

05



SUSTAINABLE DEVELOPMENT REPORT

People are a key asset of the Company. Embamunaigas JSC is making continuous efforts to create working conditions aimed at ensuring the safety of employees, as well as contributing to their professional growth.

HR POLICY

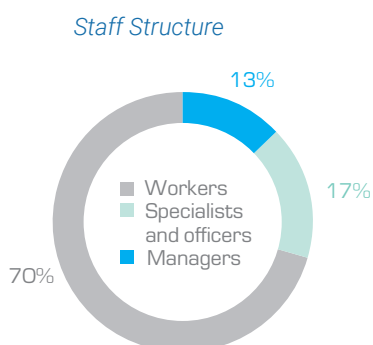
As part of the HR management and remuneration functional strategy adopted as part of the Development Concept until 2027 of Embamunaigas JSC approved by the Board of Directors, the main goal of the HR Department is to provide the Company with a sufficient number of qualified personnel motivated to achieve the strategic goals through high-quality training and development of employees, search for and implementation of the cutting-edge advanced management tools and methods, strengthening monitoring of executive discipline and ensuring social support for workers.

Taking into account the requirements and prospects of the Company's strategic development, the HR Management and Remuneration Department is constantly working to develop the labor management system, remuneration forms and systems, material and moral incentives within the Company and its production structural units. Measures are taken to improve labor regulation based on the use of intersectoral and sectoral labor standards. Work is underway to improve the performance, including through maintaining the optimal number of staff.

As of January 1, 2019, the actual number of the Company was 4,942 people. Staff turnover in 2018 was 8.19%.

In order to optimize expenses, the Company is working to reduce and outsource full-time non-core low-skilled jobs. For the period from 2014 to 2018, 372 jobs were outsourced.

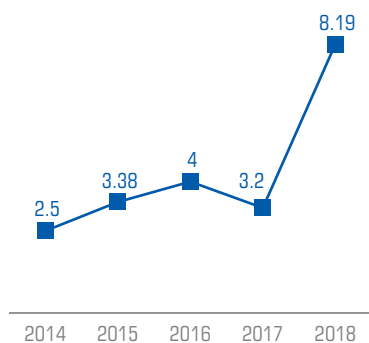
Staff Structure as of January 1, 2019



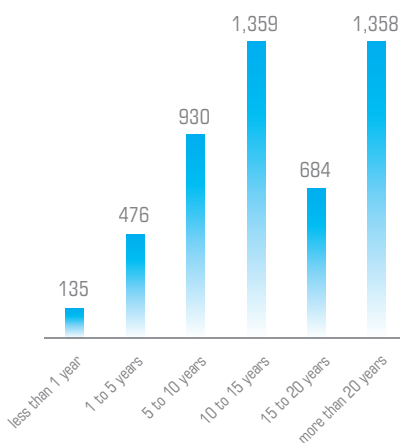
Number of staff	Actual number	including	
		men	women
Total	4,942	4,061	881
Administrative and management staff	300	188	112
Managers	103	82	21
Specialists	197	106	91
Production staff	4,642	3,873	769
Managers	537	498	39
Specialists	626	347	279
Workers	3,479	3,028	451

Embamunaigas implements a program of early retirement from the age of 58 for employees, who have worked most of their life under the harsh conditions of the oil industry and have health issues. Since the beginning of the program implementation in 2014, 237 employees have retired before the retirement age.

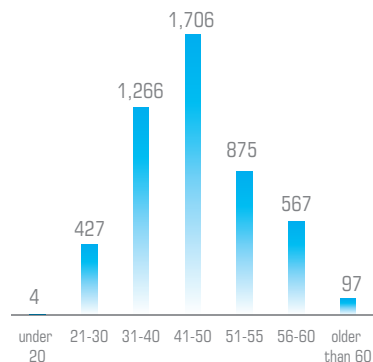
Staff Turnover, %



Length of Service, ppl



Age Categories



Dynasties

Embamunaigas is a company with a long history, established strong traditions and continuity of generations. Labor dynasties are the basis of the Company's stable long-term development. With the labor dynasties, the Company maintains the continuity of generations, supports the family job succession and helps exchanging invaluable experiences; respect for work and pride of job are brought up in the younger generation.

