

Republic of Kazakhstan

**Basic review of official statistics of fossil
energy sources and mineral resources of
the Republic of Kazakhstan**

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1. Government bodies participating in the statistical reporting system

The government bodies involved in the statistical reporting system for fossil energy sources and mineral resources are the Ministry of Investment and Development (MID) and the Ministry of Energy (ME), as well as the Committee on Statistics of the Ministry of Economics of the Republic of Kazakhstan. The Ministry of Investment and Development plays a key role in information gathering, processing and publishing. The Committee of Geology and Subsoil Use, which is a structural unit of MID, serves as the operator of the Extractive Industries Transparency Initiative program (hereinafter EITI), directly collects and prepares baseline data of companies subordinated to MID and ME. All subsoil users are participating in the system. In aggregates for the country as a whole, the activity data of all companies is used. The results of large companies are reflected in the individual indicators of the major subsoil users in the EITI annual report (the largest producers of metals, oil and gas, state-owned companies, or companies with a state share present).

EITI activities in Kazakhstan are coordinated by the National Council of Interested Parties, headed by the Minister for Investment and Development. It consists of deputies of the Mazhilis, representatives of the Ministry of Investment and Development, the Ministry of Economy, the Ministry of Finance, large oil and gas and mining companies, and civil society (three main members and 3 substitutes). The working body is the Secretariat in the Republican Center for Geological Information "Kazgeoinform" of the Committee of Geology and Subsoil Use of the Republic of Kazakhstan.

2. Legislative basis for collecting statistical information

The legislative basis for the collection of statistical information is the "Code on Subsoil and Subsoil Use" (No. 125-VI dated December 27, 2017), Article 76, clause 3 provides that "Subsoil users conducting mineral exploration and mining operations, with the exception of operations on the extraction of common minerals are required to submit to the competent authority reports provided for by the EITI standard, confirmed by a person who is an auditor in accordance with the Law of the Republic of Kazakhstan "On Auditing".

The form of these statements and the guidelines for their completion are developed and approved by the government body authorized to implement the standard of the Transparency Initiative of the Extractive Industries in the Republic of Kazakhstan.

3. National strategies for the development of fossil energy and mineral resources

In the Republic of Kazakhstan, two key documents of the national strategy for the development of fossil energy and mineral resources are relevant:

A. The concept of the development of the geological industry of the Republic of Kazakhstan until 2030. The concept was approved by the Decree of the Government of the Republic of Kazakhstan No. 1042 of August 13, 2012.

B. State Program for Industrial Innovation Development of the Republic of Kazakhstan for 2015-2019

The concept of the development of the geological industry was adopted in view of the

presence of many problems in the mineral resource complex. The key problems and barriers for the further development of the industry were the following:

- 1) low level of advanced geological study of the subsoil;
- 2) an increase in the depth and remoteness of potential deposits;
- 3) a critical reduction in the supply of reserves of the town-forming enterprises of non-ferrous metallurgy;
- 4) weak geological infrastructure, lack of certified laboratories, decline in applied science;
- 5) insufficient level of control over the rational and complex use of the subsoil due to the low number and material and technical equipment of the state geological service;
- 6) lack of professional staff;
- 7) imperfection of the legislative and regulatory framework for geology and subsoil use.

As a result of the implementation of this Concept, the following indicators should be achieved:

- 1) an increase in the share of geological exploration performed by innovative technologies to 75%;
- 2) an increase in funding from extra-budgetary sources in relation to the level achieved by 50%;
- 3) increasing the level of geological and geophysical knowledge of the territory of Kazakhstan through regional and prospecting works up to 70%;
- 4) ensuring the reproduction of stocks to the volume of quenched stocks up to 50%;
- 5) increasing the level of knowledge of the territories of Kazakhstan, subject to the influence of hazardous geological processes, to 70%.

In addition, starting from 2017, opportunities should be explored to ensure the growth of state funding for regional and prospecting work to an average of 50-60 billion tenge annually.

State program of industrial and innovative development of the Republic of Kazakhstan for 2015-2019 focuses on the development of deeper processing in the mining and metallurgical sector, as well as increasing the role of the manufacturing industry.

This program includes measures to support projects selected based on the maximum potential for entering export markets in the following priority sectors:

- 1) ferrous metallurgy;
- 2) non-ferrous metallurgy;
- 3) agrochemistry;
- 4) oil refining;
- 5) oil and gas chemistry;
- 6) car production;
- 7) food production;
- 8) manufacture of electrical equipment.

4. The main statistical database

All statistical reports containing data on fossil energy and mineral resources are contained in the annual National Reports of the Extractive Industries Transparency Initiative (EITI) published since 2005 (<http://eiti.geology.gov.kz/ru/national-reports>).

During the period of the EITI program, 13 national reports were issued, the production of which is financed from the state budget. These reports are prepared by an independent auditing company, which is selected on the basis of a competition held by the Committee of Geology and Subsoil Use.

The last few years The report as of the end of the previous year is issued in October of the following year. However, it was not always the case. Reports for the years 2005-2011 were issued with a lag of two years. This was due to delays in the provision of information by parties to EITI

reporting parties. In the same period, the reports for 2005–2011 contained extremely limited data on the tax payments of subsoil users.

Starting from 2012, these reports were significantly expanded and supplemented with information on energy resources and TPI, annual production, Kazakhstan's place in the world in terms of reserves and extraction of major mineral resources, on the main results of geological exploration in recent years, on exploration reserves, production, export of products of the mineral and raw materials complex, the main countries importers of these products, about leading companies that play a major role in the production of mineral and raw materials, etc.

Today, all subsoil users are involved in EITI reporting.

Thus, starting from 2012, in the Republic of Kazakhstan, statistical data on fossil energy sources and mineral resources are annual data coming from the following sources:

1. Annual reports of subsoil users submitted to the Committee of Geology and Subsoil Use on the fulfillment of contractual obligations under subsoil use contracts. Annual reports include:

- for mining contracts: the volume of extracted mineral reserves (ore, metal, content), losses and dilution, increment of reserves as a result of additional exploration, basic taxes, investments;

- for exploration contracts: the volume of drilling and mining, the volume of geophysical work, exploration costs, basic taxes, total investment;

2. Annual reports of the Committee of Geology and Subsoil Use for State geological study of the subsoil, which include:

- a description of the objects of research, types and volumes of work performed, the costs of these works, the results obtained, including (if available) the increase in stocks;

3. Statistical data of the Committee on Statistics on total industrial production in the Republic of Kazakhstan in physical and monetary terms, including fossil energy sources and mineral resources

In 2013, Kazakhstan was granted the status of "EITI Compliant Country". (Minutes of the 25th Meeting of the International EITI Board

<http://eiti.geology.gov.kz/ru/homepage/normative-base>

The main data of the annual EITI reports is the following information:

- Number and types of contracts (on the site there is an interactive map of subsoil use from which you can get basic information about the contract and the company of the subsoil user)
- Legal basis for subsoil use
- Stocks of energy raw materials (including the country as a whole, by regions of the country and by large deposits)
- Solid mineral reserves (including for the country as a whole, for regions of the country and for large deposits)

Mining (including the country as a whole, by regions of the country and by large deposits)

- Mineral processing
- Products
- Geological exploration
- Export
- Substantial taxes (159 companies). Tax control data
- Dividends on the state share in large mining companies

At the same time, the EITI reports are completely missing information on groundwater, environmental aspects of the subsurface facilities and the social sphere. Groundwater reserves are recorded in the Committee of Geology and Subsoil Use by a special monitoring system from

which data are not available for public access.

5. Basic information of EITI reports

Examples of the latest EITI report for 2017 are examples of the published annual information on energy and mineral resources of the Republic of Kazakhstan.

5.1 Contracts and Licenses

According to the Committee of Geology and Subsoil Use of the MID of the Republic of Kazakhstan, as of January 1, 2018, 582 subsoil use contracts are in force, including 403 for solid minerals (TPI), of which exploration (R) - 182, mining (D) - 101, exploration and mining (RC) - 109 and groundwater (MF) - 179, of which exploration - 2, mining -134, exploration and mining - 44.

More than 90% of hydrocarbon fields are contracted: a total of 214 contracts for the use of mineral resources for hydrocarbon raw materials, including: for exploration - 62, for combined exploration and production - 71, for mining - 70, PSA - 11.

Number of Subsoil Exploration Contracts: 2015 –3, 2016 –19, 2017 –3. In the framework of the contracts for the geological study of the subsoil: at present, the work is carried out under 19 contracts. The amount of investment amounted to - 32 billion tenge.

The number of concluded new contracts for 2017 is 42 contracts, of which, according to direct negotiation protocols, 25 contracts, according to the results of the competition, 15 contracts, by means of conversion - 2 contracts

As can be seen from the above data, the information is not of the same type, so if it is indicated for HCM that more than 90% of the deposits are contracted, there is no such information for the TIS.

