suggestions of various nature from the local communities living in close proximity to the Karachaganak field. As part of closing out these requests, the Company helped communities by providing equipment for cleaning the rural roads off snow in winter period.

Check-ups carried out by the KPO Operations Environment Monitoring Team did not reveal any malfunctioning of the process equipment, leaks/ emissions or MPC exceedances in each case reported. Upon completing the review, some feedback was communicated to the residents who had filed the complaints.

MONITORING OF RESETTLED COMMUNITIES OG-12

Since resettlement of the first residents from Berezovka and Bestau villages to Araltal micro district and apartment buildings in Aksai at the end of 2017, KPO has been annually monitoring the livelihood restoration of the resettled families. As part of our surveys during our meetings with Araltal residents, the community members complained about a lack of a rainwater drainage system around the constructed 100 houses and local school.

The residents' concerns were brought up by KPO to the attention of the authorities of the Burlin district and West Qazaqstan Oblast. As a result of joint efforts made by KPO and local executive and state bodies, a new Decree of the Government of the Republic of Qazaqstan (No. 203 dated 04.01.2021) was adopted on allocation of additional funds for implementation of post-resettlement projects, including Drainage System Project in Araltal, and Demolition and Land Reclamation Project of the former Berezovka and Bestau villages.

In late 2021, KPO completed the Drainage System Project around 100 houses and a school in Araltal. During the entire construction period, which took six months, KPO Community Relations Team engaged with Araltal residents on the project, informing the residents about the project, its design, construction progress and providing prompt responses to written and verbal requests and complaints with involvement of a contractor construction company to resolve the issues. Thanks to KPO's continuous communication with the residents during construction period, all their comments and requests were considered by the contractor. In total, KPO Community Relations team held 97 meetings with the Araltal residents to discuss and resolve issues related to the project during construction.

Productive cooperation of KPO with residents and local authorities of Burlin district has contributed to community issues being timely resolved and 94 complaints closed out, minimizing the risks of non-completing the work on schedule, and helping maintain trustful relationship with residents.

Overall, KPO's cooperation with local communities of Burlin District during implementation of various projects helps minimize the potential social and environmental risks associated with the Company's activities at the Karachaganak Field.

We will share the information on demolition and reclamation of former lands of Berezovka and Bestau villages in our next Sustainability Report.

PUBLIC HEARINGS GRI 102-44

Information about public hearings is communicated to the public through publications in regional and district newspapers, as well as through the Company's website. In view of the coronavirus pandemic in 2020 and 2021, public hearings have been held as a survey. KPO and local executive bodies have agreed to receive feedback from the population by submitting questionnaires, the forms of which are enclosed to the package of documents posted on the KPO website.

During 2021, with the support of the Burlin District authorities, KPO held four public hearings in the form of a survey on the four construction projects of various facilities, which included construction of field and technology pipelines, wells and land reclamation.

All the projects discussed at the public hearings in 2021 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](#)'.

CASE STUDY 1: GRI 102-44

ENVIRONMENTAL CLASSES FOR SCHOOLCHILDREN

CONTEXT / SHORT DESCRIPTION OF ISSUE:

To strengthen good-neighbor relations with local communities, KPO informs them of its activities in the area of environmental protection. In 2021, our target was to involve in the communication process some secondary school students from rural districts adjacent to the Karachaganak Field.

In November 2021, KPO employees carried out a number of extra-curricular classes on environmental topics for schoolchildren from the villages of Uspenovka, Zhanatalap, Priuralnoe and Zharsuat.



SOLUTION / ACTION:

The topics were selected with the aim of raising awareness of the youth about care to natural resources, "green thinking" concept, conscious consumption and eco-friendly behavior.

The classes were held in the form of a game with discussion of the issues related to global climate change, depletion of natural resources, and reduction of the environmental footprint made by people on Earth. The concept of waste avoidance implies for conscious consumption, refusal to use disposable plastic items. As an example of refusal from single-use plastic bags, all participants were given with fabric bags to carry their school shoes.

RESULT:

Development of environmental consciousness and behavior are to be embedded into mindsets of people at early age. Through such initiatives of introducing the new environmental value system for the youth, KPO contributes to social progress.



CASE STUDY 2: GRI 102-44

SUPPORT TO LOCAL SPECIALISTS' TRAINING

CONTEXT / SHORT DESCRIPTION OF ISSUE:

For several years, the local authorities of Burlin district have been raising the issue of the lack of qualified specialists in rural schools and hospitals. Considering this problem and in accordance with the national programme 'With Diploma to the Village', starting from 2010 KPO has been implementing a Scholarship Programme for school graduates from three rural districts adjacent to the Karachaganak Field – Uspenovskiy, Zharsuat and Priuralnyi.

The Programme is aimed at providing financial support to school graduates from socially vulnerable families living in rural areas in obtaining secondary specialized and higher education in the West Qazaqstani educational institutions, thus supporting the Burlin district getting qualified personnel in the field of education and healthcare.

SOLUTION / ACTION:

The Scholarship Programme was approved and supported by local authorities and Burlin Department of Education. It is implemented under the terms of a 4 – partite Agreement between a student, the Department of Education, the educational institution and KPO.

One of the participants of this programme was Aidanas Iskaliyeva from Uspenovka village. Aidanas was enrolled into the programme in 2013. After completing ninth grade, Aidanas entered the Faculty of preschool education and training at the Uralsk Humanitarian and Technical College.

Under the terms of the Scholarship Programme, KPO pays tuition and monthly scholarship fees that covers food, travel and accommodation expenses of students.

Having successfully graduated from college in 2017, that same year Aidanas got a job as an elementary school teacher in her village school in Uspenovka, where she has worked until 2019. Currently, Aidanas works as a teacher and a methodologist in

the Uspenovskiy kindergarten. She comments on her participation in the Scholarship Programme as follows: "I love children since my childhood and have dreamed of becoming an elementary school teacher. KPO gave me a unique opportunity to study and learn a profession I fancy. Working as a preschool teacher inspires me as it allows me to contribute to shaping the children's perspective and to preparing them for such an important stage as schooling. I am happy that I started my career in my school and I plan to continue living and working for the benefit of my village'.

RESULT:

In 2021, Aidanas took a second place in the West Qazaqstan regional competition for preschool teachers.

Currently there is an outflow of rural youth to the cities in search of jobs, the youth are looking for earnings in oil and gas industry. KPO Scholarship Programme provides opportunities for the young community members to get education and return to their village, where educated specialists are so highly demanded.

ENVIRONMENTAL IMPACT

04

74	Transition to carbon neutrality
75	Environmental Protection Measures Plan
78	Environmental compliance
80	Sanitary Protection Zone
81	Environmental monitoring
84	Air emissions
88	Energy efficiency
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97	Management of waste
103	Biodiversity

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 observing the common human right for a favourable environment, as specified in the current Environmental Code of the Republic of Qazaqstan.

The key environmental commitments of the Company's HSE Policy include the following significant impacts: **GRI 103-1, 103-2 (3-3)**

- ▶ prevention of the environmental pollution,
- ▶ reduction of GHG emissions,
- ▶ conservation of biodiversity and ecosystems,
- ▶ conservation of natural resources,
- ▶ continuous improvement of environmental performance.

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

The new Environmental Code of the Republic of Qazaqstan, which came into legal force on July 1, 2021, has brought many changes, including new approaches in environmental impact assessment, in obtaining an integrated environmental permit by the Operator, in introducing automated emission monitoring systems, application of the best available techniques allowing emissions fees' exemption, the waste management system improvement and more. In 2022, KPO has adopted an Action Plan to implement the requirements of the new Environmental Code in its environmental activities.

As the Operator of the Karachaganak field, in line with the new Eco Code, KPO bears environmental responsibility for the emissions of contractors involved in activities at the Field. During 2021, the Company has put a lot of efforts on accounting for contractor emissions for inclusion in the Environmental Impact permit, eventually received at the end of 2021. Going forward, we are reviewing the environmental control workflows of contractors whose emissions are included in the overall permit. **GRI 308-1**

”

During 2021, the Company has put a lot of efforts on accounting for contractor emissions for inclusion in the integrated emissions permit, eventually received at the end of 2021.

“

Why is it important to us?

The Company has identified the following environmental aspects, which in the process of operation, have or may have a material impact on the environment:

1. Air pollutants and GHG emissions;
2. Leaks of gas, condensate, hydrocarbons and chemical substances;
3. Industrial wastewater generation and disposal;
4. Waste generation and handling;
5. Illegal dumping and unauthorized waste disposal;
6. Domestic wastewater treatment and discharge;
7. Use of natural resources (water, energy, soil).

To reduce the risk levels for each of these aspects, KPO develops annual Environmental Protective Measures Plans. **GRI 103-1, 103-2 (3-3), 102-15**

TRANSITION TO CARBON NEUTRALITY

Addressing climate change is the biggest challenge that the world is facing today. The new Environmental Code of the Republic of Qazaqstan is aimed at stimulating the decarbonization of the country's economy and "green" development.

In its turn, KPO works toward contributing to decarbonisation of the economy of Qazaqstan. In late 2021, KPO management has declared the launch of a Project 365 targeting to achieve a number of ambitious goals covering three areas: diversification and revenue growth, cost base management and the "green" transformation.

In September 2021, KPO held a seminar solely on green transition with engagement of its Parent Companies. As a result, a vision for the decarbonization of the Karachaganak Field was devised, which is to become one of the world's biggest producers of hydrocarbons and energy with achieved carbon neutrality in scopes 1 and 2 by 2037. Furthermore, KPO has set a goal to develop a clear strategy of achieving carbon neutrality by end 2023 with definition of all interim steps for reducing GHG emissions.

REDUCTION OF GHG EMISSIONS GRI 305-5

In order to support the goal of reaching carbon neutrality (scopes 1 and 2) by 2037, the Company has initiated extensive work to study opportunities of reducing GHG emissions. In 2021, research studies were started to explore options, such as waste heat recovery, CO₂ capture and storage, renewable energy supplies, participation in carbon trading, enhancement of energy efficiency, and other. The activities are ongoing with plans for expansion in 2022.

” Addressing climate change is the biggest challenge that the world is facing today. “



Drawing by Danial Nuradin, 13 years old, winner of the contest «Energy Saving By the Eyes of Children», nomination "The Best Drawing in the age group from 12 to 17"

ENVIRONMENTAL PROTECTIVE MEASURES PLAN 2021

GRI 103-2 (3-3), 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 are focused 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 2021, KPO performed its production activities according to the obtained Environmental Emissions Permits and approved EPMPs. In 2021, nine Permits for each emission type were obtained for the Karachaganak Field facilities and the KPC-Bolshoi Chagan-Atyrau condensate export pipeline. The EPMPs were developed and approved for each of the Permits obtained.

In 2021, the total actual costs incurred for implementation of the environmental measures at the Karachaganak Field have amounted to KZT 5.97 bln, constituting 88% of the allocated funds from the planned while 96% of the scheduled work scope was performed. The 2021 target costs for the Field were KZT 6.8 bln. The slight variance between the planned and actual costs in 2021 was due to the more rational use of funds, as well as incomplete implementation of the planned scope of work for individual activities. For example, the costs for the relocation of two environmental monitoring stations was 47% less than it was planned; while the work was performed by 100%.

Tab. 26. KPO Environmental Protective Measures Plans for 2021 and Emissions Permits issued

No.	Environmental Protective Measures Plans approved for 2021	Valid Permits for 2021	Authority Agency that issued the permit
1	2021 KPO EPMP for the Karachaganak Field (KOGCF)	Environmental Emissions Permits (effective period: 01.01.2021 – 31.12.2021) for: 1. Air pollutant emissions; 2. Discharges of pollutants during the injection of wastewater into the aquifers of the KOGCF at Landfills No. 1, No. 2 with a validity period of 01.01 – 12.05.21; 3. Discharges of pollutants during the injection of wastewater into the aquifers of the KOGCF at Landfills No. 1, No. 2 with a validity period of 13.05 – 31.12.2021; 4. Wastewater discharge into Holding Ponds No. 1 and 2 at KCC of the KOGCF; 5. Production and consumption waste disposal.	Committee for Environmental Regulation and Control of the RoQ Ministry of Ecology, Geology and Natural Resources
2	2021–2030 KPO EPMP for the KPC-Bolshoi Chagan-Atyrau condensate export pipeline (WQO)	Environmental Emissions Permits in 2020 (effective period: 01.01.2021 – 31.12.2030) for: 1. Air pollutant emissions; 2. Pollutants discharged with wastewater.	WQO Akimat, WQO Department of Natural Resources and Nature Use Control
3	2021–2030 KPO EPMP (Atyrau Oblast)	Environmental Emissions Permit for: 1. Air pollutant emissions; 2. Pollutants discharged with wastewater.	Atyrau Oblast Akimat, Atyrau Oblast Department of Natural Resources and Nature Use Control

The 2021 KPO EPMP implementation by sections is shown in Table 27.

Tab. 27. Environmental Protective Measures Plan implementation in 2021 (%) GRI 102-44, 103-2 (3-3)

No.	Sections of Environmental Protective Measures Plan	KPO measures implementation:		
		- 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	97%	100%	100%
2	Conservation and rational use of water resources	83%	NA*	NA*
3	Land conservation	0% **	NA*	NA*
4	Subsoil conservation and rational use	93%	NA*	NA*
5	Flora and fauna conservation	100%	N/A*	100%
6	Management of production and consumption waste	141%	NA*	NA*
7	Radiation, biological and chemical safety	20%***	NA*	NA*
8	Introduction of management systems and best safe technologies	100%	NA*	NA*
9	Scientific researches and design-survey activities in environmental protection	100%	100%	100%
10	Environmental awareness and promotion	98%	100%	100%
TOTAL:		96% (KZT 5.97 bln)	100% (KZT 10.343 mln)	100% (KZT 10.984 mln)

* NA – measures are not applicable.

** The EPMP for 2021 did not include reclamation of a land plot for temporary camp of the KGDBN Project. Though, KPO management decided to further use this plot for the KPC technical needs. In this view, there was no need to cultivate this land in 2021.

*** The EPMP for 2021 provided for a radiological examination of production tubing after the workover of five wells. Owing to the reduction of a workover programme scope for 2021, radiation control was done for one batch of tubes.

Environmental benefits from the EPMP implementation are provided in Table 28.