Today, Embamunaigas employs members of more than twenty family dynasties, with three or more generations, who have connected their lives with the difficult job of an oil worker. The total length of service of some of them exceeds 200 years. They are the dynasties of the Zhylykshiyevs, the Kurmankulovs, the Torekhanovs, the Saliyevs, the Kulbaliyevs, the Bekmurziyevs, the Ondashev, the Beshimovs, the Korbebayevs, the Ualiyevs, the Bissenbayevs, the Zhakashev, the Aidabekovs, the Raimbergenovs, the Bazhbenovs, the Kanatbayevs, the Zhanaissovs, the Mangistauovs-Yerzhangaliyevs, the Balgimbayevs and the Balzhanovs.

The Company's stability is based on the labor dynasties.

Personnel Training and Development

The training and development of Embamunaigas personnel is aimed of satisfying the Company's needs for highly qualified management, administrative and production personnel through the continuous development of the employees' potential, retention of highly qualified employees, formation of a system of acquisition and improvement of knowledge and skills of employees and their effective use in regular activities.

The Company provides the following types of training:

- 1) technical disciplines;
- 2) financial and economic disciplines;
- 3) language learning;
- 4) general disciplines;
- 5) master's, specialized and modular programs;
- 6) techniques and skills used in the workplace;
- 7) safety, health and environment; and
- 8) compulsory compliance training.

The following training methods are mainly used:

- 1) training in short-term courses, including corporate training;
- 2) on-the-job training;
- 3) secondment to different structural units of the Company or different companies;

DYNASTIES OF OIL WORKERS OF EMBAMUNAIGAS JSC

AMS of Embamunaigas JSC

The Zhilkishiyevs

Dynasty **1913**



4 generations
length of service more than **208** years

The Zhanaisovs

Dynasty **1947**



3 generations
length of service more than **83** years

The Yerzhangaliyevs

Dynasty **1925**



3 generations
length of service more than **92** years

The Kanatbayevs

Dynasty **1911**



4 generations
length of service more than **278** years

Zylyoimunaigas OGPO

The Ondashevs

Dynasty **1933**



4 generations
length of service more than **182** years

The Beshimovs

Dynasty **1926**



3 generations
length of service more than **87** years

The Korpebayevs

Dynasty **1963**



3 generations
length of service more than **26** years

The Ualiyevs

Dynasty **1939**



3 generations
length of service more than **125** years

The Bissenbayevs

Dynasty **1920**



3 generations
length of service more than **94** years

The Kulbaliyevs

Dynasty **1928**



4 generations
length of service more than **148** years

Dossormunaigas OGPO

The Kurmankulovs

Dynasty **1943**



length of service more than **176** years

The Bazhenovs

Dynasty **1914**



length of service more than **139** years

The Turekhanovs

Dynasty **1931**



length of service more than **144** years

The Saliyevs

Dynasty **1939**



length of service more than **177** years

The Bekmurziyevs

Dynasty **1930**



length of service more than **97** years

Kainarmunaigas OGPO

The Koshmaganbetovs

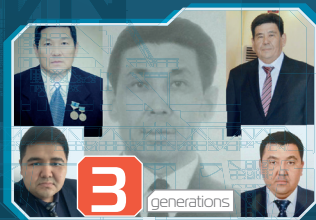
Dynasty **1953**



length of service more than **223** years

The Zhakashevs

Dynasty **1947**



length of service more than **120** years

The Aidarbekovs

Dynasty **1946**



length of service more than **85** years

The Raimbergenovs

Dynasty **1942**



length of service more than **84** years

- 4) distant learning using the Internet and/or other types of communication; and
- 5) participation in conferences, round tables, forums, workshops, congresses, exhibitions, which contributes to acquaintance with the latest achievements and technologies, new approaches and ideas, successful experiences and developments of other companies along with gaining experiences and broadening horizons, and establishing partner relations beneficial for the Company.