The legal basis for subsoil use is given in the form of comments of the new Code "On Subsoil and Subsoil Use", signed on 12/27/2018.

Interactive map of the Committee of Geology and Subsoil Use allows you to select the information displayed on the map, search for information on the map.

On the Interactive map all active objects are indicated by TPI, PV, UVS, PGI: contract territories, at the registration stage, plots provided in a simplified manner, according to received bids, put up for auction, occupied objects, poorly studied. For each site there is data that includes the contract number, type of activity, type of mineral, data on the subsoil user, as well as its details (Fig.1).

5.2 Overview of the extractive industries

5.2.1 Oil and gas sector: reserves, exploration, production, export

1) Reserves

The balance of oil reserves in the Republic of Kazakhstan is 4.8 billion tons. The vast majority of them are concentrated in Atyrau (71.5%) and Mangistau (11.7%) regions. The remaining reserves are dispersed in five regions of the Western, Central, Eastern and Southern regions of the country. The main prospected hydrocarbon reserves are concentrated in the Caspian, North Ustyurt-Buzachinsky, South Mangystausko-Ustyurt and South Torgai, Shu-Sarysuisky sedimentary basins.

As of January 1, 2017, the State Balance accounted for recoverable oil reserves in 277 fields, in 7 of them only off-balance reserves. Of the 263 balance deposits in the subsoil use were 256

objects with reserves of 4745.0 million tons (99% of the reserves of the Republic of Kazakhstan).

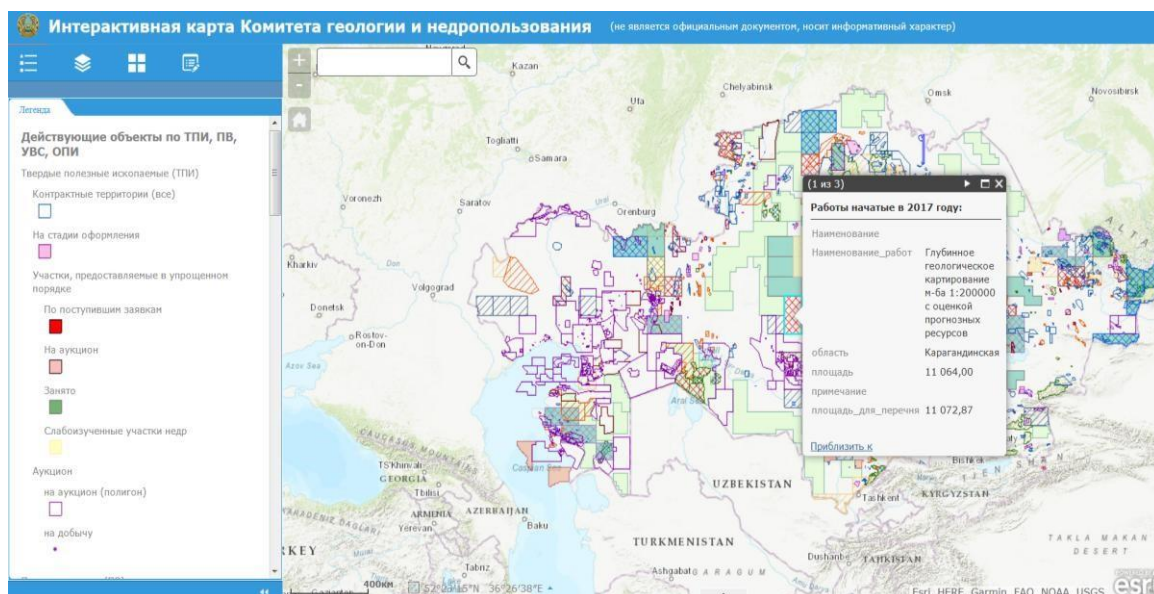


Fig.1 Interactive map of the Committee of Geology and Subsoil Use

: <https://gis.geology.gov.kz/geo/>

The development involved reserves of 4507.5 million tons (94% of the reserves of the Republic of Kazakhstan). The remaining deposits and sites were mothballed and included in the general fund. The total fund is 51.5 million tons and includes 76 objects (deposits and sections of deposits).

Over 90% of oil reserves are concentrated in 15 major fields - Tengiz, Kashagan, Karachaganak, Uzen, Zhetybai, Zhanazhol, Kalamkas, Kenkiyak, Karazhanbas, Kumkol, North Buzachi, Alibekmola, Central and Eastern Prorva, Kenbai, Korolevskoye.

The main oil fields (with initial recoverable reserves of categories A + B + C1 more than 30 million tons (information on production from the reporting of subsoil users))

Subsoil users	Deposits	Recoverable reserves	
		01.01.2017	
		A+B+C1	
		Total	% of the reserves RK
Tengizchevroil LLP	Tengiz (N)	1 028,3	33,1
	Korolevsloe (N)	68,08	2,2
North Caspian Operating Company B.V.	Kashagan (N)	823,6	26,5
JSC "Ozenmunaygaz"	Uzen (without Karamandybasa) (GN)	108,2	3,5
JSC "Mangistaumunaigaz"	Kalamkas (GN)	59,4	1,9
	Zhetybai (OGK)	52,7	1,7
"Buzachi Operating LTD"	Buzachi Northern (GN)	63,6	2,0

Karazhanbasmunai JSC	Karazhanbas (GN)	43,1	1,4
Karachaganak LLP "Petroleum Operating	Karachaganak LLP	176,1	5,7
JSC "SNPS- Aktobemunaygas »	Zhanazhol (NGK)	81,3	2,6
	Northern Pipe	55,5	1,8
Kazakhoil Aktobe LLP	Alibekmola (NGK)	33,7	1,1
PKKR JSC	Kumkol (H)	15,9	0,5
LLP "SP" Kazgermunai "	Akshabulak Center	18,1	0,6
Total:		2 628,1	84,6

In 2017 there was an increase in production to the level of 2007 in the range from 20 to 100%, so gas production - an increase of 100%, oil production - an increase of 20%. The increase in reserves obtained in these years as a result of geological exploration carried out did not compensate for the reserves that were repaid.

According to the BP Statistical Review of World Energy, Kazakhstan has 1.8% of the world's oil reserves in terms of proven oil reserves at the end of 2017 of 3.9 billion tons. In the future, Kazakhstan will remain a significant player in the international market. According to British Petroleum, when the level of reserves at the end of the year and the level of production in 2017, the so-called "Reserves-to-production (R / P) ratio" is 44.8 years - this means that after this time, the oil reserves will be exhausted. The increase in production levels led to a decrease in R / P, which was 49.3 years in 2015.

The projected oil resources amount to about 18 billion tons, including in the Kazakh part of the Caspian Sea - 10 billion tons of free gas and dissolved in oil - about 11 trillion. m3.

The lion's share of gas condensate reserves is concentrated at the largest Karachaganak field - 74%. According to British Petroleum, at the level of gas reserves at the end of the year and the level of production in 2017, the "reserves-to-production (R / P) ratio" is 42.2 years - this means that after so many years, gas reserves will be exhausted. The growth in gas production has led to the fact that R / P has fallen significantly from 75.7 years in 2015.

The explored reserves of coal amount to 34.1 billion tons, of which stone 21.1 billion tons (including 12 billion tons of coked) and 13 billion tons of brown. By the number of reserves and volumes of annual coal mining, the Republic of Kazakhstan occupies 8th and 10th places in the world, respectively.

The main reserves of coal are concentrated in the Central and Northern regions of the Republic - Karaganda, Ekibastuz, Teniz-Korzhinkol coal basins and several separate deposits. The main reserves of brown coal are concentrated in the Torgai (7.5 billion tons) brown coal basin, relatively small reserves are explored in the Pavlodar region (Mikyubensky basin), Aktyubinsk (Mamyt deposit), Almaty (Nizhneiliysky basin) and other areas of the country.

The state balance takes into account the reserves of 5 coal basins and 49 deposits. All facilities of Karaganda (7238 million tons) and Ekibastuz (9367 million tons) coal basins and 22 separate deposits, 10 of them are brown coal and 12 coal, are in the distributed fund. Currently, 5 coal basins and 14 deposits are involved in the development, most of them are mined by the open method.

2) Exploration

The whole complex of exploration is aimed at:

- increasing the degree of geological study of the territory of the Republic of Kazakhstan;
- replenishment and increase of the mineral and raw material base of the regions of the republic in priority types of minerals (reproduction mineral resource base of mining areas);
- Ensuring the national, environmental and energy security of the country and increasing the investment attractiveness of the Republic of Kazakhstan for foreign investors.

Within the framework of contracts for the use of subsurface hydrocarbons (implementation of the LCU) investments for 2012-2016. amounted to 4600 billion tenge, including for geological exploration - 702.9 billion tenge; 42 hydrocarbon fields for the first time put on the state balance in 2012-2016.