Tab. 28. Environmental impact of the KPO environmental protection measures implemented in 2021

Air emissions	<ul style="list-style-type: none"> ▶ Use of a surface pump to transfer product with high gas volume fraction during the test of four wells has resulted in reduction of emissions by 2,571 tonnes versus the expected 194 tonnes; ▶ Use of high pressure separators during the test of one well has helped reduce air pollutant emissions by 223 tonnes versus the expected 4,559 tonnes, caused by the drilling programme cuts due to the pandemic; ▶ Use of hydrocarbon-based fluid for the reservoir stimulation (Lamix or Deisel) helped reduce air pollutant emissions by 16 tonnes versus the expected 259 tonnes, also caused by the drilling programme cuts due to the pandemic.
Waste and wastewater management	<ul style="list-style-type: none"> ▶ In 2021, 793 tonnes of non-recyclable production and consumption waste were disposed by high-temperature incineration, including residues received after segregation of solid municipal waste, food waste and epidemiologically hazardous waste (medical waste, dewatered sludge from silt areas); ▶ Useful components recovered from the total municipal waste delivered for segregation to be further transferred to specialized companies for recycling and (or) reuse: <ul style="list-style-type: none"> ▶ waste paper – 103 tonnes, ▶ plastics – 221 tonnes, ▶ scrap metal – 8 tonnes, ▶ waste glass (crushed glass) – 6 tonnes. ▶ Volume of treated liquid waste amounted to 6,110 tonnes. ▶ Volume of reused treated wastewater for technical and production needs at the Karachaganak Field amounted to 31,699 m³. Volume of technical water consumed from the Konchubai Gully made 313,714 m³. Thus, the volume of the reused treated water from the volume of technical water consumed from the Konchubai Gully amounted to 10.1% against the planned 10%. Due to the reduction of work on the drilling program, less treated wastewater for drilling needs was used. Major volume of treated wastewater was used during the warm season for dust suppression at construction sites and for the KPC technical needs.
Land reclamation GRI 304-3	<ul style="list-style-type: none"> ▶ In 2021, the 7.4 ha of the KGDBN Project planned for reclamation was decided to be further used for the KPC technical needs during shutdown.

ELECTRONIC ENVIRONMENTAL ASPECTS MANAGEMENT SYSTEM

In 2020, as part of the Digitization Roadmap, in order to minimize paper-intensive processes and optimization, KPO has developed an electronic register for managing environmental aspects EnvAR. The developed system is a convenient tool for managing the environmental aspects, and has greatly facilitated the process of their identification. The list of aspects is presented earlier in this chapter.

Starting from the IV quarter of 2020, 24 KPO divisions have completely switched to working with environmental aspects in the electronic system. For each environmental aspect, control measures were developed, risk assessment was carried out, and a Consolidated Register of the most significant environmental aspects was compiled. Each environmental aspect is negotiated with the registry owner. Registers of Environmental Aspects are reviewed annually.

At the end of 2021, all divisions reviewed and updated their environmental aspects' registers. For all significant environmental aspects, additional measures have been proposed, the implementation of which is expected to reduce the levels of risks.

The EnvAr electronic system's read mode is available to every employee of the Company. KPO employees can obtain information on departmental environmental aspects, including the most material, and about the environmental control measures implemented at the Company.

SANITARY PROTECTION ZONE

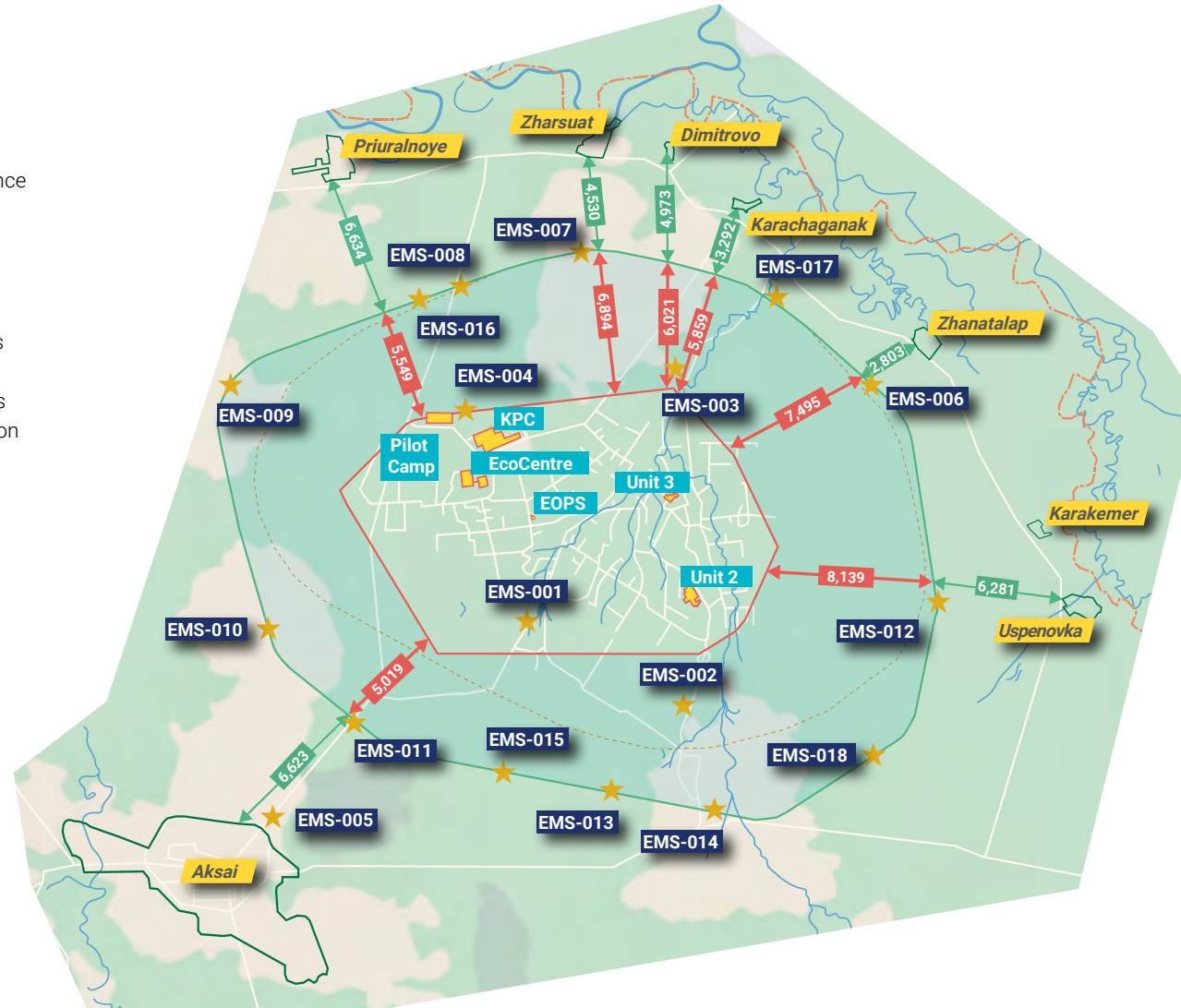
New estimated Sanitary Protection Zone (SPZ) established within the Karachaganak field has been effective from 1st January 2018.

During 2018–2021, KPO has successfully completed the relocation of eleven of the existing eighteen air environmental monitoring stations. The relocation of these stations was scheduled due to the change of Sanitary Protection Zone to ensure correct performance of the continuous air monitoring and to comply with the RoQ legal requirements.

As part of the project “Development and upgrade of the Estimated Sanitary Protection Zone in the Karachaganak Field”, KPO contemplates activities for planting new trees and caring for existing tree-planting. Additionally, to inform the local communities and personnel, KPO provides installation of information signs at the SPZ boundary.

- ★ Automatic Environmental Monitoring Stations (EMS)
- ↔ Distance between line of boundary sources and sanitary protection zone
- ↔ Distance from Designed-based sanitary-protection zone to Settlements
- State boundary
- Line of the outermost sources
- Designed based Sanitary Protection Zone (effective from 1st January 2018)
- Sanitary Protection Zone (till 2018 year)
- KPO Production Units
- Settlements
- Roads

Fig. 11. Map of the Karachaganak field with SPZ marked, as of end 2021



In order to protect historical and cultural heritage sites from potential negative impact, the project also provides for the installation of appropriate signs at the boundaries of the protected heritage sites. Earlier, in 2019, KPO organized the large-scale archaeological research on this topic (see the details in the [KPO Sustainability Report 2019](#), pp. 85-88).

In 2021, as part of this project, the Company performed the following activities:

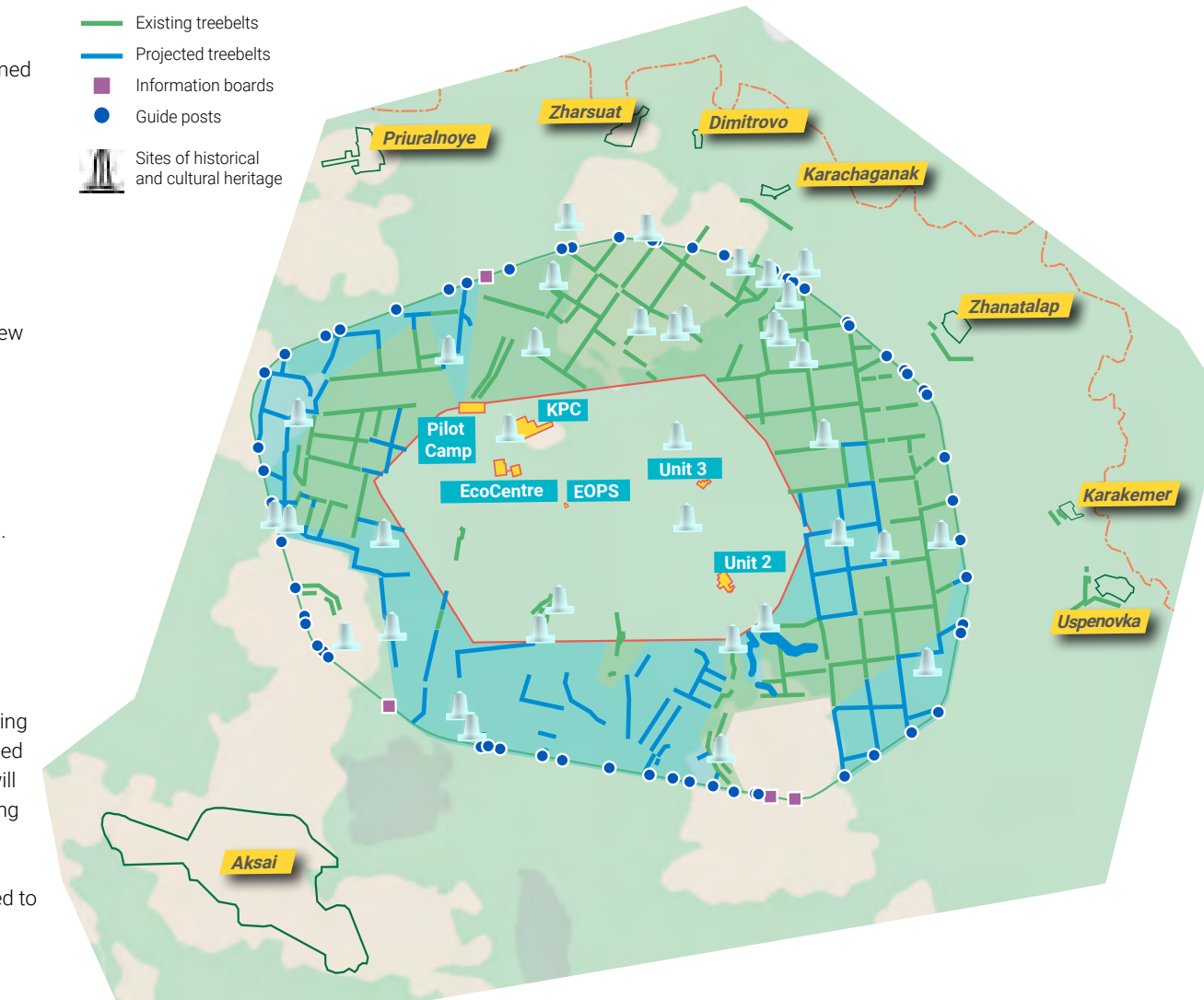
- ▶ the full-scale inventory of all KPO tree-plantings within the Karachaganak Field and its SPZ was carried out;
- ▶ the sites were determined and the maintenance measures for the existing planted forest were suggested;
- ▶ the field-based survey was carried out and the new forestation was planned;
- ▶ SPZ demarcation was planned;
- ▶ suggestions for installing information boards at the boundaries of the protected historical and cultural heritage sites were developed;
- ▶ key project performance indicators were defined.

In 2022, completion of the third and final stage of the SPZ improvement project is scheduled – development of the detailed design documentation ‘The first landscaping phase and demarcation of the estimated SPZ’. The overall timeline of the entire project implementation includes the period from spring 2023 down to 2028. The total area of the sites planned for green construction for the entire project period will be 249 ha, of which 151 ha are covered by the existing plants, and 97.25 ha – the new ones. Construction of capital facilities in the process of project implementation is not foreseen. The work is expected to be carried out by a contractor.

Approvals on the project will engage all stakeholders: state authorities, economic organizations and agricultural producers.

Fig. 12. Key design solutions of the development and upgrade of the estimated SPZ of Karachaganak Project for 2023 – 2028

- Existing treebelts
- Projected treebelts
- Information boards
- Guide posts
- Sites of historical and cultural heritage



ENVIRONMENTAL COMPLIANCE

ENVIRONMENTAL FINES

GRI 307-1 (2-27)

KPO runs its business in accordance with the environmental legislation of the Republic of Qazaqstan (RoQ). KPO annually requests and obtains an Environmental Impact 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 2021, KPO did not exceed overall limits of emissions set in the Environmental Impact Permits. Further to the findings of the environmental inspections held during the reporting period, the Company was not held administratively liable. No environmental civil lawsuits were filed in 2021 either.

IMPLEMENTATION OF THE NEW ENVIRONMENTAL CODE

GRI 102-44

In 2021, as part of the efforts over the new Environmental Code by the Company's employees, critical production issues were resolved on the legislative level, such as:

- ▶ Obtaining new environmental impact permit for 2022;
- ▶ Activities related to the Plan of implementation of the requirements of the new RoQ Environmental Code;
- ▶ Analysis of the provisions of over 90 new RoQ subordinate laws in environment protection and informing the Company employees about the main

environmental requirements through online workshops on the "New RoQ Environmental Code";

- ▶ Participation in development of the new environmental requirements and submission of comments and proposals for over 120 reviewed draft regulatory acts and subordinate laws of the Republic of Qazaqstan in environment protection by KPO environmental specialists as members of the working groups under the Ministry of Environmental Protection, Geology and Natural Resources and Association of organizations of oil and gas and energy complex "KAZENERGY".

ENVIRONMENTAL MONITORING

GRI 103-2 (3-3), 413-1

KPO implements a number of environmental programmes, which cover all areas of its production activities. One of the key programmes 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 activities on the environment;
- ▶ minimizing the impact on the environment and human health;
- ▶ rapid and proactive response to emergencies;
- ▶ communication with stakeholders: local communities, state regulatory authorities, partner companies, about the environmental activities of the Company and risks for human health.

As part of the PEC Programme, the environmental emissions such as air emissions, wastewater discharge, waste treatment, accumulation and disposal, and the quality of environmental components such as air, surface and ground water, and soil are monitored.

The PEC monitoring of the quality of soils, surface and ground water in 2021 has demonstrated that concentrations of target substances were on a par with those observed in previous years. No the KOGCF operation negative impact on the environment components was identified.

Also, KPO regularly monitors the production environmental control over the environmental condition at the field waste disposal facilities. In 2021, as a result of monitoring of ground water and soil at the Eco Centre's Solid Industrial Waste Burial Landfill and the Temporary Liquid Drilling Waste Storage Site, as well as in checks 35A and 35B, no direct negative impact on the environmental protection components is noted. Quantitative control over the movement of waste is carried out in order to take into account the volume of burial, as well as the volumes and time of waste accumulation.