In 2018, 4,596 employees passed compulsory safety training, 300 employees passed well-kill safety training. 1,217 people were trained at seminars, including MBA, business seminars, technical seminars, seminars for financiers, etc. 971 employees passed training in blue-collar jobs.

Modular Training Arrangement

In order to train and develop middle managers, modular programs were developed, which included training in planning and improving production processes, management skills training. After completion of the program, the students presented their projects to improve production processes.

Over the period from 2015 to 2017, more than 250 employees from among the heads of the main workshops, site foremen, geologists, and safety engineers took part in the modular training programs. In 2018, the modular programs were developed by the Kazakh-British Technical University in the following areas: Geology, Development, Well Overhaul and Servicing, and Geophysics. In 2018, KBTU conducted training in a corporate and open format on four topics, with 38 employees attending.

The internal training procedures are constantly analyzed and updated for the purpose of improvement.

Employment Pool Generation and Development

The employment pool generation for the replacement of heads of departments is of current importance for Embamunaigas. The purpose of the employment pool generation is to minimize the risks associated with the recruitment and placement of personnel to fill positions within the Company, improve the quality of employees, improve management efficiency based on targeted selection and training of the most promising managers and specialists.

The established system of employment pool and career growth allows:

- ▶ ensuring the reliability of the entire management system, minimizing the elements of chance and subjectivity in the selection and placement of personnel in senior and middle management positions;
- ▶ identifying promising employees who are ready to develop the Company in accordance with the strategy, improving employee's motivation, retaining employees by providing opportunities for career growth, enhancing the prospects for self-fulfillment; and
- ▶ achieving the optimal placement and rotation of managers and specialists, reducing personnel risks in the appointment of managers (an on-boarding period).

Following the results of a comprehensive assessment, 87 employees were included in the employment pool with 62 employees of planned pool and 25 employees of talent pool. From 2015 to 2018, the employment pool employees passed theoretical and practical training according to individual development plans.

Appointments to key positions:

- ▶ planned pool – 30 employees,
- ▶ talent pool – 8 employees.

In 2018, the employment pool was reevaluated, 8 out of 20 employees of the planned pool were selected, and a new employment pool was generated:

- ▶ planned pool for the positions of managing directors, heads and chief engineers of OGPO – 6 employees; and
- ▶ talent pool – 13 employees.

Employee Engagement

The Company seeks to maximize the personnel engagement by incentivizing good performance through fair remuneration for the results of work. Work is being performed to create and continuously develop an effective incentive system and improve executive discipline of employees in order to attract, retain and motivate employees, whose qualifications and performance will ensure the successful fulfillment of the Company's mission and achievement of business goals at minimal cost.

The main tasks in incentivizing and executive discipline are as follows:

- ▶ ensuring a unified approach to the remuneration of all employees of the Company and compliance with the achieved performance and fair remuneration;
- ▶ developing a system of awards and incentives, including for the creation and introduction of new technologies, implementation of development projects, solution of key financial, economic, social, employment, and other issues;
- ▶ strengthening the quality control of the performance of the tasks assigned to employees;
- ▶ raising awareness of employees about the developed and implemented guidance documents within the Company; and
- ▶ automating the process of setting tasks for the employee with an indication of priority and deadlines, strict monitoring of implementation.

The remuneration system is being improved, including through the introduction of a remuneration system based on the assessment of the fulfillment of key performance indicators.

Arranging and Conducting 2018 Best Performer Contest

The first round of the contest was held in each production structural unit (PSU) of Embamunaigas JSC in 13 main jobs; the second round was held between the winners of the first round on the basis of Zhaiykmunaigas OGP; the third round was held among the winners of the Group of Companies of KazMunayGas NC JSC. Employees of Embamunaigas JSC participated in the contest for 10 jobs.

Employee Award and Incentives

In 2018, 334 employees were awarded and rewarded for their labor merits, including recognition letters and certificates of Embamunaigas JSC, certificates and commemorative badges of KazMunayGas NC JSC and KazMunayGas EP JSC, medals and certificates of KAZENERGY, etc.

SOCIAL PROJECTS

Kazakh Specialists Training

The Company allocates significant funds to social projects in terms of training Kazakh specialists under contractual obligations. In particular, a dual training project and a scholarship program are being implemented.