Increase in approved hydrocarbon reserves for 2012-2016: oil - 449.6 million tons, gas - 181.5 billion cubic meters, condensate - 92.7 million tons.

In 2017, KMG increased the volume of capital expenditures on geological exploration (GE) in connection with the increasing rate of geological exploration.

In 2017, exploration conducted in the major regions of the subsoil - on exploration areas in Atyrau, Mangistau and Kyzylorda oblasts enterprises Urikhtau Operating, Mangistaumunaigas, KazakhOil Aktobe Bekturly Energy, Amangeldy Gas, UMG, EMG and PetroKazakhstan, as well as offshore Satpaev Operating and Zhambyl Petroleum.

KazMunayGas (KMG) facilities are actively introducing new geological exploration technologies. So, in 2017, a number of projects used new low-frequency vibrators and high-resolution wide azimuth seismic. The technology was tested, receiving high-quality data, at the facilities of Zhetybai, Bekturly Vostochny and Uzen-Karamandybas. According to the results of the obtained data, the locations of exploratory wells are determined.

KMG is conducting a geological exploration program for exploration sites in Atyrau, Mangystau and West Kazakhstan regions.

In 2017, the Company continued exploration work in the Mangystau region (started in 2016). On the territory adjacent to the Uzen and Karamandybas fields, which have been developed since the early 60s of the last century, large-scale 3D seismic surveys have been carried out to study the potential of pre-Jurassic deposits with a depth of over 6 km, which were predicted as prospective from the results of previous geological exploration.

Search and exploration in Kazakhstan is carried out in small quantities. As a result, the increase in reserves does not compensate for their production.

3) Mining of oil and gas

In 2017, coal mining increased by 3% compared to 2016 and amounted to 106.2 million tons, of which 58.8% of production was provided by the Pavlodar region (an increase of 0.9%), 34.0% - Karaganda region (an increase of 4.4%) and 6.5% - East Kazakhstan region (an increase of 12.6%). Over the past few years, there has been a decrease in the volume of coal production in the Pavlodar region, so in 2017 compared to 2012 by 20.5%, while in the Karaganda East Kazakhstan region the volume of coal mining is growing. In Akmola, Almaty and Zhambyl regions mined a very small amount of coal.

According to the Statistics Committee of the Ministry of Economy of the Republic of Kazakhstan and the Ministry of Energy of the Republic of Kazakhstan, in 2017 the volume of oil production, including gas condensate, increased by 10.5% compared to 2016 and amounted to 86.2 million tons, including 72, 9 million tons of crude oil and 13.3 million tons of gas condensate. In 2016, 78.0 million tons of oil and gas condensate were produced (a decrease of 1.9% compared with 2015).

According to the Ministry of Energy of the Republic of Kazakhstan, in December 2017, the three largest companies accounted for 68.7% of the total oil and gas condensate production. More than a third of the market for crude oil and gas condensate is Tengizchevroil LLP - 37.5%, followed by Karachaganak Petroleum Operating B.V - 16.8%. North Caspian Operating Company BV ranks third in terms of production volumes. - 14.4%.

In 2017, in the Atyrau region, oil and gas condensate production increased by 25.4% compared to 2016, to 42.2 million tons and in West Kazakhstan region - by 6.6%, to 13.2 million tons. In other regions, a decrease is observed: in Mangistau oblast - by 0.7%, to 18.0 million tons, in Aktope region - by 3.5%, to 6.0 million tons and in Kyzylorda region - by 11.2%, to 6.8 million tons.

The main increase in production in 2017 was due to the increase in oil production at the Tengiz fields (28.7 million tons) and Karachaganak (12.5 million tons), and there was also a steady growth at the Kashagan field (8.2 million tons) . The reduction in production in the Kyzylorda region is associated with the depletion and increase in the water content of the developed fields.

For 2018, the plan for oil production is 87 million tons. The main increase is expected due to Kashagan. The production plan for Kashagan is 11 million tons. At the same time, a decline in production at the fields of the Kyzylorda and Aktope groups is expected, due to the late stage of development and the natural depletion of these fields.

According to the Statistics Committee of the Ministry of Economy of the Republic of Kazakhstan, natural gas production in 2017 amounted to 52.9 billion cubic meters, an increase of 13.4% compared to 2016. According to data for December 2017, LLP leads in gas production Karachaganak Petroleum Operating B.V. - 38.0%, Tengizchevroil LLP - 29.8%, North Caspian Operating Company B.V. - 12.3% and AO "SNPS-Aktobemunaygaz" - 11.5%. These companies account for 91.6% of total natural gas production. In 2017, natural gas production increased in all regions except the Kyzylorda region, where the production volume decreased by 10.1% compared with 2016, from 1.28 billion cubic meters. m to 1.15 billion cubic meters In the Atyrau region, 20.9 billion cubic meters were produced. natural gas, an increase of 31.4% compared with 2016, the West Kazakhstan region - 20.2 billion cubic meters. m (an increase of 5.1%), Aktope region - 6.7 billion cubic meters. m (an increase of 2.2%), as well as Mangistau region - 3.1 billion cubic meters. m (an increase of 7.0%).

In the regional context, the contribution of Atyrau Oblast to the production of natural gas increased from 34.1% in 2016 to 39.9% in 2017, and the contribution of West Kazakhstan Oblast decreased from 41.2% in 2016 to 38, 5% in 2017. The contribution of the Aktope region also decreased from 14.1% in 2016 to 12.8% in 2017.

Cost of mining

Name	The volume of industrial production (goods, services), mln. tenge		Change, 2017 in% by 2016
	2017	2016	

Industry	22 790 209	19 038 243	7,3
Mining and quarrying, including	11 568 785	9 397 794	9,3
Coal and lignite mining	292 079	232 703	5,2
Extraction of crude oil and natural gas	9 202 733	7 409 929	10,6
Crude oil production	8 994 914	7 293 085	10,5
Natural gas production	207 819	116 844	12,6
Metal ore mining	1 188 391	989 193	7,5
Iron Ore Mining	244 024	194 828	7,0
Mining of non-ferrous metals	944 368	794 365	7,6
Other mining industries	191 988	175 869	10,6
Technical Services for Mining	693 593	590 100	2,9
Processing industry, including	9 400 848	8 058 165	5,6
Production of basic precious and non-ferrous metals	2 531 768	2 239 582	6,3

4) Export

In 2017, coal exports increased compared to 2016, both in physical volume (by 15.8%, to 27.5 million tons) and in value (by 1.5 times). Russia accounts for 77.4% of total exports of hard coal. Also, Kazakhstan's coal exports are growing to Finland, Kyrgyzstan and Switzerland. Coal-producing regions - Pavlodar and Karaganda regions - the main exporters of coal.

Export of coal by countries

Country		2017		2016		2017 by 2016, %	
		Volume	\$mln	Volume	\$mln	Volume	Coast
Coal	Tt	27501,9	448,9	23751,8	296,7	15,8	51,3
Kyrgyzstan		1080,2	18,7	967,5	17,6	11,6	6,3
Russia		21291,8	259,4	19376,3	175,5	9,9	47,8
Ukraine		404,4	54,6	591,5	53,3	-31,6	2,4
Finland		3 450,3	51,4	2 062,2	31,6	67,3	62,4
Switzerland		760,7	48,6	296,1	11,5	2,6 p	4,2 p
Other		1275,2	64,8	754,3	18,7	69,0	3,5 p

In December 2016 (Vienna, Austria), a ministerial meeting of OPEC countries and non-OPEC countries was held, at which 25 countries participated, including 14 OPEC countries and 11 non-

cartel countries (Kazakhstan, Russian Federation, Azerbaijan, Bahrain, Bolivia, Equatorial Guinea, Malaysia, Mexico, Oman, Sudan and South Sudan). As a result, the countries agreed to speed up the process of restoring equilibrium in the global oil market by reducing the total oil production by 1.8 million barrels per day. This agreement entered into force on January 1, 2017. The agreement was concluded in the first half of 2017 with the possibility of renewal. In May 2017, its validity period was extended by 9 months - until the end of March 2018.

The deal under the OPEC + agreement to reduce oil production in 2017 allowed to balance the supply in the oil market and raise oil prices. As a result, according to the EIA, the average price for Brent oil for 2017 in the global commodity markets was \$ 54.25 per barrel (2016 - 43.64 dollars per barrel).

According to the Statistics Committee of the Ministry of Economy of the Republic of Kazakhstan and the State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan, in 2017 exports of oil and gas condensate amounted to 68.7 million tons, which is 10.5% more than in 2016, including EEU countries amounted to 131.9 thousand tons, which is 19.9% more than in 2016, as well as 3.6 million tons of oil products and 16.8 billion cubic meters. natural gas. Thanks to rising crude oil prices on world markets, revenues from crude oil exports reached \$ 26.6 billion - an increase of 37.8% (year-on-year).