Air quality is monitored 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 the sanitary and hygienic limits, i.e. maximum permissible concentrations (MPC). To identify the level of air pollution, the recorded concentrations of monitored components are compared with MPC and quantified in fractions.

In 2021, as part of the PEC Programme, the laboratory took more than 100 thousand samples, about 115 thousand laboratory analyses and approximately 28 thousand measurements were completed.

The Company pays particular attention to protection of air quality across the Karachaganak Field, at the SPZ boundaries and the settlements adjacent to the Field.

AIR MONITORING BY AUTOMATIC ENVIRONMENTAL MONITORING STATIONS

GRI 413-1

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

Four out of 18 EMSs are located at the field and within the SPZ. The stations 005 – 018 were relocated to new spots in accordance with the Project for EMS relocation to the boundary of the new estimated SPZ, which was completed in December 2021. As of end 2021, there are 13 EMSs located at the estimated SPZ boundary: 006 – 018; the EMS 005 was relocated to a site near Aksai.

Annual average concentrations of the monitored components recorded by EMSs in 2021 at the KOGCF SPZ boundary are shown in Table 29. The column "Actual annual average concentration" shows the minimum and maximum annual average concentrations of the monitored components recorded by each EMS.

Tab. 29. Annual average concentrations of the monitored components recorded by EMS in 2021

Monitored components	Actual annual average concentration, mg/m ³	MPC one-time ⁶ , mg/m ³	Exceedance of MPC one-time*
H ₂ S	0 – 0.001	0.008	no
SO ₂	0.002 – 0.005	0.5	no
NO ₂	0.002 – 0.006	0.2	no
CO	0.1 – 0.2	5.0	no

* Criteria of air quality assessment at the SPZ boundary is MPC one-time. EMS are configured to give a signal when the MPC one-time is exceeded.

All the EMSs take measurements of the four main pollutants (H₂S, SO₂, NO₂, CO) on a continuous basis, i.e. 24/7.

According to the data received from EMSs in 2021, the actual daily, monthly, quarterly and annual average concentrations of the monitored components did not exceed the established sanitary and hygienic limits. However, on 31st August 2021, the EMS-016 recorded MPC one-time exceedance for hydrogen sulphide measured within a short period of 20 minutes. Pursuant to the requirement of the RoQ Environmental Code (Sub-item 6 Item 1 Article 130), the Company sent a notification regarding the exceedance recorded at EMS-016 to the WQO Environmental Department.

It should be noted that no connection was found between the exceedance shown in Table 30 and

the KPO field operations. The review of the KPO field operations, taking into account the meteorological parameters at the time of the MPC one-time exceedance, has shown that all production facilities were in normal operation with no flaring events, no equipment failures or emergencies recorded.

Based on weather conditions at the time of recording NW wind was registered whereby the KPO field operations could not have affected the atmospheric air in the area of EMS-016 (from EMS-016 towards the field). No gas odour complaints from the local communities adjacent to the KOGCF were raised on the date the MPC exceedances were recorded.

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

Tab. 30. One-time MPC exceedances recorded by EMS in 2021

EMS No.	Monitored components	Actual one-time concentrations recorded in 2021, mg/m ³	MPC one-time, mg/m ³	Frequency ratio of MPC one-time exceedance	Number of exceedances
EMS-016	H ₂ S	0.010	0.008	1.25	1

⁶ 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 (holding of breath, irritation of eyes, upper respiratory tract, etc.) in case of 20-30 min of inhalation.

ATMOSPHERIC AIR MONITORING IN THE VILLAGES ADJACENT TO THE KARACHAGANAK FIELD GRI 413-1

There are stationary air monitoring posts in six settlements located along the perimeter of the field – Zharsuat, Zhanatalap, Dimitrovo, Karachaganak, Priuralnoye, Uspenovka, and in Aksai town. The 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 contracting laboratory, who reside in the specified villages. Approximately 52,000 air samples were collected and analyzed at the stationary posts in 2021.

Air samples are chemically tested in the laboratory in Aksai 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 oxide/monoxide (CO), and methyl mercaptan (CH₃SH). In addition, every 10 days the air is monitored for the 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, as well as published on the KPO web-site on a monthly basis. If any gas odour complaint is raised by someone of the community, an unscheduled air sampling is performed at the stationary posts.

In 2021, no MPC exceedances were recorded for the daily average concentrations of the monitored air components in the villages.

In 2021, three complaints with respect to gas odour were raised by the village communities adjacent to the Karachaganak Field. The unscheduled air sampling was carried out in the villages, the analysis results of which indicated that the concentrations of the monitored components did not exceed the established MPC one-time. Each complaint from an initiator with respect to gas odour was addressed.

The annual average concentrations of the monitored air components in the seven villages in 2021 are shown in Table 31. The column “Actual annual average concentration” shows the minimum and maximum annual average concentrations of the monitored components. Criterion for assessing air quality in settlements is MPC daily average.

Tab. 31. Annual average concentrations of the monitored air components in the villages adjacent to the KOGCF in 2021 GRI 413-1

Monitored components	Actual annual average concentration, mg/m ³	MPC daily average ⁷ , mg/m ³	Exceedance of MPC daily average
H ₂ S	0.001 – 0.002	0.008**	no
SO ₂	0.003	0.05	no
NO ₂	0.022 – 0.025	0.04	no
CO	0.428 – 0.432	3.0	no
C ₆ H ₆	0.173 – 0.188	0.3**	no
C ₇ H ₈	below MDL*	0.6**	no
C ₈ H ₁₀	below MDL*	0.2**	no
CH ₃ SH	Not detected	0.006**	no

* Measurements recorded were below the method's minimal detection limit (MDL). MDLs for the monitored components: C₆H₆ – 0.14 mg/m³; C₇H₈ – 0.14 mg/m³.

** MPC one-time. MPC daily average for hydrogen sulphide and methyl mercaptan 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.

⁷ 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).



Fixed Environmental Monitoring Station

Why is it important to us?

Activity of such industrial enterprises as KPO is always associated with air emissions. Emissions of harmful substances into the air leads to environmental disorder. In this regard, KPO's goal is to reduce the negative effect of its activities.

In 2021, the Company continued testing new methods to reduce hydrocarbon flaring during well development. In the result of testing a technology with a high-pressure separator in combination with high flow pumps applied on the four wells in 2020 (3 wells) and 2021 (1 well), a reduction of emissions by ~24 thousand tons of CO₂-equivalent and additional production of ~53 thousand barrels was achieved.

GRI 102-15, 103-1 (3-3), 305-5

AIR EMISSIONS

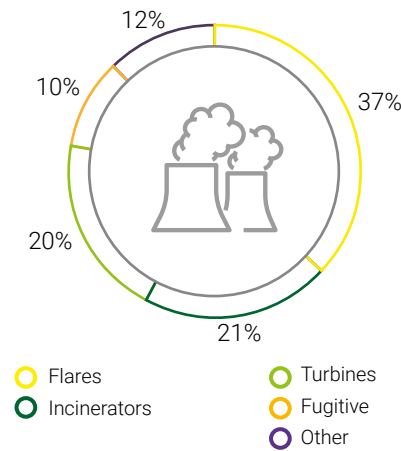
KPO manages air pollutant emissions based on the limits established in the Environmental Impact Permit.

The main volume of emissions is generated as a result of gas combustion in flares (37%), incinerators (21%), gas turbine units (20%), boilers, process heaters and compressors (12%), as well as from fugitive sources (10%) as shown in Graph 17.

Regulation of direct greenhouse gas (GHG) emissions in KPO is carried within the framework of the current national emissions trading system.

In 2021, total air emissions decreased by 37% compared to 2020 and amounted to 4,798 tons. The reduction in emissions is mainly due to the absence of well operations in 2021, accompanied by hydrocarbons well flaring.

Graph 17. Pollutant emissions in KPO by main air pollution sources, in 2021



Tab. 32. Targets in managing emissions GRI 103-2 (3-3)

Our 2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
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 the throughput losses do not exceed 3.82%	Completed	Throughput losses amounted to 3.54%.	
	New targets		Develop and pass verification/validation of regulatory and technical documentation to obtain a quota for 2022–2025 GHG emissions Obtain a quota for GHG emissions for 2022–2025

Table 33 shows data on the permissible and actual KPO emissions for the period of 2019 – 2021.

Tab. 33. Permitted and actual volumes of pollutant emissions, 2019–2021 GRI 305-7

Annual volume of emissions by pollutants, in tonnes:	2021	2020	2019
Permitted:	13,219	17,527	18,544
Actual, including:	4,798	7,591	7,597
Nitrogen oxides	1,197	1,637	1,636
Sulphur dioxide	1,989	3,315	3,281
Carbon monoxide	1,039	1,145	1,205
Volatile organic compounds	452	1,352	1,329
H ₂ S	3	3	3
Solid particles	71	74	80
Other	47	65	63

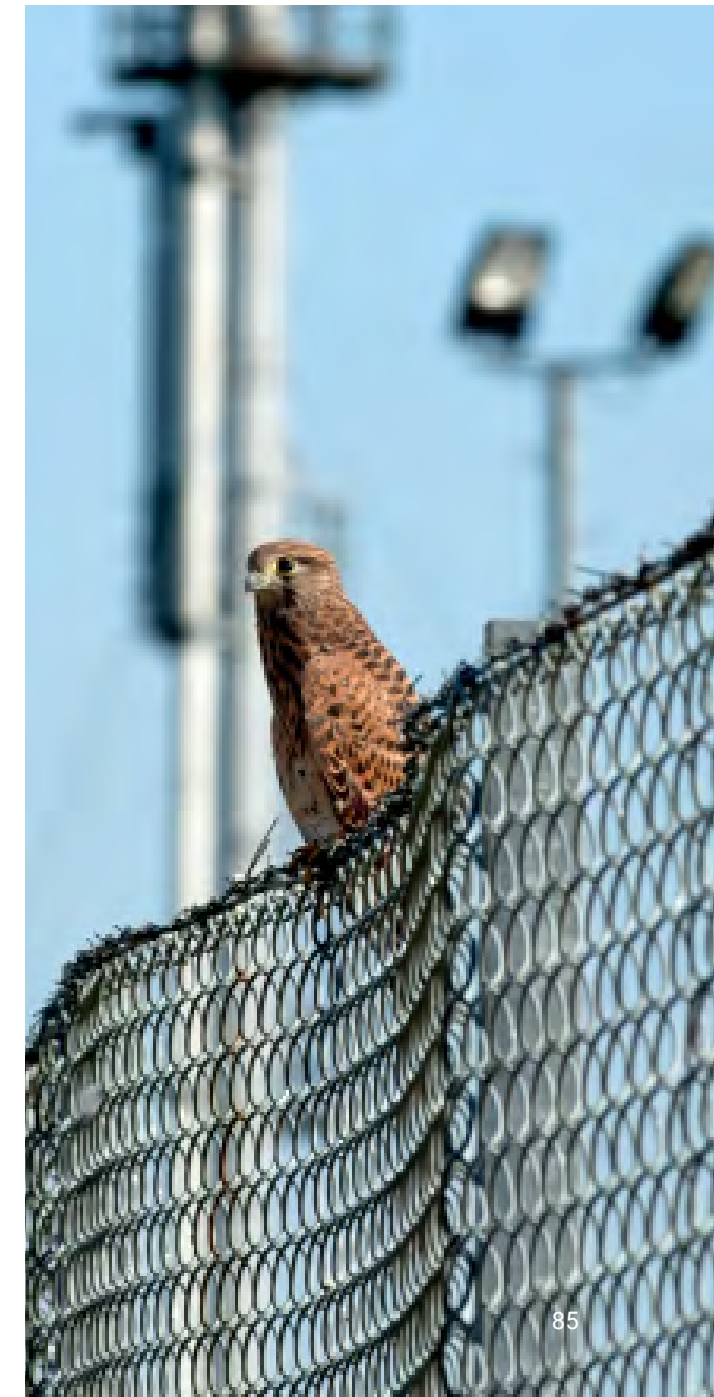
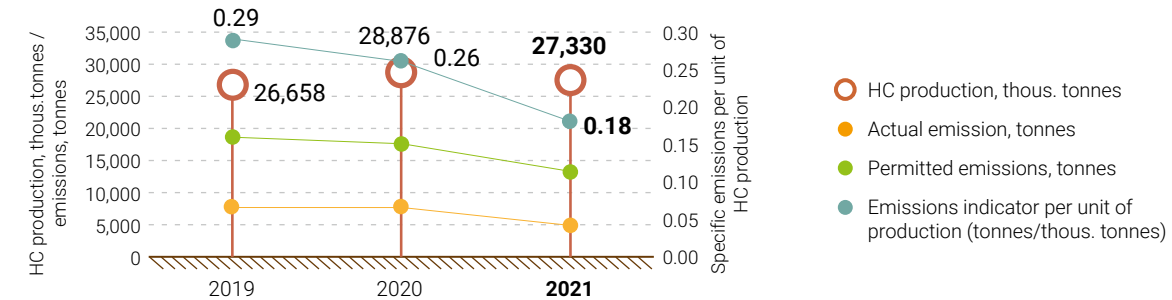
Note: Emission volumes data are provided in accordance with the data of statistical report «2-TP Air».

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

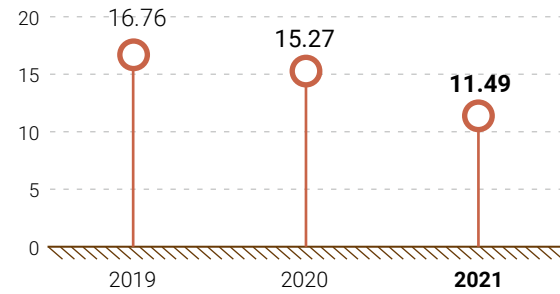
In 2021, the specific emissions per unit of production amounted to 0.18 tonnes per 1,000 tonne of hydrocarbons (HC) produced. Reduction in specific

emissions in 2021 versus 2020 is attributed to reduction of total emissions, due to the lack of work on wells followed by hydrocarbon combustion, as well as a shorter operating time of equipment that makes the main contribution to gross emissions.

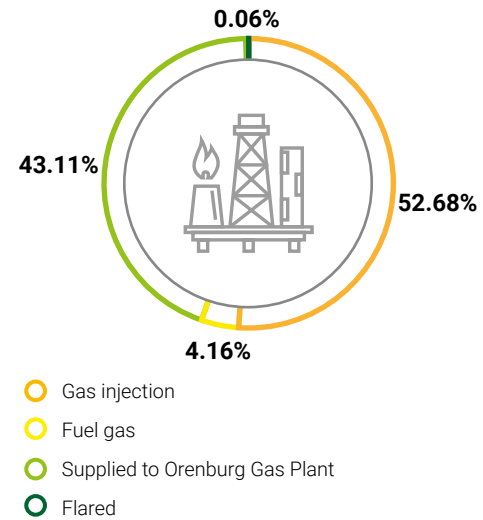
Graph. 18. Hydrocarbons production and environmental emissions in 2019–2021



Graph 19. Volume of associated gas flared, 2019–2021 (mln m³)



Graph 20. Gas utilization and flaring in 2021



GAS FLARING OG-6

In 2021, the total amount of flared gas was 0.06% (0.08% in 2020) of the total volume of gas produced or 0.38 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 8.0 tonnes per one thousand tonnes and European average rate of 2.4 tonnes per one thousand tonnes⁸, as follows from the IOGP 2020's Report. Reduction in gas flaring volumes in 2021 versus 2020 was due to the absence of well operations associated with hydrocarbon flaring and full shutdown.