As part of the dual training project, over the past four years, 93 students of the Atyrau University of Oil and Gas, the APEC Petrotechnic Higher College, and the Ufa State Oil University have had practical training in the Company's production units. In addition to a diploma, they received employment record books with a record of work.

Following the results of training in the dual program:

- ▶ Well Testing Operator qualification was assigned to 89 trainees,
- ▶ Process Plant Operator qualification was assigned to 4 trainees,
- ▶ Dehydrator and Desalter Operator second qualification was assigned to 19 trainees from the 4-year AUOG students,
- ▶ Operator in Oil and Gas Production second qualification was assigned to 35 trainees from the 4-year AUOG students, and
- ▶ 37 trainees were employed.

To date, 43 students are engaged in dual training: 19 AUOG students, 4 USOU students, 20 APEC students.

As part of the scholarship program, the Company fulfilled its obligations to pay for education of two students of APEC Petrotechnic Technical School from socially vulnerable groups of the population and children of Embamunaigas JSC employees, pay monthly scholarships in the amount of the minimum wage fixed by the laws for the respective year, arrange the practical training, and one student was employed by the Company.

Under the contractual obligations for subsoil use, Embamunaigas JSC paid for the studies of 49 students.

191 students of domestic and foreign colleges and universities completed practical training at the Company's fields.



Social Support for Employees

The Company provides its employees with a high level of social security. The collective agreement provides for guarantees and benefits, allowances and financial aid. Much attention is paid to solving the urgent problems of each employee: these are social allowances, such as financial aid for health improvement for an annual leave, allowances associated with pregnancy and childbirth, monthly allowance to employees who are on parental leave until a child is 1.5 years old, a lump-sum allowance associated with the death of an employee for a funeral arrangement, a lump-sum allowance to the family of an employee who died in an occupational accident, payment for the vacation of the employees' children, the costs of health resort treatment covered for employees, temporary disability allowance, arrangement of cultural and sports events, catering for employees, etc.

The Company also provides social guarantees for voluntary health insurance for a disease. There is a financial aid provided in accordance with internal regulatory documents for treatment and payment for medical operations, in the event that the cost of treatment exceeds the limit of the insurance program.

In 2018, social allowances to meet the conditions of the Collective Agreement amounted to 233.9 mln KZT. 1,545 people got resort treatment for a total of 338.4 mln KZT; 371.5 mln KZT were allocated for vacation of 2,057 children of employees. In 2018, 606.1 mln KZT were allocated to pay financial aid to pensioners.

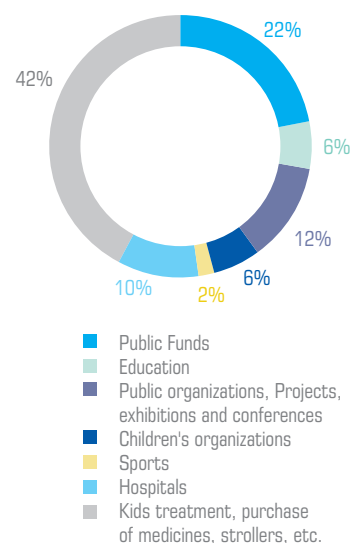
SOCIAL POLICIES

This year, Embamunaigas JSC celebrated the 50th anniversary of the S. Balgimbayev Field. As part of the anniversary celebration, a cafeteria for 150 seats was commissioned and cultural events were arranged for the residents of the area.

In 2018, an official opening ceremony for a new cafeteria for 50 seats was held at the Kissymbay Field, Zhylyoymunaigas OGPO; an official opening ceremony for a new dormitory commissioned for 100 people at the Kenbay Field, Kainarmunaigas OGPO took place.

On the New Year Eve, the traditional charity fair *A Gift from Santa Claus* was held. The goal of the fair is to buy the New Year gifts for children from socially vulnerable groups of the population on the money earned at the fair. Embamunaigas JSC organized a series of traditional charitable New Year parties for children from socially vulnerable groups of the population. More than 600 children from regional specialized and medical institutions took part in the New Year parties. There was a charity New Year party for 200 children with disabilities in the Kurmangazy Palace of Culture.