According to the Ministry of Energy of the Republic of Kazakhstan, oil exports amounted to 69.8 million tons, or 112.4% by 2016 (a difference of 1.1 million tons).

The deal under the OPEC + agreement to reduce oil production in 2017 allowed to balance the supply in the oil market and raise oil prices.

Export of oil and gas condensate by country

Country		2017		2016		2017 by 2016,%	
		Volume	\$mln	Volume	\$mln	Volume	Coast
Crude oil and gas condensate	tt	68715,3	26587,4	62 174,1	19295,7	10,5	37,8
Belarus		64,2	21,4	44,3	12,6	44,9	69,8
Russia		66,2	16,1	64,7	12,3	2,3	30,9
Uzbekistan		182,9	75,4	136,8	51,4	33,7	46,8
Bulgaria		444,6	157,7	203,2	66,0	2.2 p	2,4 p
Greece		1 998,6	799,6	2 594,7	789,4	-23,0	1,3
Spain		3 484,4	1 380,2	2 937,8	911,1	18,6	51,5
Italy		21 283,4	8 450,7	21 865,3	7 306,2	-2,7	15,7
China		2 357,1	853,4	3 240,9	876,5	-27,3	-2,6
Korea, Republic		2 375,5	956,0	270,6	93,6	8,8 p	10,2 p
Lithuania		1 320,1	515,8	671,1	186,7	96,7	176,3
Malta		499,2	191,0	125,2	48,5	4,0 p	3,9 p
Netherlands		9 424,1	3 643,7	7 850,6	2 376,5	20,0	53,3
Poland		927,7	350,7	317,0	99,1	2,9 p	3,5 p

Portugal		1 518,6	596,0	1 122,5	355,3	35,3	67,7
Romania		2 409,2	878,7	2 829,5	811,4	-14,9	8,3
Turkey		469,5	180,1	535,2	175,8	-12,3	2,4
France		7 029,8	2 806,0	5 000,0	1 572,8	40,6	78,4
Croatia		723,9	288,7	118,8	31,8	6,1 p	9,1 p
Switzerland		7 459,4	2 633,2	7 556,8	2 065,9	-1,3	27,5
Japan		833,9	339,4	678,8	210,7	22,8	61,1
Other		2 497,2	909,7	3 645,3	1 115,5	-31,5	-18,4

According to the Statistics Committee of the Ministry of Economy of the Republic of Kazakhstan and the State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan, in 2017 natural gas exports amounted to 25.6 billion cubic meters. m, which is 18.5% more than in 2016. In terms of value, the export of natural gas reached 1.6 billion dollars, 23.9% more than in 2016. This is 3.3% of the total Kazakhstan's export earnings in 2017

In 2017, natural gas supplies to Ukraine increased by 53.4% compared with 2016 and reached 9.0 billion m³, to Switzerland - by 37.1% (5.5 billion m³). At the same time, the volume of natural gas supplies to Poland decreased by 10.8 times, to 220.4 million m³. The volume of gas exports to China amounted to 1.1 billion m³.

In 2017, with the commissioning of additional capacities of the gas pipeline system, namely the Beineu-Bozoi-Shymkent gas pipeline and the C pipeline of the Kazakhstan-China gas pipeline, a technical opportunity appeared for exporting gas to China. In 2017, for the first time, Kazakh gas began to be exported to China as part of a signed agreement between KazTransGaz JSC and Petro China International Company Limited. A contract for the supply of gas in the amount of 5 billion cubic meters. m per year. Negotiations are underway to increase gas supplies to China to 10 billion cubic meters. m. per year. This will increase the income of domestic companies and budget revenues. Thus, for the first time in history, the republic had the opportunity of alternative exports.

In 2017, natural gas exports to Russia slightly decreased - by 1.7% compared with 2016 and amounted to 8.8 billion cubic meters. In 2017, 1.5 billion cubic meters were exported to Uzbekistan. m of natural gas.

5.2.2 Mining sector: reserves, exploration, mining, export

1) Reserves and exploration

In Kazakhstan, the state balance takes into account mineral reserves for 102 types of mineral raw materials, including 40 types of solid minerals. In almost the majority of the main minerals developed in 2017, there was an increase in production to the level of 2007 ranging from 8% -15% to 26%. The extraction of uranium (326%), copper (47%), lead (25%), and gold (19%) increased particularly significantly. The increase in reserves obtained in these years as a result of geological exploration, did not compensate (with the exception of iron, manganese, copper and gold) for the quenched reserves. In addition, the reserves of copper, gold, iron, and manganese taken into account in recent years are mainly characterized by low quality and cannot be equivalent to the quenched reserves.

As a result of extensive exploitation, the reserves of zinc (14.7%), aluminum (15%), lead

(9%), chromium (7%), and silver (8.5%) decreased significantly to the level of 2007. Conducted studies show that Kazakhstan, with the production performance reached at present, is provided for a relatively long term with only reserves of coal and ferrous metals.

Ferrous and alloying metals. In terms of proven reserves of iron ore, the Republic of Kazakhstan ranks fifth, and in terms of their quality, it ranks third in the world. The balance reserves of iron ore are about 20 billion tons, of which 79% is concentrated in the Torgai iron ore region (Kostanay region). As of January 1, 2017, the State Balance accounted for iron ore reserves for 68 objects, of which 38 with balance reserves of 10.2 billion tons were transferred to subsoil users for exploration and mining operations.

During the period from 2007 to 2017, 468 million tons of iron ore were mined, including 35.7 million tons in 2017. As a result of geological exploration in 2015-2017 and the reports of which passed the state examination, an increase in iron ore reserves in the amount of 1 billion tons was obtained.

In terms of proven reserves of manganese ores, the Republic of Kazakhstan ranks third in the world, but in terms of quality, it is significantly inferior to the world's major producers. The main part of the manganese ore reserves is concentrated in the Atasuysky ore district of the Karaganda region, where they are mined. The remaining identified reserves are located in Mangystau, Akmola, Zhambyl, Aktyubinsk, Almaty and East Kazakhstan regions. As of January 1, 2017, the state balance of the Republic of Kazakhstan takes into account reserves of 42 objects (38 deposits and 6 technogenic-mineral formations (hereinafter - TMO), of which 4 are off-balance ores. Of the 38 balance objects 28 have reserves of 664 million tons (98% from reserves of the Republic of Kazakhstan) transferred for exploitation and exploration to subsoil users (distributed fund). In 2016, they were involved in the development of 6 objects with a balance sheet reserves of 194 million tons (28.6% of the reserves of the Republic of Kazakhstan). At other sites, geological exploration preparation for use. In addition, 11 objects with stocks 15 Mill. tons (2.2% of the Republic of Kazakhstan stocks) are on standby (unallocated Fund).

In terms of total reserves and quality of chrome ores, the Republic of Kazakhstan ranks first in the world. According to the US Geological Survey, 86% of the world's reserves of chrome ores are in the Republic of Kazakhstan and South Africa. The balance reserves of chrome ores are 362.7 million tons. They are concentrated in chromite deposits located in the southeastern part of the Kempirsai ultrabasic massif (Aktobe region). As of January 1, 2017, the state balance of reserves of chrome ores includes 17 deposits. 9 deposits (with reserves of 356.4 million tons (98% of the reserves of the Republic of Kazakhstan) were transferred to two subsoil users (Transnational Company Kazchrome JSC and Voskhod-Oriel LLP). They in 2016 were involved in the development of 7 facilities with reserves of 344.8 million tons (95% of the reserves of the Republic of Kazakhstan). There are 8 objects in reserve, including 6 with balance reserves. In total from 2007 to 2016, 4,121 tons of chrome ores have been mined. As a result of geological exploration an increase in reserves of 321 thousand has been obtained on the site of Dubersai deposit 40 years of the Kazakh SSR tons. Thus, the required replenishment of waste reserves of chrome ores almost does not occur.

According to the confirmed reserves of titanium dioxide, the Republic of Kazakhstan is in 9th place in the world. Among the CIS countries, it takes 2nd place (after Russia). The top three reserves are China (220 million tons), Australia (150 million tons) and India (85 million tons). The state balance of mineral reserves of the Republic of Kazakhstan includes 16 objects of titanium dioxide, of which only 5 off-balance reserves are in 5 of them. In the subsoil use there were 9 objects with balance reserves of 40 million tons of TiO₂ (87% of the reserves of the Republic of Kazakhstan), of which 2 fields were in development (Satpayevskoye and Shokash) with reserves

of 2.8 million tons (6% of the reserves of the Republic of Kazakhstan) . There were 8 placers in reserve with balance reserves of 5,574.7 thousand tons of TiO₂ and low contents of titanium dioxide. In 2007-2016, placer deposits were in operation: Shokash (2007-2016), Satpayevskoye (2007-2016), Obukhovskoye (2010-2012) and Velikhovskoye Yuzhnoye (2014), of which 125.3 thousand were mined tons of titanium dioxide. As a result of geological exploration conducted in the period under review at the titanium-magnetite deposits of Velikhovskoye, Tymlay and revaluation of placer deposits, the TiO₂ reserves by category in 2016 increased compared to 2007 by 21.5 million tons (mainly due to the Tymlay deposit).