GAS UTILIZATION OG-6

In 2021, KPO's gas utilization rate reached 99.94% (99.92% in 2020). The performance target approved by the RoQ Authority under the 2021 Associated Gas Processing Development Programme was 99.69%.

In 2021, KPO's gas utilization rate reached

99.94%

⁸ Data source: Annual reports of the International Association of Oil and Gas Producers (IOGP) – 'Environmental Performance Indicators – 2020 Data'.

DIRECT GREENHOUSE GAS EMISSIONS

GRI 305-1, 305-7

Direct greenhouse gas (GHG) emissions are regulated across KPO in line with the national quotas trading system. KPO has obtained quotas for the 2021 GHG emissions (CO₂) in the amount of 2,369,945 tonnes on the basis of specific emissions indicators (benchmark). In 2021, actual emissions amounted to 1,727,683 tonnes of CO₂, which made 73% of the quota.

Assessment of GHG emissions is performed for carbon dioxide (CO₂), methane (CH₄) and nitrogen oxide (N₂O), using the calculation method based on 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 **1,745,768** tonnes in CO₂-equivalent, of which CO₂ contribution equalled to 1,727,683 tonnes of CO₂-equivalent (99%), CH₄ – 9,586 tonnes of CO₂-equivalent (0.5%), N₂O – 8,499 tonnes of CO₂-equivalent (0.5%).

Information on the dynamics of generated GHG emissions is provided in Table 34. In 2021, minor reduction in GHG emissions (by 4%) versus 2020 is attributed to a decrease in hydrocarbon production capacity in the reporting year.

Tab. 34. Dynamics of GHG emissions generated from KPO production activities, 2019–2021

Total volume of greenhouse gas emissions (tonnes of CO ₂ equivalent)					
From fuel combustion at stationary sources	From fuel combustion at flares and incinerators	Fugitive emissions*	Total GHG emissions in 2021	Total GHG emissions in 2020	Total GHG emissions in 2019
1,602,469	136,211	7,088	1,745,768	1,821,604	1,870,324

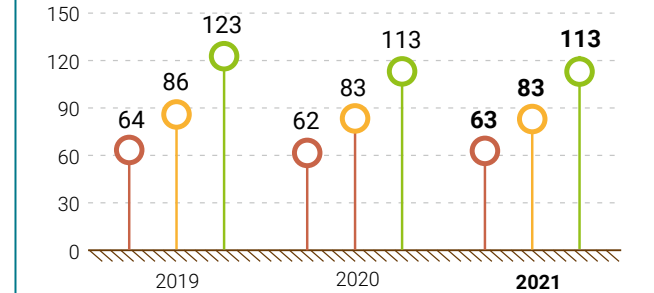
* Considering the use of internal calculation methodology for fugitive GHG emissions approved for use for the purposes of inventory by the RoQ Ministry of Environment, Geology and Natural Resources. The volume of fugitive GHG emissions in 2021 calculated by the methodology applied at the GHG emissions inventory for 2018–2019 made up 151,916 of CO₂-equivalent.

SPECIFIC GREENHOUSE GAS EMISSIONS GRI 305-4

In 2021, KPO specific GHG emissions amounted to 63 tonnes of CO₂ per thousand tonnes of produced hydrocarbons, which is 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 44% lower than the international ones.

Graph. 21. Dynamics of specific GHG emissions per unit of produced hydrocarbons (HC)*, 2019 – 2020



○ KPO data – tonnes of CO₂/ thousand tonnes of produced HC
 ○ IOGP data – tonnes of CO₂/ thousand tonnes of produced HC (European index)
 ○ IOGP data – tonnes of CO₂/ thousand tonnes of produced HC (International index)

*The data was sourced by Annual report of the International Associations of Oil and Gas Producers (IOGP) – 'Environmental Performance Indicators – 2020 data'. The 2020 data was used for comparison purpose in 2021, as the 2021 IOGP Report was not available at the time this issue was prepared.



Why is it important to us?

To ensure production of hydrocarbons while making the transition to low-carbon technologies is one of the challenges faced by KPO.

Our targets include implementation of energy efficiency measures and their evaluation, covering best available technologies, energy-saving equipment, and eco-friendly materials. **GRI 102-15, 103-1 (3-3)**

ENERGY EFFICIENCY

As part of the energy efficiency activities, KPO conducts energy analysis and energy efficiency monitoring. Based on the analysis results, KPO energy intensity has been relatively stable in the period of 2014–2020 with 1-2% variation. In 2021, there was an increase in KPO energy intensity by 6.5% compared to 2014, which is associated with a decrease in hydrocarbon production due to limited gas supplies to the Orenburg Gas Processing plant and shutdowns at Unit 2.

The benchmarking has shown that KPO's energy intensity is below the average indicator of

the companies reporting to IOGP. The results of this analysis have shaped the basis for defining our energy policy, goals and objectives, and measures for energy saving and efficiency improvement of the Company. **GRI 3-3**

In order to minimize energy efficiency risks and impact of the Company, we have set a number of targets. The results of their implementation are presented further in the text.



Tab. 35. Targets in energy efficiency GRI 103-2 (3-3)

Our 2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
Complete the energy audit and develop a five-year energy saving and energy efficiency improvement action plan	Partially completed	Energy audit completed. A draft five-year energy saving and energy efficiency improvement action plan has been prepared.	Conduct an annual energy analysis of the Company and continue monitoring energy efficiency indicators for equipment/processes that have a material impact on KPO's energy intensity
Conduct a surveillance audit of the Energy Management System for compliance with the ISO 50001:2018 standard	Completed	A surveillance audit of the Energy Management System against the ISO 50001:2018 standard was successfully conducted in August 2021.	Conduct a surveillance audit of the Energy Management System against the ISO 50001:2018 standard

ENERGY MANAGEMENT SYSTEM **GRI 103-2, 103-3 (3-3)**

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 2021, KPO has successfully conducted a certification audit against the ISO 50001:2018 standard. Following the audit, the KPO Energy Management System was recognized as corresponding to the international standards.

ENERGY CONSUMPTION **GRI 302-1**

In accordance with the energy saving and energy efficiency legislation requirements, KPO conducts a mandatory energy audit every five years.

The targets of an energy audit is to assess the Company's efficiency in using fuel and energy resources and to develop measures ensuring rational energy consumption and increasing energy efficiency.

In 2021, a mandatory energy audit was completed at KPO by a specialized company in line with which, the overall KPO's energy saving and energy efficiency

activities were rated as 'excellent'. Also, energy efficiency improvement measures were proposed, featuring economic feasibility and practical application. One of the measures was the installation of a waste heat boiler at the gas turbine power plant is scheduled to include in the Energy Saving and Energy Efficiency Action Plan for 2022–2025.

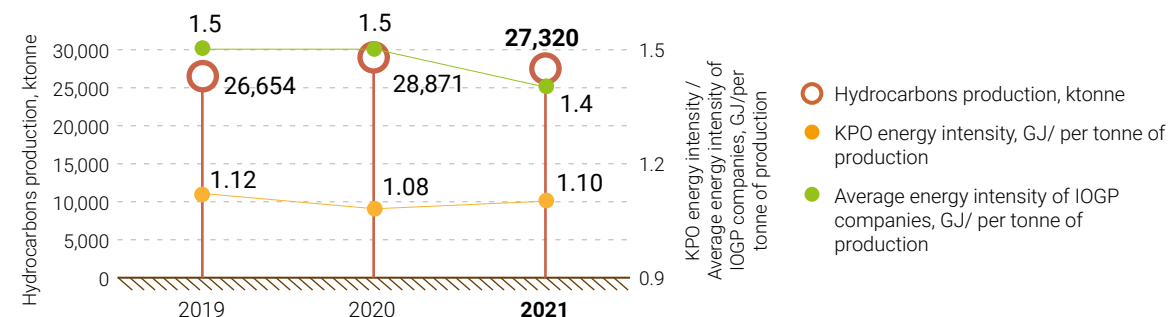
In 2021, the energy consumption totalled 1,029,538 tonnes of coal equivalent compared to 1,067,135 tonnes of coal equivalent in 2020. The decrease in energy consumption is related to the repair works on gas turbine generators. Table 36 shows energy consumption volumes broken down by energy type.

Tab. 36. KPO energy consumption in 2019 – 2021 GRI 302-1

Type of energy	Unit of meas.	Energy consumption, physical units			Energy consumption, tonnes of coal equivalent			Energy consumption, GJ		
		2021	2020	2019	2021	2020	2019	2021	2020	2019
Fuel gas	Thous.m ³	832,863	863,029	826,806	1,026,088	1,063,251	1,018,625	30,074,639	31,163,893	29,855,886
Electric power (purchased)	MW/h	6,710	6,236	7,244	825	767	891	24,181	22,482	26,115
Diesel fuel	m ³	705	1,188	739	888	1,498	932	26,027	43,905	27,468
Gasoline	m ³	228	199	226	251	220	249	7,357	6,439	7,301
Heating (in rented offices)	Gcal	10,388	9,781	8,731	1,486	1,399	1,249	43,555	40,994	36,595
TOTAL					1,029,538	1,067,135	1,021,946	30,175,759	31,277,713	29,953,365

In 2021, the energy intensity indicator was 1.10 GJ /tonnes of hydrocarbons, which was below the average energy intensity indicator of the companies that submitted their reports to the IOGP⁹ (1.4).

Graph 22. Dynamics of energy intensity, 2019 – 2021 GRI 302-3



ENERGY SAVING ACTIVITIES

Pursuant to the approved Energy Saving and Energy Efficiency Improvement Action Plan, KPO took the following actions in 2021:

- ▶ The activities on replacement of traditional lamps with LEDs bulbs at production and ancillary facilities were continued. In 2021, 4,917 lamps were replaced at the Company’s facilities. Estimated economy of energy consumption from the traditional lamps replacement was about 754,600 KW/h. In the period of 2019 – 2021, 10,385 lamps were replaced and around 1,271,230 KW/h saved.
- ▶ Enhancement of fuel gas accounting continued including:
 - ▶ installation of an ultrasonic flow meter at KPC section 5-340 – planned for III quarter of 2022;
 - ▶ installation of the metering device on the gas turbine of the re-injection compressors.
- ▶ Training sessions were held for Production Department’s employees on the energy management system ISO 50001:2018.

⁹ Data source: Annual reports of the International Association of Oil and Gas Producers (IOGP) – ‘Environmental Performance Indicators – 2020 Data’.



In December 2021 KPO became the winner of the II Republican Contest ‘Green Office 2021’ in nomination for industrial organisations

CASE STUDY 3: GRI 102-44

KPO ‘GREEN’ OFFICE

CONTEXT / SHORT DESCRIPTION:

In 2021, KPO continued its activities on implementation of the ‘green’ office principles. The implementation of the ‘green’ principles contributes to maintaining and improving environmental culture, raising awareness of employees of the importance of the environmental issues and conscious care for the environment.

Besides, the ‘green’ office concept motivates employees to participate in volunteer projects and development of eco-friendly behavior.

GOAL:

The targets of the ‘Green office 2021’ programme are:

- ▶ reducing the environmental footprint of the Company’s offices,
- ▶ promotion of environment related ideas, and
- ▶ increasing loyalty of employees to implementation of ‘green’ technologies and practices.

SOLUTIONS / ACTIONS:

In 2021, the target group for the pilot project ‘KPO Green office’ included Uralsk Kurmangazy office and Karachaganak Business Centre in Aksai. In these offices separate collection of plastic waste was put into practice followed by handover for recycling.

The project was launched by conduction of training and building a team of eco-volunteers. Over 200 KPO employees attended the eco-training in 2021, which included:

- ▶ Training modules of the ‘green’ office programme for eco-volunteers who, in their turn, shared the obtained knowledge with their colleagues.
- ▶ Eco-breaks for discussion of important issues on reduction of the ecological footprint in the offices and contribution of each employee into creation of eco-friendly office.
- ▶ Environmental seminars on ‘Management of material losses through waste management, or beneficial eco-friendly habits’ with Damir Karimov – motivational speaker, environmental and healthy lifestyle coach. As a result of the seminar, many of the employees expressed their wish to become eco-volunteers in their departments.

The following indicators were selected for monitoring environmental performance of the offices:

- ▶ Electricity consumption (kW);
- ▶ Cold water consumption (m³);
- ▶ Quantity of plastic waste generated (kg);
- ▶ Quantity of waste paper (kg);
- ▶ Quantity of used plastic tableware (pcs).

RESULTS:

In December 2021, KPO has won the Second Republican Contest ‘Green office 2021’ in the nomination for industrial companies.

The ‘Green office 2021’ contest was held upon an initiative of the Coalition for ‘green’ Economy and G-Global development with the support of the Ministry of Environment, Geology and Natural Resources of the Republic of Qazaqstan and the OSCE Programme office. Objectives of the contest are promotion of eco-friendly life style, “green” and low-carbon technologies, improvement of environmental behavior in life, extension of best practices and technology solutions, as well as assistance in arrangement of comfortable labour conditions for creating respect to the environment. Over 100 organizations took part in this contest.

In 2022, the ‘green’ office activities will be continued in other KPO offices.

Above all, the ‘Green office’ project is not only a popular social trend, but a need to reduce negative impact on the environment by people and organizations.

Why is it important to us?

Excessive and irrational water consumption may lead to impacts associated with the depletion of water resources and water shortage for industrial and economic needs, deterioration of aquatic ecosystems and water bodies becoming increasingly incapable of natural reproduction and purification.

The Company's target is to use water resources rationally in order to preserve them. KPO controls the use of clean water within the Company by undertaking a set of measures for conservation of water resources and maximum re-use of treated water, wherever possible. **GRI 102-15, 103-1 (3-3)**

WATER USE AND DISPOSAL **GRI 303-1**

Protection and rational use of water resources is a priority task faced both by the humanity and our Company. Water is the source of life and a valuable industrial raw material.

The results of our work to minimize the risks of the Company's production impact on the use of water resources are presented below.