As part of social policy implementation, the Company provides sponsorship and charitable assistance to sports organizations, disabled persons, low-income pensioners and citizens. In total, in 2018, Embamunaigas JSC provided sponsorship and charitable assistance for more than 216 mln KZT, of which 48.4 mln KZT for the implementation of the statutory goals of public funds, 21.9 mln KZT for medical institutions of Atyrau Region, 12 mln KZT for orphanages, 3.7 mln KZT for sports development, 90.4 mln KZT for the treatment of children.



OCCUPATIONAL HEALTH AND SAFETY, FIRE SAFETY AND ENVIRONMENTAL POLICIES

The life and health of people is our absolute value.

The Company has been producing oil since as far back as 1899. Old fields have been in development for over 50 years, since new rich deposits were discovered only in the 1970–80s. More than two thirds of the fields of Embamunaigas JSC are at a late stage of development; therefore, the Company pays special attention to environmental protection, occupational health and safety.

As a national oil and gas company, Embamunaigas JSC is fully aware of its full responsibility to employees and society for creating and maintaining a safe working environment at all stages of production activities and minimizing the adverse environmental impact.

While delivering the full production cycle from the hydrocarbon exploration and production, transportation and processing to the provision of specialized services, the Company seeks to meet the highest standards of occupational safety and is engaged in continuous improvement of the management system of occupational health and safety, fire safety and environmental protection as a key production control element.

The main objectives of the Company in the area of occupational safety and the environmental protection are as follows:

- ▶ Zero accidents, incidents or spills; and
- ▶ Minimum adverse environmental impact.

The main management principles are as follows:

- ▶ Regulatory compliance
- ▶ Openness
- ▶ Continuous improvement
- ▶ Occupational health and safety
- ▶ Environmental protection
- ▶ Energy saving and energy efficiency.

Occupational Safety

Occupational safety is one of the priorities for the Company's management. Big work has been done recently to ensure the safety of workers, primarily in the area of improving the working conditions, such as building amenities, cafeterias, office facilities, operator buildings for group units, etc. The Company's management pays great attention to the quality of special clothes, special shoes and personal protective equipment purchased.

Production activities of the Company's structural units are associated with increased danger, and Embamunaigas JSC is actively working to reduce the risks of life-threatening accidents and other risks to personnel.

In 2018, the total expenditure on activities for occupational health and safety amounted to 1.3 billion KZT.

In order to encourage engagement in occupational safety, a review competition is held on an annual basis for the best arrangement of work, improvement of the esthetics of production among the workshops and sections of the primary and secondary production.

The Foreman Days are held on a quarterly basis at the production and structural units in order to provide methodological assistance to the foremen in the arrangement of work on occupational safety, with lectures and seminars organized, specialists of departments, specialized organizations for occupational health and safety (State Labour Inspection Office of Atyrau Region, Emergency Department of Atyrau Region, Medicare-Zhaiyk LLP, Semser-Ort Sindirushi LLP) invited as lecturers. These days, among the foremen and mechanics of production workshops and sites, competitions are held for the best arrangement of work on occupational health and safety; the winners are awarded with cash prizes.

In order to avoid and prevent accidents due to weather conditions in the course of hazardous work and to protect the life and health of employees, services are purchased for the daily provision of information on weather conditions in the region.

In 2018, workplace certification was also conducted. Compulsory medical examination and compulsory employee insurance against occupational accidents were provided.

In order to ensure well-kill safety of facilities and to prevent the occurrence and eliminate open water, gas, oil flows, and to do comprehensive work on the implementation of the rules and instructions for preventing the occurrence of open water, gas and oil flows at serviced facilities, and to manage emergency operations on the elimination of open water, gas and oil flows, according to Article 69 of Chapter 14 of Law of the Republic of Kazakhstan No. 188-V dated Apr 11, 2014 *On Civil Defense*; preventive maintenance services to avoid the occurrence and eliminate showings of oil-gas and water, open gas and oil flows. Work is in progress to ensure fire safety.