In terms of the number of confirmed reserves of vanadium pentoxide, the Republic of Kazakhstan lags far behind most of the world's producers. The quality of them, in general, does not meet the requirements of the world market. According to the US Geological Survey, the main reserves of vanadium (in thousands of tons) are concentrated in the fields of China (9,000 tons), Russia (5,000 tons) and South Africa (3,500 tons). The same countries account for the main production volumes of vanadium-containing mineral raw materials - China (42,000 tons), Russia (16,000 tons), South Africa (12,000 tons). The state balance takes into account the reserves of vanadium pentoxide in 15 fields, including 11 solid mineral deposits and 4 hydrocarbon deposits. All of them, except for the small deposits Karaotkel and Zhebaglinsky, are in a distributed fund.

Non-ferrous metals. Copper. Balance reserves of copper are 40.8 million tons. The vast majority of them (82%) are concentrated in the Eastern and Central regions of the country. The remaining 18% of reserves are unevenly distributed throughout the territory of the Republic of Kazakhstan. The state balance takes into account reserves for 125 fields, of which 8 fields contain only off-balance reserves. Of the balance deposits, 93 with 40 million tons of copper reserves (97% of the reserves of the Republic of Kazakhstan) are in a distributed fund. In 2017, subsoil users were involved in the development of facilities with copper reserves of 20.4 million tons (50% of the reserves of the Republic of Kazakhstan). Exploration and preparatory operations were carried out at the remaining facilities. In addition, 23 objects with reserves of 0.93 million tons (2.3% of the reserves of the Republic of Kazakhstan), characterized by small reserves and relatively low copper contents, are in reserve (unallocated fund). As a result of geological exploration, carried out in 2015–2017 and whose reports underwent state expertise, an increase in reserves in the amount of 1,673 thousand tons was obtained, which made it possible to fully compensate for the reserves quenched during production.

Nickel, cobalt. According to the US Geological Survey, the Republic of Kazakhstan ranks 13th in confirmed nickel reserves, and cobalt in 9th place in the world. The group of leaders in terms of nickel production includes the Philippines, Russia, Canada, Australia. The balance reserves of nickel are 2,041 thousand tons, cobalt - 208 thousand tons. The overwhelming number of them is concentrated in Kostanay (52% and 69%) and Aktobe (25% and 13%) regions, within the limits of Kostanay and Ural cobalt-nickel-bearing provinces allocated here. The remaining reserves of nickel and cobalt are associated with cobalt-nickel objects in the East Kazakhstan (Priirtysh ore district) and Pavlodar (Ekibastuz-Bayanaul ore district) regions. The state balance of mineral reserves of the Republic of Kazakhstan as of January 1, 2017 accounted for 41 nickel deposits and 58 cobalt deposits, of which, respectively, in 8 and 18 sites - only off-balance reserves. The distributed fund contains 4 nickel facilities with balance reserves of 537.7 thousand tons (26% of the reserves of the Republic of Kazakhstan) and 6-cobalt with reserves of 83 thousand tons (40% of the reserves of the Republic of Kazakhstan). In reserve (unallocated fund) there were 29 nickel facilities with reserves of 1,503 thousand tons (73% of the reserves of the Republic of Kazakhstan) and 34-cobalt with balance reserves of 125.3 thousand tons (60% of the reserves of the Republic of Kazakhstan). In general, as a result of the revaluation for the period 2007-2016, nickel reserves of nickel increased by 219 thousand tons. Cobalt reserves

decreased by 166.3 thousand tons, mainly as a result of their transfer to off-balance ones.

Tin. By the number of confirmed reserves of tin, the Republic of Kazakhstan ranks 8th in the world, in terms of its quality it (Syrymbet deposit) is not inferior to the main world producers. The state balance takes into account 15 deposits, of which in three sites only off-balance reserves. At present, the real resource base of the country is represented by one Syrymbet deposit, the remaining tin-containing objects due to low content and, for the most part, insignificant reserves do not have practical value. The main reason hindering the operation of the Syrymbet deposit is the lack of an acceptable technology for the beneficiation of its clay ores. The solution of this problem will allow to bring into operation not only tin ores of the deposit, but also a section of tantaliferous weathering crusts discovered in its ore field, the development of which is possible by a single quarry.

Lead, zinc. Lead and zinc are usually found in nature together and are represented by complex lead-zinc ores in deposits of various geological and industrial types. They are mainly concentrated in the Eastern, Southern, Central and Western regions of the country. According to the confirmed reserves of zinc and lead, Kazakhstan takes 4 and 3 places respectively in the world. In terms of the average content of these metals in ores, it is significantly inferior to the major world producers - Australia and China. Currently, deposits of the Ore-Altai geological-industrial type (East Kazakhstan), providing 44.3% of lead production and 60.2% of zinc in the country, are of paramount importance for the country's economy.

As a result of geological exploration in 2015-2017 and the reports of which underwent state expertise, an increase in reserves in the amount of 3,984.1 thousand tons was obtained, which allowed not only to compensate for all reserves quenched during production, but also to obtain a real increase in manganese reserves. ore

The state balance as of January 1, 2017 accounted for 93 deposits of zinc and 96 deposits of lead. Of these, respectively, in 19 and 22 deposits, only off-balance reserves. In 2017, 63 complex deposits (distributed fund) with a balance of zinc reserves of 28.7 million tons (88.2% of the Republic of Kazakhstan reserves and 13.7 million tons of lead (87.2% of the Republic of Kazakhstan). The development involved 18 deposits with balance reserves of zinc - 9.2 million tons (28.3% of the reserves of the Republic of Kazakhstan) and 15 - lead reserves of 3.6 million tons. At the rest of the fields, geological exploration or preparation for operation. 34 and 37 respectively were in reserve There are mainly small deposits with total balance reserves of zinc of 3.8 million tons and lead of 2.0 million tons. In 2007-2017, 18 to 32 deposits were involved in exploitation, of which 6 714 were mined during this period. thousand tons of zinc and 1,152 thousand tons of lead. As a result of exploration work carried out in 2015-

In 2017, according to reports that have passed the state expertise, zinc and lead reserves growth was obtained, respectively, 1.7 thousand tons and 110 thousand tons.

Bauxite. According to the US Geological Survey, the Republic of Kazakhstan ranks 13th in the world in proven bauxite reserves, and in terms of mine production in 8th place. All industrially significant deposits of bauxite are concentrated in the Torgai bauxite province (Kostanay region), with bauxite reserves of 311.3 million tons. It distinguishes three bauxite regions: West, East and Central Torgai, which comprise, respectively, 86.9%, 5.3% and 7.8% of the province's reserves. The associated minerals of bauxite are refractory clays (Krasnooktyabrskoe deposit), and the associated components are gallium and vanadium. The state balance takes into account reserves for 27 fields, in two of them (Ushtobinskoe and Syrymbet) only off-balance reserves. In the subsoil use (distributed fund) there were 13 deposits with reserves of 283.8 million tons (89.0% of the reserves of the Republic of Kazakhstan), 5 of them were developed with reserves of 149.2

million tons (46.8% of the reserves of the Republic of Kazakhstan) . In reserve (unallocated fund) there were 12 fields with reserves of 35.0 million tons (11.0% of the reserves of the Republic of Kazakhstan) During the period under review (from 2007 to 2017), there were 6 to 8 deposits in operation. A total of 52 million tons of bauxite was mined, of which in 2017 - 5.1 million tons. The explored reserves of aluminum raw materials (bauxite) are 318.8 million tons (52% are exploited, 28% are explored, 20% are unlicensed), of which 311 million tons are concentrated in the Torgai bauxite province (Kostanay region). 22 deposits of predominantly low-grade bauxite ore have been established here.

In general, from 2007 to 2017, bauxite reserves decreased by 56.4 million tons. The major problem of the industry is the complete solution of the issue of low-grade bauxite ore processing technology, which will enable the exploitation of reserve deposits. The state balance accounts for 27 bauxite deposits, of which 9 are exploited, 6 are explored, and 12 are reserve.

Gold. The balance reserves of gold are 2418.1 tons (75% are exploited, 21% are explored, 3% are unlicensed), of which 85% are located in the Eastern, Northern and Central regions of the country. The remaining 15% are dispersed in the regions of South and West Kazakhstan. The leading geological and industrial types of gold deposits that form the basis of the raw material base of the gold mining industry are gold ore (60% of balance reserves and 67% of gold production) and complex (36% and 32% respectively). In 2007-2016, 483.2 tons of gold were mined.