Tab. 37. Targets in managing effluents **GRI 103-2 (3-3)**

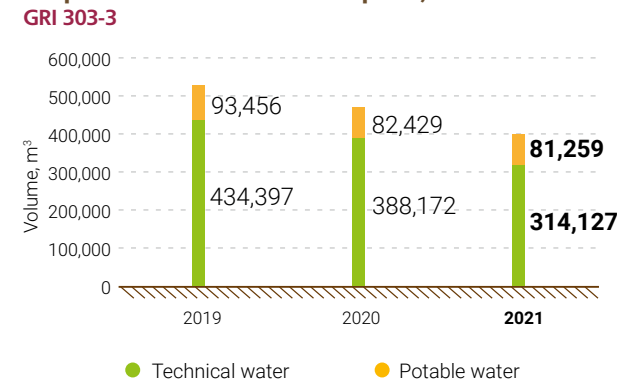


Our 2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
Complete exploration activities under the Project for geological exploration works on the follow-up exploration of the site at the Industrial Wastewater Polygon № 2	Completed	All pre-exploration geological and hydrogeological works were carried out at the site of Polygon № 2, which allowed proving the reservoir capacity to accept increased volumes of industrial waste water. Main long-term solutions for injecting wastewater were presented to the Authorised body on environmental protection to which a conclusion requiring an environmental impact assessment was issued.	Carry out development of Annex № 3 to the industrial waste water injection project.

In 2021, the total KPO water consumption was 395,386 m³, of which technical water made up 314,127 m³, and potable water – 81,259 m³. **GRI 303-3, 303-5**

In 2021, the volume of water used by KPO for production needs was 16% lower than in 2020. The domestic needs' water consumption was lower too versus 2020. The reduction of water consumption was related to the drilling scope cut, better control over water losses during transportation, measures to optimize water consumption due to a decrease in the water level in holding pond № 1 at the Konchubai Gully, secondary use for technical needs of treated wastewater from storage ponds, rainwater and meltwater from lagoons and groundwater from wells.

Graph 23. KPO water consumption, 2019 – 2021 **GRI 303-3**



The main source of water supply for production needs in the Karachaganak field is the holding pond № 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.

Konchubai Gully is not part of the list of fishery waters based on the WQO Administration Resolution dated 22.12.2014 (№ 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 'Zhayk-Caspian Basin Inspectorate for Water Resources Management and Conservation of Water Resources Committee of the RoQ Ministry of Environmental Protection, Geology & Natural Resources'. 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 operating procedure for safe operation and maintenance of the holding pond's hydraulic structures.

In 2021, the combination of prolonged dry periods and little snow floods observed in the region has led to a critical decrease in the water level in holding pond

№ 1. In this regard, during 2021, KPO carried out a number of activities allowing optimization of technical water consumption and reuse of treated wastewater, rainwater, and melt water. Additionally, after conducting experimental filtration studies at wells, groundwater from wells was sent to operational facilities for reusing for technical needs. The Company has started and continues its research and development of framework of water consumption from alternative sources.

GRI 303-1

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

In 2021, the potable water was used for domestic needs of the KPO facilities. By exception, at the Bolshoi Chagan Oil Pumping Station (OPS) the potable water has been supplied by the RSE 'KazVodKhoz' WQO Branch, due to absence of alternative sources of water supply, has been used to fill the fire water tanks for fire safety purposes.

Table 38 shows KPO water consumption breakdown by source.

Tab. 38. KPO water consumption in 2019 – 2021 broken down by source, m³ **GRI 303-3, 303-5**

№	Source	Facility	Water quality	2021	2020	2019
1	Zharsuat water intake facility (<i>domestic needs</i>)	KOGCF	groundwater, potable	79,852	80,957	91,851
2	Serebryakovskiy water intake facility	Bolshoi Chagan OPS	groundwater, potable	1,407	1,472	1,605
	<i>Domestic needs</i>			868	938	924
	<i>Production needs</i>			539	534	681
3	Konchubai Gully water intake facility (<i>production needs</i>)	KOGCF	surface water, technical	310,352	384,453	431,616
4	Kigach water intake facility	Atyrau Terminal	surface water, technical	3,775	3,719	2,781
	<i>Domestic needs</i>			808	759	777
	<i>Production needs</i>			2,967	2,960	2,004

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 302-2

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 Disposal Polygons № 1 and № 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 39 shows the KPO discharge volumes in 2019–2021 by wastewater types and receiving facilities.

Comparing to 2020, the volume of wastewater discharged by Company in 2021 increased by 12.38%. Of that, in 2021 compared to 2020, the volume of

injected industrial wastewater increased by 12.35%. 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 2021, the discharge of contaminants amounted to 58,981 tonnes (which was 28.2% more compared to 2020 – 46,006 tonnes). Of them, 58,166 tonnes were discharged within the maximum permissible discharge (MPD) limits, while the excess discharge amounted to 815 tonnes.

Excessive discharge of contaminants was due to insignificant exceedance of the MPD limits in terms of hydrogen sulphide, chlorides and methanol content

in wastewater injected into Subsurface Waste Water Disposal Polygons № 1 and № 2. Excessive discharge of contaminants with domestic wastewater to the holding ponds was not observed, except for a slight excess in ammonium nitrogen, chlorides, and phosphates. 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.

Tab. 39. Total discharge volume and contaminants by wastewater type and receiving facility, 2019–2021, m³ GRI 303-4

Receiving facility	Type of wastewater	2021		2020		2019	
		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	72,123	44.51	64,244	34.38	68,763	35.72
Subsurface Waste Water Disposal Polygons	Industrial wastewater, process and produced wastewater	780,755	58,935	694,893	45,970	628,819	39,645
Terrain of Bolshoi Chagan OPS and Atyrau Terminal OPS	Rainfall and snow melt wastewater	2,538	1,595	1,982	1.56	3,546	2.05
Total discharge		855,415	58,981	761,119	46,006	701,128	39,683

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.

REUSE OF TREATED AND OTHER 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.

In 2021, treated waste water, rainfall and melted water, as well as groundwater from wells were also used for the technical needs of production facilities.

The volume of wastewater reused for technical needs by KPO in 2021 made up 11.3% of the technical water consumed from the Konchubai Gully. In 2021, the Company reused 35,061 m³ of treated wastewater for technical needs, mostly for dust suppression. Table 40 shows the activities that utilize treated wastewater and water.

Tab. 40. Reuse of treated wastewater and groundwater in 2019 – 2021, m³

	2021	2020	2019
The total volume of re-used treated wastewater, including:	35,061	18,313	38,545
Drilling operations and drilling mud preparation	5,317	3,482	30,117
Irrigation, hydro tests, and replenishing of fire tanks	8,465	335	1,088
Dust suppression	17,917	14,496	7,340
Technical needs of production facilities	3,362		

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.



Water samples intake in Karachaganak



INDUSTRIAL WASTEWATER MANAGEMENT GRI 303-2

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

KPO's wastewater 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.

The Company took a decision to update the Project for wastewater injection into Polygons in order to increase the scope of injected water in Polygon 2 up to 1,100 thous.m³ from 2023 to 2037. The Project's Amendment No.3 will contain the planned increase of wastewater injection and activities targeting to expand the potential of injecting wells. Upon completion, development of the environmental impact assessment to Amendment No.3 followed by public hearings are scheduled.

In 2021, two planned projects were completed: workover of the second absorbing well for more effective utilization of wastewater and commission of a modified gas sweetening unit in order to automate a causterization process.

In 2022, refinement and implementation activities will continue including the upgrade of a caustic neutralisation unit. Also, it is expected that the 2022 turnaround will cover a replacement of induced gas flotation vessels and a tilted plate separator required for treating process effluents from oil. The vessels' replacement will ensure asset integrity and higher capacity of facilities and consequently provide better oil and water separation, which will positively affect the operation of the entire wastewater treatment system before disposal into deep horizons.

Tab. 41. Implemented industrial wastewater management projects in 2021 GRI 303-2

Project	Business driver	Note
Start-up of a modified gasoline demercaptanization unit	Safe operations	Implementation of the project allowed optimizing generation of the spent caustic soda, which further goes to a neutralization unit. By means of process automation the risks for personnel exposure to toxic agents.
Workover of the two water injection wells	Production maintenance	Workover of the two absorbing wells with application of proppant fracturing has led to a significant raise of wells acceptability of wastewater re-injection for increasing production.

WASTE MANAGEMENT

Waste handling in KPO is focused on reducing real and potential hazards of waste generated during the Company's production activities on people and the environment.

Our targets are to treat and recycle waste at our facilities, to cut down waste transfer to landfills, to

reduce negative impact from burials, as well as to explore and apply new methods and technologies.

The results of our work to minimize the risks of the Company's production waste impact on the environment are presented below in the table and further in the text.



Tab. 42. Targets in waste management GRI 103-2 (3-3)

Our 2021 targets	Target achievement	Actions taken in 2021	Targets for 2022
Ensure implementation of 10 activities scheduled for 2021 as per KPO's 2021–2023 Waste Management Programme	Completed	All activities scheduled for 2021 as per the Waste Management Programme were implemented throughout the year.	Ensure implementation of activities scheduled for 2022 as per the Waste Management Programmes both for Karachaganak Field and Bolshoi Chagan Ops and Atyrau OPS
Carry out pilot testing of clay drilling cuttings	Postponed	Due to the arisen organizational and financial challenges for pilot plant tests, these activities were not performed in 2021.	

KPO processes related to production, processing and transportation of raw materials, as well as the use 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 the accumulation, storage, and transportation, activities for segregation, reuse, recycling and reduction of

volume and hazardous properties of waste, as well as environmentally friendly burial – all these enable significant mitigation of the adverse impact on people and the environment. GRI 103-2 (3-3), 306-1

The KPO Waste Management Programme for 2021–2023 provides for indicators and measures for the gradual reduction of the accumulated and generated waste volumes and their hazardous properties.

Why is it important to us?

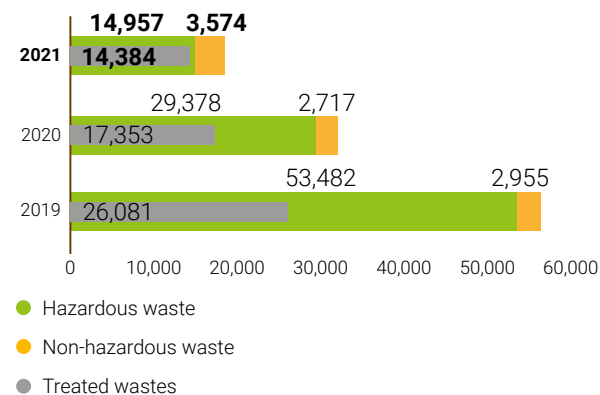
If handled unsafely, a hazardous production waste, its storage and disposal sites, may pose a threat to the environment and cause pollution of air, underground and surface waters, soils and vegetation, which may have a negative impact on the environment and the health of people.

Negative environmental impacts are prevented through compliance with the requirements of environmental legislation, i.e. burial and accumulation of waste on dedicated sites, avoidance of excessive burial and accumulation of waste, as well as timely removal of waste from the places of accumulation.

As per the monitoring work programme, KPO performs regular production environmental control (PEC) over the environmental conditions at the waste burial and accumulation sites in the field. In 2021, the monitoring did not reveal direct negative impact on the environmental components.

In the framework of the PEC, quantitative control is exercised over the movement of waste in order to account for the burial volumes, as well as the volumes and time of waste accumulation. GRI 306-1, 102-15, 103-1 (3-3)

Graph 24. Waste generated at KPO facilities in 2019–2021, tonnes GRI 306-3



Note. The domestic wastes are not accounted for in this calculation due to their insignificant quantity (below 6%) compared to the production waste. The domestic waste is described further in the text in the waste handling methods table.

”

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

“

In 2021 the volume of waste generated totalled

19,660
tonnes

The Company applies the following waste management methods:

- ▶ waste recovery to process stream;
- ▶ waste treatment at the Eco Centre facilities;
- ▶ waste burial at the Eco Centre facilities;
- ▶ waste handover to specialised contractor organizations for further processing, reuse or destruction. **OG-7**

WASTE TREATMENT AND BURIAL **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 the waste management complex. The facility ensures cost-efficient and environmentally safe recycling and treatment of solid waste and fluids, and is considered to be an example of the best drilling waste management practice in the West Qazaqstan Oblast.

Drilling wastes are treated by means of technologies, which allow not only reducing their volume and hazard characteristics, but also recovering valuable components from them, and treating the 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.

In 2021, the volume of waste generated at KPO facilities totalled 19,660 tonnes. Compared with 2020, the amount of KPO waste in 2021 has decreased by 13,518 tonnes, which was mainly due to the reduction of the KOGCF 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 republican form of the waste information reporting system, the total volume of waste generated in 2021 included both wastes generated and treated.

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

In 2021, KPO has completed all the activities scheduled in the 2021–2023 Waste Management Programme, including segregation, sorting, reuse, processing, reduction of volumes and hazardous properties, except for the treatment of solid waste in the Rotary-Kiln Incinerator due to the unscheduled long-term repairs of certain process parts of the unit. Handover of large-sized metal scrap as recyclable material to RSI Kapitalneftegaz has been postponed till 2022.

During 2021, the following activities were carried out at the Eco Centre:

Tab. 43. Eco Centre facilities and recycling activities

Eco Centre Units	Waste treatment activities in 2021
Thermo-mechanical cutting cleaning facility (TCC)	Owing to the separation of base oil and water from the treated oil-based drill cuttings, the quantity of KPO disposed waste was reduced by 13% from the initially generated volume. In 2021, 6,638 tonnes of waste were treated, 882 tonnes of base oil and water were separated, and 5,756 tonnes of waste treated at the TCC were disposed at the Solid Industrial Waste Landfill.
General Purpose Incinerator (GPI)	By incineration of waste at the GPI, the amount of waste was reduced by an average 89%. In 2021, 793 tonnes of waste were sent for incineration, following which 86 tonnes of ash were disposed at the Eco-Centre Solid industrial waste landfill.
Liquid Treatment Plant (LTP)	In 2021, 6,110 tonnes of liquid waste were treated. The process resulted in 4,287 tonnes of treated brines and muds, which were sent for re-use – preparation of drilling brines and muds.
Waste Segregation Unit (WSU)	In 2021, out of 1,128 tonnes of solid domestic waste, 790 tonnes were sent to General Purpose Incinerator for incineration, 180 tonnes, including waste paper, metal scrap, glass and plastic were sorted for handing over to the specialised organizations for treatment and reuse. 217 tonnes of solid domestic waste was handed over to specialised organizations for disposal at the Solid Domestic Waste Landfill. 129 tonnes of food waste was handed over to specialised organization for processing.
Solid Industrial Waste Landfill	16 cells of the Solid industrial Waste Landfill were capped and closed at the end of 2021.

In 2021, the Company continued extraction of wastes from the old Solid Waste and Spent Drilling Fluids Storage Site for further treatment at the Thermo-mechanical cutting cleaning facility and disposal at the Solid Industrial Waste Landfill. The waste is disposed at the Landfill in compliance with the RoQ environmental legislation.

In 2021, 4,308 tonnes (as compared to 1,220 tonnes in 2020) were sent for treatment from the Solid Waste and Spent Drilling Liquids Storage Site. The increase in the wastes treated at the TCC results from the decrease in the drilling waste and the capability to accept more waste from the Site for treatment. Processing of waste from the old Site is planned to continue in 2022. **GRI 306-4**

Drawing by Sergey Moroz, 14 years old, winner of the contest "Energy Saving By the Eyes of Children", nomination "Original idea"

The 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 the well operations. The solid and liquid drilling waste generated in 2021 amounted to 6,647 tonnes (58% of the initially generated waste, i.e. waste volume before treatment). Due to COVID-19 restrictions in 2020 and 2021, the drilling operations were considerably declined.