Occupational Accident Rates

During 2018, four accidents were registered in the production structural units of the joint-stock company. A comprehensive analysis of all four cases was carried out, conclusions were drawn and measures were taken to prevent their recurrence. There were no fatal accidents.

Indicators	For 12 months of 2018
Average number of employees, ppl	5,118
Total number of accidents	4
Total number of injured including:	4
– death accident	–
– severe injury	1
– minor injury	3
Disability category assigned, ppl	–

ENVIRONMENTAL PROTECTION

The Company conducts continuous monitoring of environmental components (air, water, soil, etc.). The environmental protection and prevention of environmental pollution in the course of its production activities are reduced to determining the expected impact on the environment components, developing environmental protection measures that minimize the potential impact.

Openness

The Company is systematically working to reduce the adverse environmental impact.

On January 22, the World Wildlife Fund (WWF) of Russia and CREON group supported by the Ministry of Energy of the Republic of Kazakhstan presented the results of the Rating of Openness of Oil and Gas Companies in the Area of Environmental Responsibility in Kazakhstan in Astana. The project is implemented with the support of the UN Environment Program in Central Asia (UNEP-CA); the rating was calculated by the National Rating Agency.

The rating is based on public information on the activities of companies and is made pursuant to several criteria, such as environmental management, environmental impact and information disclosure/transparency.

For the second year, this rating was led by KazMunayGas National Company, and Karachaganak Petroleum Operating B. V. ranked the second. For the first time, Embamunaigas entered the top three participants demonstrating the greatest commitment to environmental responsibility and transparency among KMG NC subsidiaries.

The Company is deeply aware of its responsibility towards nature and society and is committed to continuous improvement in environmental management, as well as to ensuring maximum transparency and openness.

Impact on the Atmospheric Air

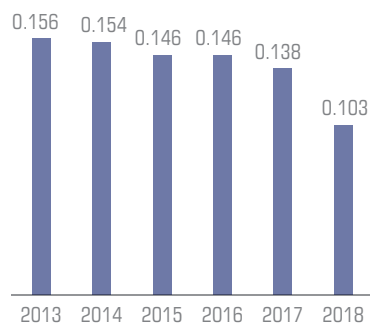
Oil production, collection and treatment of hydrocarbon raw materials to marketable products at the fields are the core production activities of Embamunaigas JSC. The production activities of Embamunaigas JSC are inevitably accompanied by emissions into the atmosphere with a direct greenhouse effect: carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O).

Oil heating furnaces, boiler and flare units, diesel power plants, mobile welding units are the main sources of emissions of pollutants in the production process.

The specific gross emission of pollutants in 2018 was 0.00137 tonnes of pollutants/year per tonnes of hydrocarbon production (0.00169 tonnes of pollutants/year in 2017).

In order to monitor greenhouse gas emissions (parameters for calculating emissions), the enterprise collects information on changes in activity intensity, unit (process) parameters and monitors the appropriate level of greenhouse gas emissions in order to take the necessary measures to prevent emissions and reduce emissions in a timely manner.

Specific Gross Emissions of Greenhouse Gases into the Atmosphere, kg/t of hydrocarbons produced (TFOE)



Associated Gas Utilization

Large-scale work is in progress to keep the environmental balance in the areas where production facilities are located. As part of fulfilling the requirements of the legislative base, i.e. the Code of the Republic of Kazakhstan *On Subsoil and Subsoil Use*, Embamunaigas JSC has developed and approved a number of associated petroleum gas utilization programs aimed at reducing and in the long term 100% eliminating associated petroleum gas flaring. Implementation of the planned programs makes it possible to solve the issues of reducing emissions into the atmosphere, and thereby reduce the contribution of gaseous emissions to the greenhouse effect.

As part of the program of 100% utilization of associated petroleum gas of the Prorva Group of Fields, a project is in progress to commission the Associated Petroleum Gas Desulfurization Unit with a capacity of 150 million m³ per year.