As a result of exploration in 2015–2017, gold reserves increased by 120,931 kg. An important task of the industry is to solve the problem of enrichment of refractory ores, which will allow the largest gold deposit Bakyrchik and a number of similar facilities to be brought into operation. The country's security of proven gold reserves (with achieved performance) is about 40 years. The state balance accounts for 343 deposits (386 objects) of gold, of which 110 are exploited, 110 are explored, and 100 are reserve objects.

Annual reports for 2017 were published. JSC “NGK” Kazgeology”, JSC“ NGK “TauKen Samruk”, JSC “Altyntau Kokshetau”, JSC “GMK” Kazakhaltyn”, JSC“ AK Altynalmas, KAZ Minerals PLC, Polymetal International PLC, and KMG OLD JSC for 2016.

In 2017, according to the data of the Committee of Geology and Subsoil Use of the MID of the Republic of Kazakhstan, mineral reserves were increased: gold –35 tons, silver - 25 thousand tons, copper –1.1 million tons, lead - 1.5 thousand tons uranium - 14.3 thousand tons. The planned targets for the growth of the forecast gold resources –1.5 thousand tons, copper - 28.2 million tons, polymetals –22.6 million tons were achieved in full. New promising areas and sites have been identified.

According to the data of JSC NGK Kazgeology, 37.60% of the world reserves of chrome ore, 30% of manganese ores and 6% of iron ores are concentrated in Kazakhstan. Copper reserves are 7.10%, lead 22% and zinc 15.20% of the world. In terms of gold reserves, Kazakhstan ranks 8th in the world, and in terms of silver reserves - 2nd place. The raw material base of the gold mining industry in Kazakhstan is mainly represented by small and medium-sized deposits by the standards of the industry.

Large gold deposits of the Republic of Kazakhstan

Region	Deposits
North Kazakhstan	Vasilkovskoe, Varvarinskoe, Uzboy, Symbat, Komarovskoe, Elevatornoe, Akkarginskoe, Zhetygorinskoe

Central Kazakhstan	Maykain, Quartzite Hills, Enbekshi, Desert
Eastern Kazakhstan	Bakyrchik, Suzdal, Bolshevik, Vasilyevskoe, Ridder-Sokolnoe, Zhanan, Akzhal, Kaskabulak
South Kazakhstan	Akbakai, Altyntas, Dalaby, Aksakal-Beskempir, Mynaral, Zharkulak, Karamurun, Arkharly, Kumysty
Western Kazakhstan	Jubileinoe

The largest gold mining facility in Kazakhstan is the Vasilkovskoye deposit, 17 km north of the city of Kokshetau. The proven reserves of the Vasilkovskoye deposit amount to 370 tons of gold, with an average grade of 2.8 g / t of ore. The field has been developed since 1979. Since 1991, semi-industrial tests of ore processing have been carried out at the Vasilkovsky mining and processing plant using the heap leaching method.

The second place in terms of reserves is taken by the Bakyrchik field, located in northeastern Kazakhstan (approximately 100 km from the city of Semipalatinsk). Its ore reserves are 208 tons with an average grade of 7.5 g / t, and mineral resources - 118 tons with an average grade of 6.9 g / t (including the Bolshevik deposit). The development of the field is difficult due to the high content of carbon in the ore, as well as toxic arsenic, which creates a threat of environmental pollution. The field is interesting for mining using the technology of bacterial or autoclave leaching of flotation concentrates.

The next in terms of reserves and industrial significance may be the Aksu, Quartzite Hills, Bestobe, Zholymbet deposits. These deposits are developed by the underground method.

According to the World Gold Council, by the end of 2017, Kazakhstan entered the top 20 countries in the world in terms of gold reserves, possessing 286 tons of pure gold.

Kazakhstan is the second country in the world in terms of uranium reserves and resources. According to the IAEA, uranium reserves and resources in Kazakhstan currently amount to about 1.6 million tons. Exploration work carried out in 2015–2017 and whose reports underwent state expertise, an increase in uranium reserves in the amount of 16,855 tons was obtained. Of the 56 explored deposits with balance reserves of uranium, 16 are being developed, and the remaining 40 are in reserve.

According to the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan with reference to the data of the Committee of Geology and Subsoil Use, the volume of investments in the subsoil use of the mineral resource complex (excluding investments in the UVS) in 2017 amounted to KZT 1260.1 billion, including

- in geological exploration - 28.9 billion tenge (2.3% of the total investment),
- other investments - 1231.2 billion. tenge (97.7%).

The leading regions in investing in subsoil use are the East Kazakhstan region - 349.7 billion tenge (27.8% of the total investment), the Karaganda region - 313.7 billion tenge (24.9%), Kostanay region - 213, 3 billion tenge (16.9%), Aktobe region - 137.6 billion tenge (10.9%), and Akmola region - 119.2 billion tenge (9.5%).

In 2017, the priority areas of investment are objects of subsoil use of copper - 317.3 billion tenge (25.2% of the total investment), and large investments are also directed at the main types of minerals: polymetals (lead and zinc) - 260.9 billion tenge (20.7% of all investments), gold - 254.7 billion tenge (20.2%), iron and manganese - 174.5 billion tenge (13.8%), chromite - 78.9

billion tenge (6.3%) and aluminum (bauxite) - 34.0 billion tenge (2.7%).

In 2017, the cost of mining operations amounted to - 896.4 billion tenge (71.1% of the total investment), to monitor the state (pollution) of the subsoil - 12.4 billion tenge (2.3%), social sphere and local infrastructure - 9.2 billion tenge (0.7%) and funds allocated for training Kazakhstani specialists - 3.1 billion tenge (0.2%).

For more than 3 years, Kazgeology JSC has successfully cooperated with major mining companies, such as Rio-Tinto, Ulmus, Illuka. In 2017, the project was completed with the Japanese corporation «JOGMEC». According to the Annual Report of Kazgeology JSC, geological exploration is carried out within the framework of 10 investment projects implemented in cooperation with foreign investors.

The sum of attracted investments at the search stage within the framework of the above projects will amount to 16 billion tenge. For 2015-2017 attracted 5.8 billion tenge of investments, including the company JSC "Kazgeology" was invested in promising projects 445 million tenge. In 2017, the volume of investments compared to 2016 increased by 1.9 times.

2) Mining

In 2017, the Committee on Statistics of the Ministry of Economy of the Republic of Kazakhstan does not disclose data on the extraction of certain types of mineral production in the regions, for example, data on gold production in Astana, silver in the East Kazakhstan region, etc. Instead of an indicator for production, an explanation of the Committee is indicated according to statistics - the data are not filled due to the fact that this type of product is produced by a single enterprise in the region. In accordance with clause 5 of Article 8 of the Law of the Republic of Kazakhstan "On State Statistics" dated March 19, 2010 No. 257, statistical information that directly or indirectly identifies the respondent or determines primary statistical data about him is confidential and can be disseminated only if the respondent agrees.

Gold. According to the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan, in 2017, the production of raw and semi-processed or in the form of gold powder increased by 14.2% compared to 2016 and amounted to 85 339 kg (85.3 tons). Gold production is growing steadily, in 2017 compared to 2010 increased by 2.8 times.

Gold production in the Akmola region increased by 3.1% and amounted to 26.9 tons, or 31.5% of the total in the Republic of Kazakhstan for 2017. Gold production in the East Kazakhstan region decreased by 1.5%, to 22, 7 tons, 26.6% of the total (Figure 25). In 2017, gold production in the Karaganda region increased compared to 2016 by 25.7%, to 10.3 tons, Kostanay region - by 1.6 times, to 4.5 tons, Zhambyl region - by 12.7 %, up to 2.1 tons and Pavlodar region - 1.8 times, up to 0.4 tons (Appendix 6).

Significant volumes of gold production in 2016 were recorded in Astana - 12.4 tons, or 16.6% of the total. For 2017, data on gold production in Astana has not been disclosed by the Committee on Statistics of the MNE RK.

According to JSC NGK Tau-Ken Samruk, in 2017 the volume of production of raw gold in Kazakhstan amounted to 85,029 kg, which is 13.8% more than in the same period of 2016. According to the Committee on Statistics, the volume of production unprocessed gold was 85 339 kg (see below) - discrepancy by 310 kg.

According to JSC NGK Tau-Ken Samruk, in 2017, in Kazakhstan, 19.7 million tons of gold-bearing ore were mined by such companies as Polymetal, Kazakhaltyn, Altyntau, Kazakhmys, Altynalmas "and others.