The solid and liquid drilling waste generated in 2021 amounted to

6,647
tonnes

Table 44 shows the waste handling methods used by the Company in 2021.

Tab. 44. KPO waste handling methods in 2021, tonnes GRI 306-3, 306-5

No.	Waste handling method	Generated hazardous waste	Generated non-hazardous waste	Domestic waste	TOTAL
1.	Waste balance at the beginning of 2021	341,416	3	0	341,419
2.	Generated during the reporting year	14,957	3,574	1,128	19,659
3.	Reused at the enterprise	4,740	0	0	4,740
4.	Treated at facilities	14,301	82	864	15,247
5.	Incinerated in the General Purpose Incinerator (without power generation)	3	0	790	793
6.	Disposed and buried at KPO waste disposal sites	12,322	0	0	12,322
7.	Handed over to specialised contractors	2,569	2,751	347	5,667
8.	Waste balance at the end of 2021	337,711	530	1	338,242

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 load supporting documents (control tickets, waste handover certificates) and further in the Company's waste accounting database.

KPO Eco Centre



Table No. 45 shows the main types of drilling waste broken down by handling methods. As table shows, only water-based mud and brines are subject to disposal at the Eco-Centre cells 35 A/B, and the water-based drill cuttings to be buried at the Landfill. Oil-based drilling cuttings are subject to burying after pre-treatment and extraction of the oil base. **GRI 306-5**

Tab. 45. Waste generated from well operations by handling methods, 2019 – 2021 OG-7

No.	Type of waste	Generated quantity, tonnes			Handling methods
		2021	2020	2019	
1.	Spent water-based drilling mud	382	4,125	427	Treatment at Liquid treatment plant (LTP)
		383	1,020	1,014	Disposal
2.	Water-based drilling cuttings	987	533	925	Burial
		0	0	182	Thermal treatment in the Rotary Kiln Incinerator (RKI)
3.	Spent oil-based drilling mud	432	818	2,676	Treatment at the Thermo-mechanical cutting cleaning facility (TCC) and Liquid treatment plant (LTP)
4.	Oil-based drilling cuttings	2,776	5,316	9,022	Treated at the TCC with extraction of oil base, water and followed by the burial of the solid part, thermal treatment in Rotary-Kiln Incinerator (RKI)
5.	Spent brines	1,438	1,932	4,866	Treatment at TCC and LTP, thermal treatment in RKI
		189	296	2,837	Disposal
6.	Oil cuttings	60	11	44	Thermal treatment in the RKI, treatment at TCC

Within the contract terms, the Company hands over part of the waste for recycling to specialised 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.

Based on the Article 351 of the RoQ Environmental Code that prohibits disposal of waste plastic, plastic, polyethylene and polyethylene terephthalate packaging, waste paper, cardboard, paper waste, glass cullet at the Landfills, the Company carries out sorting and segregation of such waste in rented buildings with engagement of contractors that lease office buildings to KPO. These types of waste are then handed over to specialized enterprises to be used as recyclables.

GRI 306-4

Since 2011 till the end of 2021, for the whole period of the waste paper segregation, about 740 tonnes of the waste paper had been collected and handed over to local enterprises to produce consumer goods.

The segregation of spent batteries was arranged in all Company office premises. In 2021, 91 kg of batteries was collected. **GRI 306-4**

In 2021,

91 kg
of batteries collected

”

Since 2011 till the end of 2021, for the whole period of the waste paper segregation, about 740 tonnes of the waste paper had been collected and handed over to local enterprises to produce consumer goods.

“

CASE STUDY 4: GRI 102-44

TREATMENT OF FOOD WASTE IN ORDER TO OBTAIN BIOCOMPOST GRI 306-4-c-ii



CONTEXT / SHORT DESCRIPTION

As provided by the RoQ Environmental Law, effective since 2021, food waste is prohibited from burying at Landfills. Earlier, KPO incinerated food waste in General Purposes Incinerator (GPI) as part of the SDW, which has been ineffective method of waste management. During 2020–2021, the Company was searching for a waste treatment enterprise.

GOAL:

Introduce the most effective way of handling food waste generated at the catering facilities of the Karachaganak field in order to comply with the requirements of RoQ EcoCode.

SOLUTION / ACTIONS:

In 2020, a scope of work was compiled, the requirements for treating food waste identified, and a tender conducted. An important requirement to an enterprise in terms of a treatment method was biocomposting of food waste and obtaining a useful product – biocompost to be used in agriculture and forestry as organic fertilizer, which is used to remediate, preserve and improve soil fertility.

In 2021, KPO signed a contract with a food waste treatment enterprise. Over the June-December, 2021 period, the Company handed over 129 tonnes of food waste from its catering facilities for processing. The updates on the delivery of this contract will be presented in future Reports.

BIODIVERSITY

Karachaganak oil and gas condensate field (KOGCF) covers an area of more than 280 km². KPO shares the single territory with other users of natural resources, although it operates only on areas directly located under industrial facilities, pipelines and field roads.

Besides the KPO industrial facilities, there are other businesses deployed at the Karachaganak Field which are either engaged in processing of some part of the raw product produced by KPO (such as JSC “Condensate”) or provide maintenance services for the field and infrastructure facilities.

Besides KPO and third-party facilities, there are large areas of previously used agricultural land and land plots located on the Field. Until 1956 this area had been used for pastures and hayfields. After 1957, farmers started growing grain crops except the floodplains and slopes of Konchubai and Kalminovka gully, which remained as pastures. So far, the state reserve lands (SRL) prevail on the sanitary protection zone (SPZ) of KOGCF. However, some patches are being used for farms.

Thus, the above factors create certain difficulties in identifying and delineating responsibility for potential negative impacts and often limit KPO ability to take practical actions for restoration of environment and biodiversity. Nevertheless, in pursuit of minimizing the impact on biodiversity around the field area, since

2012 KPO has been developing and implementing a Biodiversity Action Plan (BAP).

The BAP is being developed in accordance with IPIECA/ OGP document titled “Instructions on development of BAP for oil and gas industry” and ESHIA 1.3.1.47 standard (document No. 1.3.1.47 HSE-IMS), according to which the operation’s potential impact on biodiversity and ecosystem services should be taken into consideration when developing oil and gas fields. Preparation of BAP includes identification of business risks associated with biodiversity and ecosystem services in order to mitigate and turn them into benefits where possible.

As part of BAP implementation, the data obtained during the monitoring at the end of 2021 suggest that:

1. There is no relation between the state of soil and vegetation cover and emissions of pollutants.
2. Many species of fauna adapt to physical factors that are of a continuing nature (continuous monotonous noise, traffic). For example, a settlement of beavers, gophers, bird colonies were observed in the immediate vicinity of central roads with heavy traffic near live facilities.
3. KPO’s main impact on natural ecosystems is a mechanical impact as a result of construction. The disturbed areas are either patchy or of linear pattern.

Why is it important to us?

As part of biodiversity assessment at the Karachaganak Field, KPO conducts a comprehensive assessment of risks and impacts. It is an indisputable fact that oil and gas field operation is associated with inevitable negative impacts on the environment around the production facilities and along the pipeline routes.

As part of the KPO Biodiversity Action Plan (BAP), KPO has been carrying out an assessment of the several main factors that affect the Karachaganak Field’s biodiversity:

1. Emissions of pollutants;
2. Physical impact (noise, light, vibration);
3. Cattle grazing at the Karachaganak Field area;
4. Mechanical impact (construction, pits, roads, etc.). **GRI 102-15, 103-1 (3-3)**



4. Moderate grazing of horses and cattle has been recorded in most of part the SPZ, which generally has a positive impact. However, grazing may also have negative consequences: intensive grazing can lead to a decrease in species diversity up to a complete destruction of natural soil and vegetation cover. Pastures are being increasingly overgrazed at

monitoring sites further away from the production facilities inside the SPZ.

In general, all Karachaganak operation activities in a regular mode are well within the acceptable risk range for biodiversity.

MONITORING OF BIODIVERSITY AT KOGCF GRI 304-2

Currently KPO is carrying out the approved scope of activities planned in BAP for 2021–2023. More information about the BAP is available on www.kpo.kz website in section [Sustainable](#)

[development/Environmental protection/Conservation of biodiversity/BAP](#).

The scope of work in 2021 included a comprehensive assessment of fauna dynamics at KOGCF area.



Table. 46. Targets in biodiversity conservation GRI 103-2 (3-3)

Our targets in 2021	Target achievement	Actions taken in 2021	Targets in 2022
Conduct the monitoring of fauna, including key and rare species	Complete	Field studies on fauna monitoring were conducted from May 22 to June 2 and from September 4 to September 14, 2021.	Conduct the monitoring of flora (vegetation), including key and rare species

FAUNA MONITORING IN 2021

Monitoring of fauna in the Karachaganak field was carried out during spring and autumn of 2021. Field studies were carried out on 17 walking routes and 5 observation sites using standard techniques for the live examination of vertebrates.

During the research 2 species of amphibians, 4 species of reptiles, 106 species of birds and 19 species of mammals were identified.

The results of fauna monitoring (amphibians, reptiles, birds and terrestrial vertebrates) conducted at the Karachaganak field in 2021 and the analysis of both the number and diversity of fauna species did not reveal any noticeable negative impact from the field facilities.

MONITOR KEY SPECIES

As part of biodiversity assessment, the KPO pays a considerable attention to the monitoring of rare plant and animal species. The priority of a particular species in matters of biodiversity conservation is determined by the priorities of international and local legislation, sensitivity and resistance to impacts and significance of possible negative impact of the company activities on the environment.

The main key species considered during the research period from 1990 to 2021 are shown on the website kpo.kz in the section [Sustainable development/Conservation of biodiversity/Significant species of flora and fauna registered at KOGCF area](#).

All these species are also found outside KOGCF area. It should be noted that presence, absence or number of these species within the field is not a direct indicator of environmental well-being of the area. The distribution of individual species may change due to reasons both local and global (climate change, desertification, etc.), which have nothing to do with KPO activities. At the same time, it is necessary to plan and organize production activities in a way not to cause any direct and indirect effects on the population of individual species, which are an important part of the biodiversity at KOGCF and adjacent areas.

In 2021 as part of monitoring of key species number, a thorough survey of abundance and habitats of river beaver (castor fiber) species was carried out.

In the spring of 2021 a decrease in the number of beaver settlements was recorded compared to previous periods.

Despite the reduction, a number of beavers in the spring period remains higher compared to the surrounding area of the region. When monitoring beavers in 2021, both in the spring and autumn periods, the water level in most reservoirs was extremely low, some ponds dried up, which affected the habitat conditions and number of beavers. The most likely relocation of beavers is to the vast reservoir on Berezovka river, most of which is not included in the research area.

KPO will continue to monitor the population of beavers living on the KOGCF area.



ECONOMICAL IMPACT

05

107 Supply chain

109 Local Content development

112 Supporting social infrastructure

SUPPLY CHAIN GRI 102-9 (2-6)

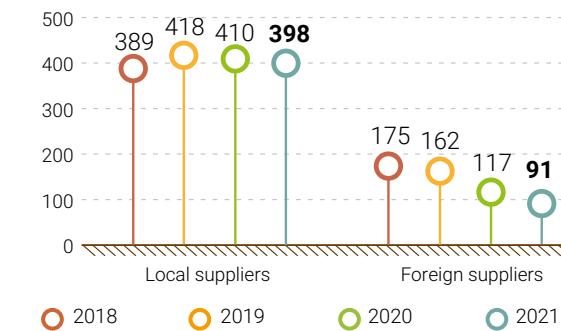
Development of the Karachaganak Field implies for Qazaqstan more than just generating income and taxes from oil and gas production. This is also an establishment of long-term and strong partnerships, which may impact and promote economic development.

Working with local suppliers and contractors constitutes an essential part of the economic development of the region and Qazaqstan as a whole.

KPO is committed to conducting its business ethically and in compliance with the established Code of Conduct policy, 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.

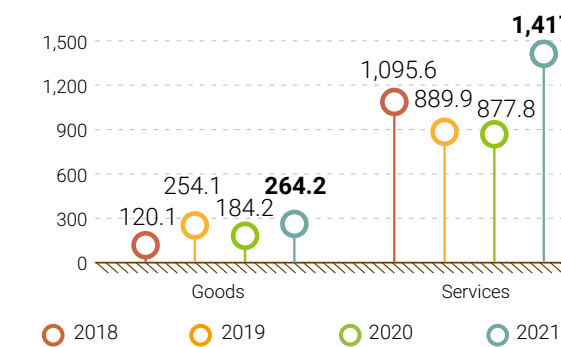
In 2021, KPO awarded contracts and contract amendments to some 500 contractors and suppliers, nearly 80% of which were local entities.

Graph 25. KPO contractors and suppliers, 2018 – 2021



In 2021, KPO signed approximately 600 contracts and contract amendments for delivery of goods worth approximately US\$ 0.3 bln and approximately 800 contracts and contract amendments for services worth approximately US\$ 1.4 bln.

Graph 26. Value of contracts and contract amendments (mln US\$), 2018–2021



Why is it important to us?

KPO procurement process is challenged with economic risks, such as limited market competition, inflation and exchange rate fluctuation. In order to maximize mitigation of these risks, KPO aims to develop technical specifications and tender requirements in a transparent and objective way to ensure market competition, application of various compensation mechanisms covering potential economic fluctuations in contract terms and conditions, and other measures described further.

GRI 102-15, 103-1 (3-3)



Participants of the Online Forum on Local Content for Karachaganak Field Expansion Project - Phase 1A

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.

The latest Tender Procedures provide for enhanced electronic documents exchange and processing including tender receipt and evaluation, which in turn addressed the COVID-19 limitations. 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 Qazaq-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 (3-3)**


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. **GRI 102-44**

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.

In 2021, KPO created a page <https://cp.kpo.kz/> on its website where companies can raise a question, which will be directed to the responsible KPO department. There is also a tab with answers on "Frequently Asked Questions" available on this page.



LOCAL CONTENT DEVELOPMENT

GRI 203-2, 102-44

Since the beginning of the Karachaganak field development, KPO has been actively working to increase the share of local content in the Karachaganak project by involving Qazaq manufactures and service providers, which implies a decrease in imports and an increase in the volume of local goods, services and works in the total volume of goods, works and services procured under the Karachaganak project.