After commissioning, the unit produces marketable gas, marketable granulated sulfur, and stable gas condensate. The project is unique due to the fact that for the first time in Kazakhstan, patented LO-CAT technology from MERICHEM will be used to produce harmless elemental sulfur. This is an environmentally friendly technology; it contains no toxic chemicals, produces no harmful by-products and provides very high hydrogen sulfide removal efficiency.

Previously, similar associated petroleum gas utilization units were launched at the Company's production structural units – Zhaiymunaigaz OGPO (S. Balgimbayev Field) and Dossormunaigaz OGPO (East Makat Field). At these facilities, associated petroleum gas is treated to market standards and sent to satisfy the process and social gas needs of fields. Since 2013, Embamunaigas JSC, through KazTransGas-Aimak JSC, has been supplying marketable gas to the residents of Makat, Kyzylkok and Issatay Districts of Atyrau Region. Thus, in addition to minimizing the adverse environmental impact, these units supply natural gas to the residents of the three districts of the region at a beneficial price.

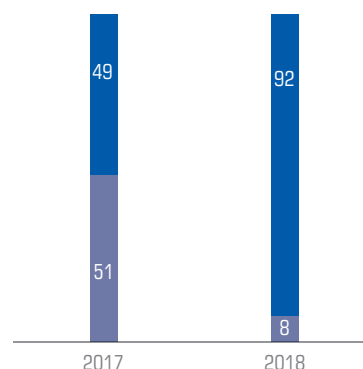
Soil Pollution Prevention

The Company carries out much work to improve the state of the environment within its territories. While developing fields that have a life span of many decades, Embamunaigas JSC has invested heavily in environmental measures and continues investing in projects aimed at cleaning historically polluted areas.

According to the results of previous surveys, the areas of land historically contaminated with oil products were identified within the Company's contract territory. The Company has developed a project and estimates of the reclamation of historical pollution. It is planned to complete the cleaning of the land historically polluted with oil products within the boundaries of the Embamunaigas JSC mining allotment by 2022.

In order to improve the environment in the region and make a comprehensive assessment of the current state of the soil layer within the contract area of Embamunaigas JSC, it is planned to conduct a research on the prevention of land desertification with the development of methods to combat desertification, preserve and restore lands subject to desertification as a result of human activities in 2019. The purpose of the study is to identify disturbed lands, free-moving sand areas and develop specific measures for the restoration of disturbed lands and the prevention of land desertification.

The Level of Associated Petroleum Gas Utilization in Percentage (%)



An integrated approach to the implementation of gas initiatives will create an effective infrastructure for the production based on associated petroleum gas utilization by 2027.

Significant funds are spent annually to clean up historically polluted areas and process oil sludge.

When conducting oil operations, the Company takes measures to prevent, contain and respond to accidental spills. There are accident response plans at the site facilities. Based on the results of 2018, there were no accidental oil spills.

Waste Management

Embamunaigas JSC annually takes measures to reduce waste volumes, thereby reducing the man-made impact of accumulated waste on the environment.

Polluted soil and oil sludge are processed with the involvement of third-party organizations using bioremediation, i.e. an effective and environmentally friendly biological method. In addition, the processing is carried out at the Finnish KASC-30M oil sludge processing unit manufactured by Kalottikone. The recycled soil is used in the construction and repair of roads at the fields.

In addition to this, the auxiliary production waste (waste lamps, oils, etc.) is disposed of by transfer to specialized enterprises.

The ratio of total recycled and neutralized waste (including waste recycled and neutralized by third parties) to the waste in circulation was 0.18 tonne/tonne in 2018.

The Company carries out an inventory of sources of production and consumption waste, draws up passports for each type of waste, develops waste management instructions.