All gold produced in Kazakhstan is currently purchased by the state, replenishing the country's gold and foreign exchange reserves with refined gold bars. In 2017, according to the annual report of JSC NGK Tau-Ken Samruk, the production of refined gold at a refinery in Astana amounted to 579 thousand ounces (18 tons), of which 113 thousand ounces (3.5 tons) processed from raw materials obtained on a give-and-take basis (tolling). The plan for the production of gold refining for 2017 was fulfilled by 120% of the plan. The production plan of metallurgical silicon for 2017 at the plant in Karaganda was fulfilled by 66%.

JSC Altyntau Kokshetau, a subsidiary of Kazzinc LLP, provides gold production from mining gold ore to cathode gold production (Dore alloy). The company is developing the Vasilkovskoye deposit.

From September 5, 2016, the main product of sales was refined gold, and the main buyer was the National Bank of Kazakhstan. Refined gold is sold at prices set on the London Precious Metals Exchange, minus discounts from the National Bank of Kazakhstan.

According to the annual report of JSC "Altyntau Kokshetau", for 2017, 13228.06 kg of affined gold. At the end of 2017, the price of gold on the London Precious Metals Exchange was \$ 1,296.5 per troy ounce; the forecast price for Glencore at the end of 2018 is \$ 1,315 per troy ounce.

In 2017, the largest mining industry enterprise in the Akmola region, JSC MMC Kazakhaltyn celebrated its 85th anniversary. The company successfully operates 3 working sites for the extraction of gold ore by underground and open mines - the mines: Aksu, Zholymbet and Bestobe. The main activity of JSC "MMC Kazakhaltyn" is geological exploration, mining, processing of ore raw materials and wholesale of precious metals.

According to the annual report of JSC "MMC Kazakhaltyn", in 2017. The company's revenue was generated from the sale of gold in sludge (46%), flotation concentrate (19%) and quartz ore (24%). In 2016 The bulk of the mined gold in the sludge was sold to the refining plant of Tau-Ken Altyn LLP (93%) and Krastsvetmet OJSC (7%). Since the beginning of 2017, the entire volume of the mined gold in the sludge has been sold to the Tau-Ken Altyn Refinery.

The growth of the weighted average price of gold in world markets by 15% in 2017. contributed to the growth of company revenues. In 2017, the launch of new gold mining factories at the mines "Aksu" and "Zholymbet".

The main activity of JSC AK Altynalmas is geological exploration, mining of precious metals and other minerals, their processing, mining of non-metallic materials, production of precious metals. The company has subsoil use rights at the fields geographically concentrated in:

- Akbakaysky ore field, in Moyinkum district, Zhambyl region (project "Akbakai");
- Northern Balkhash, in Aktogay district, Karaganda region (project "Desert").

The final product of AK Altynalmas JSC is gold in Dore alloy, which is sent for further refining to the Tau-Ken Altyn Refinery in Astana (a division of the NGK Tau-Ken Samruk), which further refines them and implementation of the National Bank of the Republic of Kazakhstan to replenish the country's foreign exchange reserves, or to domestic / global gold consumption markets

The main results of JSC AK Altynalmas activities in 2017:

- gold production increased by 10% compared with 2016 and amounted to 3894 kg (more than 120 thousand ounces);
- The official launch of the Digital Mine project was given;

- implementation of an Integrated Management System based on international quality standards ISO 9001: 2015, ISO 14001: 2015, OHSAS 18001-2007.

In accordance with the Law of the Republic of Kazakhstan “On Precious Metals and Precious Stones” dated January 14, 2016 No. 444-V, the National Bank is vested with the state’s priority right to purchase refined gold directly from domestic producers. The procedure for the implementation of priority rights is determined by the Resolution of the Board of the National Bank of Kazakhstan. From the moment of the introduction of the priority right of the state (end of 2011), there is a constant replenishment of domestic gold. In the coming years, the National Bank plans to acquire all the refined gold produced in Kazakhstan. Gold bars of domestic refineries meet state and international standards of precious metals.

Silver. In 2017, the production of refined silver decreased by 11.9% compared with 2016 and amounted to 1041.8 tons, compared with 2010 increased by 1.9 times (Figure 26). Silver production in the Karaganda region increased by 6.6%, to 359.3 tons. (Appendix 6). The data on silver production in the East Kazakhstan region are not disclosed by the Committee on Statistics of the MNE RK.

Production volumes by types of products of KAZZINC LLP are given on its website. In 2017, gold production from its own ore base was 585'483 ounces (according to our calculations, 1,6596.3 kg), which is 12.3% more than in 2016, silver production from its own ore base is 4'978 '136 ounces (according to our calculations, 167.6 tons), 18.8% more than in 2016. Refined lead production amounted to 151.5 thousand tons, which is 1.9% more than in 2016. , zinc metal - 317.0 thousand tons (by 3.8%) and copper - 62.7 thousand tons, 8.0% less than in 2016.

Copper. In 2007-2017, from 25 to 53 deposits were in operation. Of these, 5537 thousand tons of copper were mined during this period. Annual copper mining ranged from 472 thousand tons to 755 thousand tons.

In 2017, the production of refined raw, unalloyed copper increased by 4.3% compared to 2016 and amounted to 426.2 thousand tons, including 335.6 thousand tons in the Karaganda region (or 78.7% of the total volume) and the East Kazakhstan region - 81.1 thousand tons (or 19% of the total).

KAZ Minerals PLC was formed as a result of the reorganization of Kazakhmys PLC in 2014. KAZ Minerals is the largest copper producer in Kazakhstan, its shares are listed on the London, Hong Kong and Kazakhstan stock exchanges. In 2017, the company's production activities were conducted in the open mines Bozshakol and Aktogay, located in the Pavlodar region and the Eastern region of Kazakhstan, in three underground mines in East Kazakhstan, the Bozymchak gold mine in Kyrgyzstan. Since 2011, the company has invested about \$ 4 billion to develop the projects Bozshakol and Aktogai. According to the annual report of KAZ Minerals, in 2017 the company produced 258.5 thousand tons of copper, which is 1.8 times more than in 2016.

Production activity of KAZ Minerals in 2016-2017

Name	2017	2016
Copper production, thousand tons	258.5	143.5
Bozshakol	101.3	48.0
Aktogay	90.2	18.1
Eastern region and Bozymchak	67.0	77.4

Zinc in concentrate, thousand tons	57.6	75.4
Gold production (thousand ounces)	178.7	127.7
Silver production (thousand ounces)	3,506	3,284

In 2017, KAZ Minerals exported from Kazakhstan about 112 thousand tons of cathode copper and 144 thousand tons of copper concentrate. Revenues from the sale of KAZ Minerals amounted to \$ 1,663 million, the amount of taxes paid and deductions to the budget of Kazakhstan - \$ 365 million, including mineral extraction tax –183 million dollars, CIT-182 million dollars.

Production of copper and polymetals

Name	Volume		2017 % by 2016
	2016	2017	
Copper, refined, raw, unalloyed, tons	408 435	426 191	4,3
Karaganda	314 730	335 622	6,6
Pavlodar	1 323		
East Kazakhstan	79 651	81 135	1,9
Almaty city	12 731		
Lead, tons	134 192	149 129	11,1
Karaganda	179	107	-40,2
South Kazakhstan	-	1 738	
East Kazakhstan	134 013		
Raw zinc, tons	325 820	331 018	1,6
Karaganda	85	59	-30,6
East Kazakhstan	325 735	330 959	1,6

Polymetal International PLC is one of the leaders in the extraction of precious metals. The company has assets in Russia, Kazakhstan and Armenia, and its shares are listed on the London Stock Exchange. Polymetal owns eight existing gold and silver deposits. In 2009, Polymetal acquired the Varvarinskoye (Kostanay region) gold and copper deposit in Kazakhstan.

In 2017, almost 2 million tons of ore from the Komarovskoye deposit was mined and transported to Varvarinskoye by rail. As a result, 130 thousand ounces in gold equivalent was produced at Varvarinsky, which is 54% higher than in 2016, when 85 thousand ounces in gold equivalent were produced.

The Kyzyl project, which includes the Bakyrchik and Bolshevik deposits, was acquired in 2014. Kyzyl is one of the best gold mining projects in the world at the development stage. The project is being implemented in accordance with the schedule, according to which the production of the first concentrate is planned for the 3rd quarter of 2018.

In 2017, 149.1 thousand tons of unprocessed lead were produced, which is 11.1% more than in 2016. The Statistics Committee of the MNE RK did not disclose data from the East Kazakhstan

region - the main producer of unprocessed lead. East Kazakhstan region is also a manufacturer of 100% of the volume of raw zinc - 331.0 thousand tons, an increase of 1.6% compared with 2016.

Iron ore. In 2017, 18.0 million tons of iron ore was mined, 10.1% more than in 2016, 68.5% of the total iron ore was in the Kostanay region and 30.2% in the Karaganda region (Figure 27). Iron ore mining is also carried out in the Aktobe region (data for 2017 are not disclosed by the Committee on Statistics of the MNE RK), in the Akmola region (data for 2015-2017 are not available). In addition, in 2017 in the South Kazakhstan region a very small amount was mined - 33.2 thousand tons of iron ore.