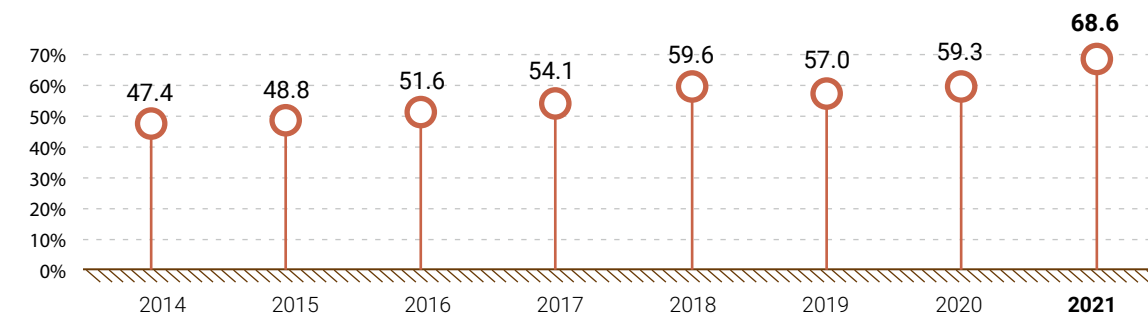
Since 2001, KPO has been developing and implementing a two-year Local Content Development Programme for the Karachaganak project. The objectives of the Programme for the period 2020 – 2021 are consistent with state initiatives for the development of mechanical engineering, industrialization and

digitization of the Republic of Qazaqstan and KPO Local Content Development policy. The Programme identifies the target areas for local content development, and also the key indicators for monitoring and assessing performance. **GRI 103-2 (3-3)**

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

- ▶ In 2021, the Local Content share in Karachaganak project reached 68.6% (US\$ 564.3 mln);
- ▶ 17.7% of total goods procured by KPO are locally produced (US\$ 26.7 mln) with 8.6% Local Content share as specified in the SR-KZ Certificate¹⁰.

Graph 27. Local Content Share in total KPO purchases of goods, works and services, 2014–2021
GRI 204-1



¹⁰ 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.

Why is it important to us?

The Company fully supports initiatives of the Government of the Republic of Qazaqstan aimed at the development of the local providers and recognizes the importance of attracting more local manufactures for the Karachaganak project implementation. With this end in view KPO implements various initiatives to develop Local Content; mechanisms in the procurement process were introduced to facilitate the participation of local companies in KPO activities. Nevertheless, there are risks associated with the quality of locally produced goods, as well as with an increase in the cost of production both for the Company itself and for the Authority on behalf of the Republic of Qazaqstan and local manufacturers due to the limited raw material market, the taxation system and certification as per international standards. **GRI 102-15, 103-1 (3-3)**

Since signing the FPSA in 1997 by the end of 2021, the cumulative Local Content share in goods, works and services had exceeded US\$ 8.85 bln. **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 2021, 50 contracts were awarded for a total value of US\$ 59.7 mln to produce goods in Qazaqstan for the Karachaganak project, such as separators, transformers, substations, (electrical & instrumentation), heat exchangers, lighting equipment, remote telemetry units, office furniture, gaskets, chemicals, fastening materials, heating systems, office container, heating / air conditioning system, flanges F22, personal gas detectors, 10" trunk lines, hand tools, LV power cables, spare parts of the electric equipment, valves, Filter Self-Rescuers, safety helmets and boots.

'Qazaqstani tendering' contributes to the growth of competitiveness of local manufacturers and suppliers. In 2021, KPO initiated 13 so-called 'Qazaqstani tenders' to be held exclusively among local companies for a total value of US\$ 50.4 mln. As a result, KPO awarded one contract to the local company worth US\$ 1.6 mln. The tender processes for the remaining contracts continue.

KPO intentionally contributes to the sustainable development of manufacturers within its footprint in the West Qazaqstan Oblast (WQO). KPO regularly invites WQO enterprises, including enterprises of the machine building sector, to participate in market research and tenders for the supply of goods, works and services, as well as to various events held by the Company in order to develop and increase the competitiveness of local businesses.

Following the awarded contracts results, in 2021 KPO paid US\$ 269.2 mln to the WQO enterprises for deliveries of goods, works and services, and Local Content share reached US\$ 201.3 mln or 74.8%.

”

'Qazaqstani tendering' contributes to the growth of competitiveness of local manufacturers and suppliers.

“

DEVELOPMENT OF LOCAL SUPPLIERS' POTENTIAL **GRI 102-44**

The ability to attract competitive local suppliers is one of the critical factors for successful implementation of the localization initiatives.

Under the KPO Local Content Development Programme, which began in 2020, it was planned to have West Qazaqstan Machinery Building Company JSC and JSC Ust-Kamenogorsk Industrial Valves Plant certified as per ASME and API in 2021. At the same time, the set objectives were not achieved, as the contractor, engaged by KPO to provide consulting services in preparing the enterprise for certification, did not fulfil its obligations under the scope of the contract. The Certificate Programme for 2022 has been suspended due to lack of the budget.

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

ENGAGEMENT ON LOCAL CONTENT ISSUES **GRI 102-44**

In order to attract investment for development of local production, KPO continues working with the International Trade Associations. This engagement is aimed at establishing partnerships with international companies to create joint ventures and facilitate the transfer of technology to Qazaq companies.

In June 2021, KPO participated in ITALY-KAZAKHSTAN BUSINESS FORUM, which discussed the issues of attracting international companies to the renewable and green energy area, the development of agribusiness and machine building, as well as the investment attractiveness of Qazaqstan.

On 5th August 2021, KPO organized an online forum on local content development which was held with the support and participation of the Ministry of Energy of the Republic of Qazaqstan, WQO Akimat and the Authority – PSA LLC. The purpose of the forum was to familiarize Qazaqstani companies with the Karachaganak Expansion Project Stage-1A (5ICP), with the project strategy and requirements for local content, as well as to brief engineering, procurement and construction (EPC) contractors with EPC scope of work, potential opportunities in GWS and EPC contractor requirements for local companies.

On 23rd August 2021, KPO separately held an introductory online workshop regarding Karachaganak Expansion Project Stage-1A (5 Gas Injection Compressor GIC) for representatives of WQO industrial enterprises to familiarize participants with opportunities of involvement to the project and to conduct face to face meetings among EPC contractor and WQO companies. As the outcome of the workshop, a visit to WQO enterprises by EPC contractor was organized in order to get acquainted with their production potential.

From 22 to 24 September 2021, KPO took part in the IX Forum of Machine Builders of Qazaqstan and I International Specialized Exhibition on Mechanical Engineering and Metalworking "2021 Qazaqstan Machinery Fair". The purpose of the forum was to organize a dialogue of machine-building enterprises with the state bodies of the Republic of Qazaqstan and large subsoil users.

”

On 5th August 2021, KPO organized an online forum on local content development which was held with the support and participation of the Ministry of Energy of the Republic of Qazaqstan.

“

LONG-TERM INITIATIVES **GRI 102-13 (2-28)**

Under the Agreement signed in November 2020 between the Ministry of Industry and Infrastructure Development of the RoQ, the Ministry of Energy of the RoQ, the PSA LLC, the Association of Qazaqstan Machinery Industry and three major Operators: KPO, Tengizchevroil LLP and North Caspian Operating Company, International Centre for Development of Oil and Gas Machine Building (IMBC) was established and began its work in 2021. The International Centre conducts its activities on behalf of the three operators, closely interacting with relevant ministries, the Authority and petroleum associations involved in the development of the national oil and gas machinery building.

The main objective of this Centre is to increase local content in procurement by analysing the demand from the three Operators (TCO, NCOC and KPO) and studying the local market of existing manufacturers that could supply these goods that meet the requirements of the Operators. Also, the function of the Centre is to assist in expanding the production capacity of local manufacturers and developing their potential, where necessary. In addition, close cooperation with foreign companies is expected in the localization of their production in the Republic of Qazaqstan, as well as in attracting investments by facilitating the creation of joint ventures and the transfer of technologies and know-how.

During 2021, IMBC members (TCO, NCOC and KPO) approved the annual work program and budget, policies and procedures. They also provided information on categories of goods that are in demand on a long-term basis and production of which is subject to localization.

In the framework of the Memorandum of Understanding on localization, signed earlier in 2020, KPO continued activities on development of Road maps with the Original Equipment manufacturers. The categories of goods and spare parts for potential localization, timing of implementation and the estimated production scope in RoQ were defined. By the end of 2021, five Road maps were signed with such companies as Baker Hughes, Honeywell, nVent and Stuart Buchanan and John Crane, and two contracts for localization were awarded.

SUPPORTING SOCIAL INFRASTRUCTURE GRI 102-44, 203-1

KPO implements social and infrastructure projects in the West Qazaqstan Oblast (WQO) on the annual basis under the terms of Annex 5 to the Final Production Sharing Agreement.

The list of social projects to be implemented is annually approved between KPO and the WQO Akimat based on the priorities of the Oblast's social development. The list is compiled by the WQO Akimat in accordance with state priorities and programmes and considering the needs of developing West Qazaqstan Oblast infrastructure, education and healthcare systems, sports and infrastructure in the region. Further on, the list is established by the Joint Operating Committee. From here KPO manages projects, including design and procurement processes, until the facilities are fully ready and then handed over to the balance sheet of the Republic of Qazaqstan. In case of failure to complete implementation of the projects by the end of the year as scheduled, the unspent funds are carried over the next calendar year. All social projects are to be implemented by local companies. **GRI 103-1 (3-3)**

Within 2021, KPO has been implementing 15 social and infrastructure projects in the West Qazaqstan Oblast, including the projects approved in 2021 and those carried forward from previous periods. One of the major long-term projects is the construction of the International Airport in Uralsk, which has been completed in March 2022. Out of 15 social and infrastructure projects seven were completed, worth KZT 13.4 bln (equivalent to US\$ 32.05 mln). Besides, implementation of the Aksai Hospital Emergency Capability Upgrade Project has continued throughout 2021 and at the moment of this Report's publication. Its actual costs would be finalised upon full delivery of medical equipment.

The list of completed projects in 2021 is shown in table 47.

Tab. 47. Social infrastructure projects in Uralsk and adjacent villages completed by KPO in 2021
GRI 203-1

Area	Project name	Actual costs (mln KZT) *
Civil construction	Construction of Sports and Health Centre for 160 spectators in Podstepnoye village, Terektinskiy district, WQO	413.33
	Construction of multifunctional palace of culture for 1,500 seats in Uralsk	9,967.85
	Construction of Sports and Health Centre for 160 spectators in Zhanibek village, Zhanibek district, WQO	501.78
	Construction of a 9-storey residential house No. 6 on monolithic-frame scheme in the North-Eastern part of Uralsk, WQO (without external engineering networks and landscaping)	901.0
	Construction of the youth athletic center building located at the address: Zachagansk village in Uralsk, WQO	604.51
	Construction of Sports and Health Centre for 160 spectators in Zhalspaktal village, Kaztalovskiy district, WQO	355.31
	Construction of Sports and Health Centre for 170 spectators in Chingirlau village, Chingirlauskiy district, WQO	608.45
TOTAL		13,352.23

*Amounts are VAT including.

” One of the major long-term projects is the construction of the International Airport in Uralsk completed in March 2022. “



Opening of Sports and Health Centres in the Zhanibek and Chingirlau villages in the WQO, December 2021



Opening of the Sports and Health Centre in Podstepnoye village of the Terekti District, West Qazaqstan Oblast, July 2021



The new airport in Uralsk commissioned in March 2022

APPENDICES

06

- 115 GRI Index
- 124 Glossary
- 127 Feedback form

GRI INDEX GRI 102-55

This report has been prepared in accordance with the requirements of the GRI Standards of 2016 and 2018 in the 'Core' option and the Oil and Gas Sector GRI Standards of 2021.

GRI 102-54

UNIVERSAL STANDARDS					
GRI Standard 2016	GRI Standard 2021	Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 101 Foundation 2016					
GRI 102: GENERAL DISCLOSURES 2016					
102-1	2-1	Name of the organization	4		
102-2	2-6	Activities, brands, products, and services	14-15		
102-3	2-1	Location of headquarters	4, 130 (back cover)		
102-4	2-1	Location of operations	4, 12		
102-5	2-1	Ownership and legal form	5, 23		
102-6	2-6	Markets served	14		8, 9
102-7	2-6, 2-7	Scale of the organization	5, 12, 13, 15, 58		9
102-8	2-7	Total number on employees and other workers, by employment contract, by gender, by employment type, by region.	58-59		10
102-9	2-6	Supply chain	107		12
102-10	2-6	Significant changes to the organization and its supply chain		No significant changes	
102-11	2-23, 3-3	Precautionary principle or approach	42, 44, 50-53, 55, 62		12
102-12	NA	External initiatives	68		17
102-13	2-28	Membership of associations	35, 111	KPO is a member of KAZENERGY Assosiation. Business partnerships and membership in associations (p. 9 of KPO Sustainability Report 2015)	17
102-14	2-22	Statement from senior decision-maker	3		
102-15	NA	Key impacts, risks and opportunities	25, 37, 46, 50, 53, 56, 58, 61, 63, 64, 66, 68, 73, 84, 88, 92, 97, 103, 107, 109		12
102-16	2-23	Values, principles, standards, and norms of behavior	32		5, 10, 16
102-17	2-26	Mechanisms for advice and concerns about ethics	33, 61		5, 10, 16

UNIVERSAL STANDARDS					
GRI Standard 2016	GRI Standard 2021	Disclosures	References / page numbers	Comments to SR / Omissions	UN SDG
102-18	2-9	Governance structure	23-24		16
102-33	2-16	Communicating critical concerns	25		
102-40	2-29	List of stakeholder groups	9		17
102-41	2-30	Collective bargaining agreements	61, 63		8, 17
102-42	2-29	Identifying and selecting stakeholders	8, 9		17
102-43	2-29	Approach to stakeholder engagement	8-9		17
102-44	NA	Key topics and concerns raised	6, 7, 9, 23, 24, 47, 50, 52, 61, 68, 69, 70, 71, 75, 76, 91, 102, 107, 109, 110, 111, 112	Key issues raised by stakeholder's groups are presented in the following chapters: ► Parent Companies, PSA LLP Authority – in 'Governance structure' pp. 23-26; ► Community engagement – pp. 68-71; ► Employees – p. 61; ► Students – https://kpo.kz: KPO partnership with Qazaqstani universities ; ► State bodies – pp. 47, 50-52, 57, 75, 80, 112; ► Counterparties – pp. 107-108; ► Business partners – pp. 108, 111; ► Trade Unions – p. 61.	17
102-45	2-2	Entities included in the consolidated financial statements		This Report covers the Operations and Projects of the KPO B.V. Branch in Qazaqstan	
102-46	3-1	Defining Report content and topic boundaries	5-7		
102-47	3-2	List of material topics	7		
102-48	2-4	Restatements of information		No	
102-49	3-2	Changes in reporting		No significant changes	
102-50	2-3	Reporting period	5		
102-51	NA	Date of most recent report	5		
102-52	2-3	Reporting cycle	5		
102-53	2-3	Contact point for questions regarding the report	130 (back cover)		
102-54	NA	Claims of reporting in accordance with the GRI Standards	5, 115		
102-55	NA	GRI Standards Content Index	115-123		
102-56	2-5	External assurance	5		

TOPIC-SPECIFIC STANDARDS				
GRI Standard, Disclosures	GRI Standard 2021	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 200: Economic Topics 2016				
This reference to GRI 103: Management Approach 2016 and the corresponding Disclosures 103-1, 103-2 and 103-3 apply to the material topics Market presence, Indirect Economic Impacts, Procurement Practices, Anti-corruption, Reserves.				
103-1 – Explanation of the material topic and its boundary		4, 5, 6, 12, 14, 59, 107, 109		
103-2 – The management approach and its components	3-3	26, 108, 109		
103-3 – Evaluation of the management approach		27		
GRI 202: Market Presence 2016				
202-1 – Ratios of standard entry level wage by gender compared to local minimum wage		63	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		65	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.	8, 10
OG-1 – Volume and type of estimated proved reserves and production (partial disclosure)		12	partial disclosure	
GRI 203: Indirect Economic Impacts 2016				
203-1 – Infrastructure investments and services supported		16, 47, 112		3, 9
203-2 – Significant indirect economic impacts		109		8
GRI 204: Procurement Practices 2016				
204-1 – Proportion of spending on local suppliers		109-110		8, 12
GRI 205: Anti-corruption 2016				
205-2 – Communication and training about anti-corruption policies and procedures		33		16