Waste Dynamics, tonnes

	Waste accumulated at landfills as of Jan 1, 2017	Generated in 2017	Disposed of in 2017	Recycled in 2017	Accumulated as of the end of 2017
oil contaminated soil	6,260.72	9,142.68	2,932.91	11,495.53	3,907.87
oil sludge	1,982.76	75	75	500	1,557.76
Total	8,243.475	9,217.684	3,007.91	11,995.53	5,465.629
	Waste accumulated at landfills as of Jan 1, 2018	Generated in 2018	Disposed of in 2018	Recycled in 2018	Accumulated as of the end of 2018
oil contaminated soil	3,907.87	6,008.82	5,841.77	2,167.05	7,749.64
oil sludge	1,557.76	537.7	537.7		2,095.46
Total	5,465.629	6,546.52	6,379.47	2,167.05	9,845.1

Water Protection

As part of the rational use of fresh water, the Company is working on the exploration and further use of groundwater for the production needs of Embamunaigas JSC facilities in the South Emba basin and Kainar massif with an estimation of groundwater reserves of Jura Cenomanian deposits. The implementation of the program will reduce the Company's dependence on the consumption of the Volga water for industrial and domestic needs.

At the Company's facilities, domestic wastewater generated is discharged through an external free-flow sewage system to its own sewage treatment plant with subsequent discharge of treated wastewater to its own wastewater receivers, such as filtration fields or evaporation fields. There is a grid of observation wells available to monitor the state of groundwater around the evaporation fields.

Embamunaigas JSC does not discharge polluted water into natural surface water bodies. In 2018, the water consumption for the Company's own needs amounted to 870,500 m³ (1,012,530 m³ in 2017).

In order to prevent the impacts on coastal and aquatic ecosystems, a protective dam is fortified within the Prorva Field at Zhylyoimunaigas OGPO, and flood-prone and flooded wells are monitored.

Embamunaigas JSC does not discharge polluted water into natural surface water bodies.

Biodiversity

In accordance with the natural agricultural zoning of the land fund, the contract territory of Embamunaigas JSC is located in the desert zone and belongs to the Caspian Province of the subzone of brown soils.

The vegetation within the territory of production facilities is characterized by the predominance of desert and steppe elements; there are typical halophytic (salt-loving) plants in some places with *Echinochloa*, *Halocnemum strobilaceum*, *Suaeda prostrata* Pall, etc.

There are about 39 species of mammals in the area of the production activities of the enterprise. In addition to common rodents (hare, ground squirrel, gerbil, jerboa, etc.), there are predators, such as wolves, corsac foxes, foxes, wild cats, weasels, etc.; ungulates, such as goitred gazelle, saiga and boar; reptiles – viper, whip snake, grass snake, several species of lizards, as well as frogs and toads.

The main measures to minimize the adverse human impact on the flora include:

- ▶ forbidding staff from hunting animals, aimless killing of reptiles;
- ▶ strict adherence to technology;
- ▶ prohibited feeding and luring wild animals;
- ▶ prohibited poaching and all types of hunting; and
- ▶ restoration of degraded land.

Biodiversity conservation is a part of the Company's environmental activities. Environmental monitoring of the state of the environment in the area of location of the facilities is carried out, including monitoring of the state of atmospheric air, groundwater and wastewater, soil, flora and fauna (the amount of funding for 2018 was 58,180 thous. KZT net of VAT).

Energy Efficiency

The Energy Management System of Embamunaigas JSC was developed in accordance with the international standard ISO 50001 and includes the energy management system guidance, documented procedures and manuals. The Company's management determined and approved the Energy Management Policy, set the relevant energy management goals, developed measures to improve energy performance.

ISO 50001 was introduced in 2013 in accordance with the Law of the Republic of Kazakhstan *On Energy Saving and Energy Efficiency Improvement*.

As part of the energy analysis, the amounts of energy resources consumed were measured, such as electricity, natural and associated petroleum gas, oil for internal needs, fuel (gasoline, diesel fuel).

According to the results of the supervisory audit conducted in June 2018, the certification body confirmed the compliance of the Company's activities with the international standard ISO 50001:2011.

The actual key energy efficiency indicator in 2018 was 0.053 TFOE/tonne (the same as in 2017).

Innovations

The Company conducts researches, surveys and other developments in the area of environmental protection. The methods of disposal and detoxification of harmful industrial substances and motor vehicle emissions are studied; the automated production of pollutant monitoring and control systems is developed, which is of current importance due to a huge area of the Company's production facilities; production waste disposal are regulated; and other measures are taken.

The Company also provides environmental awareness raising among employees of the enterprise and the population of the region and is working to improve the skills of specialists in environmental protection.