Manganese ore. For the period 2007-2017, 28.3 million tons of manganese ore was mined. In 2017, the production of manganese ore decreased by 8.8% compared with 2016 and amounted to 1.5 million tons. Over the past 7 years, there has been a drop in the production of manganese ores. In 2017, the production of manganese ores decreased by 2.1 times compared to 2010 (Figure 28). Karaganda region accounts for 99.6% of the production of manganese ore in the Republic of Kazakhstan (Appendix 6). Data on the extraction of manganese ore in the East Kazakhstan region are not disclosed by the Committee on Statistics of the MNE RK.

Bauxite. Bauxite mining is carried out in the Kostanay region and in 2017, the production volume compared to 2016 increased by 0.9% and amounted to 4.7 million tons (Appendix 6). In 2014-2015, there was a slight slowdown in the production of aluminum ores.

Chrome ores. The extraction of chrome ores is carried out in the Aktobe region and in 2017 the production volume compared to 2016 increased by 13.9% and amounted to 6.3 million tons, which is 24% more than in 2010

Zinc and lead. In 2017, 338.5 thousand tons of zinc and 69.6 thousand tons of lead were mined.

Uranus. According to the operational data of the Ministry of Energy of the Republic of Kazakhstan, in 2017 the volume of uranium production amounted to 23,390 tons, which is 5.3% less than in 2016 (according to our calculations, 4.2% less than in 2016) . The Committee on Statistics of the Ministry of National Economy does not disclose uranium mining data. On the website of NAC Kazatomprom JSC, uranium mining data for 2017 has not yet been published.

In January 2017, Kazakhstan announced a reduction in uranium production by 10%, which is more than 2,000 tons of uranium from planned production in 2017. On 4 December 2017, NAC Kazatomprom JSC announced its intention to reduce by 20% uranium production in accordance with contracts for the use of mineral resources by the Company's enterprises, in order to bring production levels in line with demand.

In recent years, due to the instability on the world market of uranium prices, the demand for uranium is falling. Thus, from March 2015 to November 2016, the average monthly spot price of uranium decreased 2.2 times, from \$ 39.45 per pound to \$ 18.0 per pound.

6. Financial and human resource data

There is no publicly available data on financial and human resources allocated.

7. Programs of statistical improvements

Each EITI report concludes with Recommendations that should be taken into account in

subsequent reports.

In 2017, Kazakhstan underwent another EITI validation process. February 13-14, 2018 in Oslo, during the 39th Meeting of the International EITI Board, a decision was made regarding the status of Kazakhstan. The international EITI Board decided that Kazakhstan had made significant progress in implementing the EITI, while making recommendations to improve further implementation of the EITI. <http://eiti.geology.gov.kz/ru/validation>. In particular, it was recommended that “Regular disclosure of extractive industry data does not have much practical use without informing the public and understanding what the numbers mean in public debate about how revenues from natural resources can be used in the most efficient way”.

Hence the goals of open data:

1. Promoting transparency: raising awareness of how natural resources are used and how extractive companies' revenues are spent.
2. Availability of data. Free access to data at any time.
3. Public debate for the implementation of the EITI principle: “Understanding the government’s income and expenditure society will help the public debate and informed choice of correct and realistic options for implementing sustainable development”.

8. Availability of statistical information

Just go to the EITI website. The report itself contains links to local sites of large companies, where you can get more detailed information on all aspects of their activities.

The information in the EITI reports contains multiple links to the primary sources - the websites of companies that have special reports on the numerous elements that are reflected in these reports.

The reports provide a description of the sources from which information was received, the methodology is defined by law, and the subsoil users provide data in a uniform form, in accordance with the established requirements.

Information on the reserves of all types of raw materials corresponds to their movement, reflected in the annual state balance of minerals for each field, in which subsoil users annually make changes: production, losses during production, and reserves growth as a result of exploration. Tax reporting is checked on the one hand by the information of the companies, on the other on the reporting of the Tax Committee of the Ministry of Finance of the Republic of Kazakhstan. The reconciliation of these data is given in the report, with an analysis of the difference (if any).

Data is collected annually on a uniform list (given above), compared with the previous year.

Annual submission of information for public access is quite sufficient. However, since such annual information is published only in the 4th quarter of the next year, its use as a baseline for forecasting developments in the industry for the current year is not possible. Thus, we can conclude that the processing of annual information is carried out late. It is necessary to emphasize that the information on the results of the year is formed in the state bodies in the first quarter of next year, and the contract for the preparation of the annual EITI Report is concluded only at the end of the second quarter. The development of the EITI Report is carried out within three months, after which the procedure of its verification and validation takes place within 1-1.5 months. A later conclusion of an agreement with an auditing company takes place. This contract for the preparation of the report should not be concluded at the end, but at the

beginning of the second quarter, then the report can be approved in July, with the aim of using it for planning the next period.

Despite the availability of an approved reporting form for subsoil users, according to which they have to submit information as part of EITI reporting, there is no uniformity in local subsoil user reports, as a result of which, for various types of minerals, reporting is difficult to compare, which do not provide a systematic representation on the status of these individual industries uniformly. This applies primarily to the results of intelligence, which are often significantly longer than one year. However, this does not affect the rate of exploration costs, which may well be given strictly annually.

Using the information from the EITI Report for 2017 given in Section 5 as an example, it is shown that the most complete, systematic and uniform information is provided for oil and gas, for coal and ore mineral resources the data are not presented in the same amount.

Information on oil and gas (the most complete list of reporting data and their more detailed presentation and comments) is presented in the following positions:

- production for 2017 (and in comparison with 2016), as well as for the period from 2010 to 2017;
- mining by region in 2017;
- production by major companies for 2017;
- production in major fields;
- Kazakhstan's place in terms of reserves and production in the world;
- general stocks and their distribution by region;
- reserves at major fields;
- investments in the industry for 2012-2017,
- export by country.

For coal and all metals, the same information is given for a limited list of indicators:

- production for 2017 (and in comparison with 2016), as well as for the period from 2010 to 2017;
- mining by region in 2017;
- Kazakhstan's place in terms of reserves and production in the world;
- export by country.

Non-systematic information on various types of raw materials is not explained in the report. Its volume and detail of presentation on coal and metals do not allow us to present a fairly complete picture of important deposits, exploration, investment, quality of reserves growth, and other indicators. This is a significant flaw in EITI reports.

The most accurate, complete and consistent information in the annual report concerns taxes, due to the fact that the standard of the IFPC in Kazakhstan is obligatory for execution by all legal entities, and therefore the reporting of subsoil users on these indicators is absolutely uniform.

9. Consistency of statistical reporting with the concepts of UNFC and UN-SEEA

For many positions, EITI reports are consistent with the concepts and definitions used in UNFC and UN-SEEA. The disadvantage is the almost complete absence of environmental information, information on groundwater and the social sphere. There are no systematic annual data in statistics (in comparison with the previous year) on the results of geological exploration and reserves growth all types of mineral raw materials. Very often, such data are presented for different periods that are difficult to compare when comparing reports for different years.

10. Recommended statistics changes to improve consistency with UNFC and UN-SEEA

1) A phased implementation of the UNFC in Kazakhstan is needed for infrastructure planning and development of deposits as a matter of priority.

2) The information provided on all types of minerals must be strictly uniform and cover the same time periods.

3) In the EITI reports for the Republic of Kazakhstan, it is also necessary to provide additional information to ensure consistency with the UNFC and UNPOS:

- a description of the environmental situation at the enterprises (primarily problem ones) enterprises of the oil and gas and mining and metallurgical sectors, as well as oil and gas and mining and metallurgical regions as a whole;

- Volumes of annual accumulated waste (dumps of rocks, substandard ores, tailings, slags, etc.) and emissions of pollutants by mining, metallurgical, oil and gas producing, oil and gas processing enterprises;

- data on payments for the emission of harmful substances into the environment;

- information on the size of fines of subsoil users for damage caused to the environment;

- information on activities and projects aimed at reducing the harmful effects of the mining industry on the environment;

- groundwater reserves in Kazakhstan in total, including by region;

- annual consumption of groundwater, dynamics of groundwater consumption over the past few years, hydrogeological work on the replenishment of groundwater reserves;

- information on the programs for the provision of groundwater reserves in regions characterized by a shortage of clean water and the costs of their implementation;

- the costs of enterprises in the industry and regions for the social sphere and improvement of the environmental situation of enterprises and regions.

The implementation of such improvements will significantly improve the quality of statistics of fossil energy sources and mineral resources of the Republic of Kazakhstan and significantly improve its consistency with UNFC and UN-SEEA.

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