TOPIC-SPECIFIC STANDARDS				
GRI Standard, Disclosures	GRI Standard 2021	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 300: Environmental topics 2016				
This reference to GRI 103 (3-3): Management Approach 2016 and the corresponding Disclosures 103-1, 103-2 and 103-3 apply to the material topics: Energy, Water, Biodiversity, Emissions, Effluents & Waste, Environmental Compliance				
103-1 – Explanation of the material topic and its Boundary	3-3	73, 84, 88, 92, 97, 103		
103-2 – The management approach and its components		73, 75, 76, 81, 84, 88, 89, 92, 97, 104		
103-3 – Evaluation of the management approach		91		
GRI 302: Energy 2016				
302-1 – Energy consumption within the organization		89	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		90		7, 8, 12, 13
GRI 303: Water and Effluents 2018				
303-1 – Interactions with water as a shared resource		92-93		6, 12
303-2 – Management of water discharge-related impacts		94-96		6
303-3 – Water withdrawal		95		6
303-4 – Water discharge		94		6
303-5 – Water consumption		92-93		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
304-2 – Significant impacts of activities, products, and services on biodiversity		104; website https://kpo.kz: Monitoring of flora and fauna		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

TOPIC-SPECIFIC STANDARDS				
GRI Standard, Disclosures	GRI Standard 2021	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 305: Emissions 2016				
305-1 – Direct GHG emissions		86-87		12, 13
305-4 – GHG emissions intensity		87		13, 12
305-5 – Reduction of GHG emissions		74		13, 12
305-7 – Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions		85-86		12, 13
OG-6 – Volume of flared and vented hydrocarbon		86		12, 13
GRI 306: Waste 2020				
306-1 – Waste generation and significant waste-related impacts		97		12, 9.4
306-2 – Management of significant waste-related impacts		98		12, 13
306-3 – Waste generated		53, 98, 100		12, 13
306-4 – Waste diverted from disposal		98-99, 101-102		12, 13
306-5 – Waste directed to disposal		98-99		12, 13
OG-7 – Amount of drilling waste and strategies for treatment and disposal		98, 101, 102		12, 6.3
GRI 307: Environmental Compliance 2016				
307-1 – Non-compliance with environmental laws and regulations	2-27	80		12
GRI 308: Supplier Environmental Assessment 2016				
308-1 New suppliers that were screened using environmental criteria		73	partial disclosure	12, 13

TOPIC-SPECIFIC STANDARDS				
GRI Standard, Disclosures	GRI Standard 2021	References / page numbers	Comments to SR / Omissions	UN SDG
GRI 400: Social topics 2016				
This reference to GRI 103 (3-3): Management Approach 2016 and the corresponding Disclosures 103-1, 103-2 and 103-3 apply to the material topics: Social topics, Employment, Labor / Management Relations				
103-1 – Explanation of the material topic and its Boundary	3-3	53, 58, 59	KPO impact boundary covers Qazaqstani citizens, in particular of the West Qazaqstan Oblast.	
103-2 – The management approach and its components		26, 61, 64; website https://kpo.kz:Competency Management System		
103-3 – Evaluation of the management approach		60, 64-65, 66; website https://kpo.kz:Competency Management System		
GRI 401: Employment 2016				
401-1 – New employee hires and employee turnover		60		8
401-2 – Benefits provided to full-time employees that are not provided to temporary or part-time employees		63		8
GRI 402: Labor/ Management Relations 2016				
402-1 – Minimum notice periods regarding operational changes		61		8
GRI 403: Occupational Health and Safety 2018				
103-1 – Explanation of the material topic and its Boundary	3-3	26, 37, 46, 50, 53, 56	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		37, 45, 49, 50, 53, 55, 56		
103-3 – Evaluation of the management approach		38, 41, 42, 43, 44, 46, 52; website https://kpo.kz:HSE Card Programme		
403-1 – Occupational health and safety management system		26, 42, 43 website https://kpo.kz:Integrated HSE Management System		8
403-2 – Hazard identification, risk assessment, and incident investigation		38, 42, 46, 48, 55 website https://kpo.kz:HSE Card Programme		8
403-3 – Occupational health services		46-49		8
403-5 – Worker training on occupational health and safety		44, 50, 67		8

TOPIC-SPECIFIC STANDARDS				
GRI Standard, Disclosures	GRI Standard 2021	References / page numbers	Comments to SR / Omissions	UN SDG
403-6 – Promotion of worker health		46-49		3
403-7 – Prevention and mitigation of occupational health and safety impacts directly linked by business relationships		26, 42, 53, 55		8
403-8 – Workers covered by an occupational health and safety management system		26		8
403-9 – Work-related injuries		38-40, 43		3, 8
403-10 – Work-related ill health		48		3, 8
GRI 404: Training and Education 2016				
103-1 – Explanation of the material topic and its Boundary	3-3	61, 66	KPO impact boundary covers Qazaqstani citizens.	
103-2 – The management approach and its components		26, 64; website https://kpo.kz:Competency Management System		
103-3 – Evaluation of the management approach		64-66		
404-1 – Average hours of training per year per employee		67		8
404-2 – Programs for upgrading employee skills and transition assistance programs		67		8
404-3 – Percentage of employees receiving regular performance and career development reviews		64		8
GRI 405: Diversity and Equal Opportunity 2016				
103-1 – Explanation of the material topic and its Boundary	3-3	10-11, 27, 61, 63, 64	KPO impact boundary covers Qazaqstan.	
103-2 – The management approach and its components		33, 61		
103-3 – Evaluation of the management approach		33, 61	Terms of the Collective Agreement are reviewed every 2-3 years	
405-1 – Diversity of governance bodies and employees		64-65		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				
GRI Standard, Disclosures	GRI Standard 2021	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	3-3	61	KPO impact boundary covers West Qazaqstan Oblast	
103-2 – The management approach and its components		61		
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		62		8
GRI 410: Security Practices 2016				
103-1 – Explanation of the material topic and its Boundary	3-3	56	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		56		
103-3 – Evaluation of the management approach		57		
410-1 – Security personnel trained in human rights policies or procedures		56		10
GRI 413: Local Communities 2016				
103-1 – Explanation of the material topic and its Boundary	3-3	68	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		68-69		
103-3 – Evaluation of the management approach		69		
413-1 – Operations with local community engagement, impact assessments, and development programmes		68-69, 81-83; website https://kpo.kz: Atmospheric air monitoring in the villages adjacent to the Karachaganak field		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)		68-69; website https://kpo.kz: Resettlement of the Berezovka and Bestau villages, KPO Sustainability Report 2017, pp.105-106		3, 9

TOPIC-SPECIFIC STANDARDS				
GRI Standard, Disclosures	GRI Standard 2021	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	3-3	50	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		50-51		
103-3 – Evaluation of the management approach		52		
OG 13: Industrial safety and integrity management				
103-1 – Explanation of the material topic and its Boundary	3-3	37, 53	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		53-55		12
103-3 – Evaluation of the management approach		54		12
OG-13 – Number of process safety events, by business activity		53-55		3

GLOSSARY

ABBREVIATION	DESCRIPTION
ASME	American Society of Mechanical Engineers
BAP	Biodiversity Action Plan
BOE	Barrels of oil equivalent
ConCom	Contractor Committee
COVID-19	Coronavirus disease of 2019
CPC	Caspian Pipeline Consortium
EITI	Extractive Industries Transparency Initiative
EMS	Environmental Monitoring Station
EOPS	Early Oil Production Satellite
EPMP	Environmental Protection Measures Plan
ESG	Environmental, social, and governance (ESG) criteria are a set of standards for a company's behaviour used by socially conscious investors to screen potential investments. Environmental criteria consider how a company safeguards the environment, including corporate policies addressing climate change, for example. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights.
ESHIA	Environmental, Social and Health Impact Assessment
FPSA	Final Production Sharing Agreement
Gcal	Gigacalorie
GHG	Greenhouse Gases
GOR	Gas Oil Ratio
GRI	Global Reporting Initiative
GPI	General Purpose Incinerator
GTG	Gaz Turbine Generator

ABBREVIATION	DESCRIPTION
GTPP	Gas Turbine Power Plant
GWS	Goods, works and services
HC	Hydrocarbons
HGVF	High Gas Volume Fraction
HSE	Health, Safety and Environment
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
JMC	Joint Marketing Committee
JOA	Joint Operating Agreement
JOC	Joint Operating Committee
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

ABBREVIATION	DESCRIPTION
KPC	Karachaganak Processing Complex
KPI	Key Performance Indicators
kW-h	Kilowatt-hour
LOPC	Loss of primary containment
LTI	Lost Time Injury
LTIF	Lost Time Injury Frequency
LTP	Liquid Treatment Plant
MDL	Minimal Detection Limit
MPC	Maximum permissible concentration
MPD	Maximum permissible discharge
Mscm	Million standard cubic metres
MW	Megawatt
NCOC	North Caspian Operating Company
NGO	Non-governmental organisation
O&G	Oil & Gas
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
PEC	Production Environmental Control
PEP	Plateau Extension Projects
PPE	Personal Protective Equipment
P&M	Production & Maintenance

ABBREVIATION	DESCRIPTION
RKI	Rotary Kiln Incinerator
RoQ	Republic of Qazaqstan
RTI	Road Traffic incidents
RTIF	Road Traffic Incident Frequency
SDG	Sustainable Development Goals
SPZ	Sanitary Protection Zone
TCC	Thermo-mechanical cutting cleaning facility
TCO	Tengizchevroil
TRI	Total Recordable injuries
TRIF	Total Recordable Injury Frequency
WQO	West Qazaqstan Oblast
WSU	Waste Segregation Unit
CH₄	Methane
C₆H₆	Benzene
C₇H₈	Toluene
C₈H₁₀	Xylene
CO	Carbon monoxide
CO₂	Carbon dioxide
H₂S	Hydrogen Sulphide
NO₂	Nitrogen dioxide
N₂O	Nitrous oxide
SO₂	Sulphur dioxide



FEEDBACK FORM ON THE KPO SUSTAINABILITY REPORT 2021 GRI 102-53 (2-3)

We believe that our readers' feedback would help us improve our reporting.

1. Name, surname _____ Organization _____

2. Which stakeholder group best describes you?

- | | |
|---|---|
| (1) Parent companies <input type="checkbox"/> | (7) Counterparties (suppliers / contractors, customers, banks) <input type="checkbox"/> |
| (2) Authorised body – PSA LLP <input type="checkbox"/> | (8) Local communities <input type="checkbox"/> |
| (3) Employees <input type="checkbox"/> | (9) Industry partners <input type="checkbox"/> |
| (4) Local authorities <input type="checkbox"/> | (10) Media <input type="checkbox"/> |
| (5) RoQ ministries / Agencies (industry) <input type="checkbox"/> | (11) Non-government organisations <input type="checkbox"/> |
| (6) Regulators <input type="checkbox"/> | (12) Trade Unions <input type="checkbox"/> |

(13) If you do not belong to any of the groups listed above, please indicate your connection to KPO: _____

3. What are your reasons for reading our Sustainability Report?

- | | |
|--|--|
| (1) For KPO general awareness purposes <input type="checkbox"/> | (4) As a study material <input type="checkbox"/> |
| (2) To track KPO sustainability performance <input type="checkbox"/> | (5) As a potential vendor <input type="checkbox"/> |
| (3) For industry analytics purposes <input type="checkbox"/> | |
| (6) For any other reasons. Please state: <input type="checkbox"/> | |

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) 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Which material topics or issues disclosed in the KPO Sustainability Report 2021 are important for you as a KPO stakeholder? Please, limit your choice to 10 topics of the most interest to you.

Social topics:	Socio-Economic topics:
Social, cultural and gender diversity, equal opportunities <input type="checkbox"/>	Employment and compensation <input type="checkbox"/>
Industrial relations (Labour – Management relations including contractors) <input type="checkbox"/>	Social infrastructure projects, <input type="checkbox"/>
Freedom of association and collective bargaining <input type="checkbox"/>	Sponsorship and charity <input type="checkbox"/>
Security practices <input type="checkbox"/>	Supply of electrical power to regional network <input type="checkbox"/>
Respect for human rights <input type="checkbox"/>	Local Content development and its share in procurement of goods, works and services <input type="checkbox"/>
Increase of local content in staff <input type="checkbox"/>	Anti-corruption <input type="checkbox"/>
	COVID-19 and its impact on the KPO activities <input type="checkbox"/>

Economic topics:	Environmental-Economic topics:
Corporate governance and management approach <input type="checkbox"/>	Energy efficiency <input type="checkbox"/>
Technologies and innovations <input type="checkbox"/>	Environmental compliance <input type="checkbox"/>
Estimated proved reserves and production <input type="checkbox"/>	Environmental investments <input type="checkbox"/>
Procurement practices and supply chain <input type="checkbox"/>	ISO 14001, 45001, 50001, 9001 certification (contractors) <input type="checkbox"/>
Transparency of payments to the government (EITI) <input type="checkbox"/>	

Environmental topics:	Socio-Environmental topics:
Spills <input type="checkbox"/>	Occupational safety and health <input type="checkbox"/>
Air quality monitoring <input type="checkbox"/>	Protection of health <input type="checkbox"/>
Reduction of GHG and pollutants' emissions <input type="checkbox"/>	Process safety <input type="checkbox"/>
Water conservation <input type="checkbox"/>	Emergency Response <input type="checkbox"/>
Management of waste and effluents <input type="checkbox"/>	Community relations: impact assessment and mitigation, grievance redress <input type="checkbox"/>
Biodiversity and ecosystems conservation <input type="checkbox"/>	
Environmental grievance mechanisms <input type="checkbox"/>	

7. Your suggestions for improving KPO Sustainability Report:

Please send your feedback, comments to this edition or contribution to the Report 2022 to the below address or by email at Sustainability@kpo.kz.

KPO Sustainability Reporting
 Karachaganak Petroleum Operating B.V.
 Kazakhstan Branch
 81 H Promyshlennaya Zona Street
 Aksai, 090300
 Burlin District
 West Qazaqstan Oblast
 Republic of Qazaqstan



CONTACT PERSONS: GRI 102-53

Sustainability Reporting

Olga Lyskova
Gaukhar Aimukhambetova
Alexandra Pochtareva
Email: Sustainability@kpo.kz

OUR ADDRESS: GRI 102-3

KPO Corporate Affairs Department

**Karachaganak Petroleum Operating B.V.
Kazakhstan Branch**
Promyshlennaya Zona Street, Bld. 81H
090300, Aksai
Burlin District
West Qazaqstan Oblast
Republic of Qazaqstan

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