



Agency for Strategic planning  
and reforms of the  
Republic of Kazakhstan  
Bureau of National statistics

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# Environmental protection in the Republic of Kazakhstan

## 2018-2022



**Agency for Strategic planning and reforms of the Republic of Kazakhstan  
Bureau of National statistics**

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**2018-2022**

**Statistical compilation**

**Astana 2022**

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Agency for Strategic planning and reforms of the Republic of Kazakhstan  
Bureau of National statistics

The compilation is available on the Internet-resource of the Bureau of National statistics  
of the Agency for Strategic planning and reforms of the Republic of Kazakhstan [www.stat.gov.kz](http://www.stat.gov.kz).

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Legend:

-- no phenomenon

0,0 - insignificant value

x - confidential data

... - no data

In some cases, minor discrepancies between the total and the sum of the items are due  
to rounding of the data.

## Foreword

The statistical compilation presents information describing the dynamics of the state of the environment, the availability and use of natural resources. In order to more fully characterize the state of the environment, the collection publishes materials on the protection of atmospheric air, water, land, forestry, hunting resources, the formation and use of production and consumption waste, specially protected natural territories, information on environmental protection costs for 2016-2020.

Statistical compilation prepared by the Bureau of National statistics of the Agency for Strategic planning and reforms of the Republic of Kazakhstan on the basis of these forms of national statistical supervision that received state statistics bodies of enterprises, organizations and the results of sampling and other forms of statistical observations, as well as information provided by the ministries and departments whose activities are related with nature management, environmental monitoring and environmental protection (Ministry of ecology and geology and natural resources of the Republic of Kazakhstan, Ministry of Energy of the Republic of Kazakhstan, the Ministry of Health of the Republic of Kazakhstan, Ministry of Agriculture of the Republic of Kazakhstan, Ministry of industry and infrastructure development of the Republic of Kazakhstan, Republican State Enterprise "Kazhydromet", JSC "Zhasyl Damu").

The compilation presents data on the environmental indicators recommended by the UNECE, and on the "green growth" indicators recommended by the OECD.

The compilation is intended for a wide range of users: economists, statisticians, employees of government bodies and financial and economic services, enterprises and organizations, scientists, entrepreneurs, the media.

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# 1. Geographical characteristics of the Republic of Kazakhstan

## Capital – Astana city

The territory of the republic – 2724.9 thousand square meters Km

The population density is 7.2 people per 1 square Km

The population size as of 01.01.2021 – 19 766.8 thousand people

The natural population growth – 13.8 ppm

## The largest mountain ranges, m:

The largest mountain ranges, m:

Khan-Tengri Peak (Saryzhaz Ridge) – 6995

The peak of the 100 years of the VGO (Meridian ridge) – 6276

Talgar Peak (Ilei Alatau) – 4979

Mount Ishanbulak (Kungei Alatau) – 4653

Mount Besbaskan (Zhetisu Alatau) – 4622

Mount Metallurg (Ileysky Alatau) – 4600

Muztau Peak (Altai Mountains, Katyn Ridge) – 4506

Manas Peak (Talas Ridge) – 4482

Mountain Ashutor (Teriskei Alatau) – 4427

Mountain Muztau (Zhetisu Alatau) – 4370

Komsomol Peak (Ilei Alatau) – 4330

## The largest lakes, thousand km

Caspian Sea – 374

Aral Sea (Central Asia) – 41.0

Balkhash - 18.2

## The length of the borders of the republic, km

Total – 13394

including:

with the Russian Federation – 7591

with the Republic of Uzbekistan – 2354

with the Kyrgyz Republic – 1241

with Turkmenistan – 426

with China – 1782

over the Caspian Sea – 600

On the territory of the republic flows

85022 rivers and temporary streams

## The longest rivers, km

Irtys – 4248

length within the republic – 1698

Esil – 2450

length within the republic – 1400

Zhaiyk – 2428

length within the republic – 1082

Syrdarya – 2219

length within the republic – 1400

## The largest region by territory -

Karagandy region - 428 thousand square km,

The largest city in terms of population is

Almaty – 2 161.9 thousand people

## 2. Social factors

### 2.1 Main socio-demographic indicators

	2018	2019	2020	2021	2022
Total land (territory) <sup>1)</sup>	2 724.9	2 724.9	2 724.9	2 724.9	2 724.9
thousand square meters km*					
Population at the end of the year, thousand people	18 395.6	18 631.8	18 879.6	19 122.4	19 766.8
Population density, people per 1 square. km	6.8	6.8	6.9	7.0	7.2
Percentage of urban population	58.2	58.7	59.1	59.4	61.8
Percentage of rural population	41.8	41.3	40.9	40.6	38.2
Life expectancy at birth, years	73.15	73.18	71.37	70.23	74.44
Infant mortality rate, per 1000 live births	8.03	8.37	7.77	8.41	7.69
Number of doctors per 10,000 population <sup>2)</sup>	39.6	39.7	40.5	40.9	40.1
Employment rate, percent	95.1	95.2	95.1	95.1	95.1
Unemployment rate, percent	4.9	4.8	4.9	4.9	4.9
Real wage in percentage of previous year	101.7	109.1	106.8	108.8	107.6
Percentage of the population with incomes below the subsistence minimum	4.3	4.3	5.3	5.2	5.2
Percentage of the population with incomes below the cost of the food basket	0.1	0.1	0.2	0.1	0.1
The crime rate per 10,000 people	159	131	87	83	80

<sup>1)</sup> According to the Committee on Land Management of the Ministry of Agriculture of the Republic of Kazakhstan.

<sup>2)</sup> According to the Ministry of Health of the Republic of Kazakhstan.

### 2.2 Natural population movement

	people								
	Total	Births		Total	Deaths		Total	Natural increase	
		including	female		male	including		female	male
2018	397 799	192 575	205 224	130 448	60 110	70 338	267 351	132 465	134 886
2019	402 310	194 272	208 038	133 128	60 906	72 222	269 182	133 366	135 816
2020	426 824	206 046	220 778	161 333	74 430	86 903	265 491	131 616	133 875
2021	446 491	216 219	230 272	182 403	87 567	94 836	264 088	128 652	135 436
2022	403 893	195 752	208 141	133 523	60 984	72 539	270 370	134 768	135 602

### 2.3 Natural movement of the population per 1000 people

	people								
	Total	Births		Total	Deaths		Total	Natural increase	
		including	female		male	including		female	male
2018	21.8	20.4	23.2	7.1	6.4	8.0	14.6	14.1	15.2
2019	21.7	20.4	23.2	7.2	6.4	8.1	14.5	14.0	15.1
2020	22.8	21.3	24.3	8.6	7.7	9.6	14.2	13.6	14.7
2021	23.5	22.1	25.0	9.6	9.0	10.3	13.9	13.2	14.7
2022	20.6	19.5	21.7	6.8	6.1	7.6	13.8	13.4	14.2

## 2.4 Growth, structure and population density

at the end of the year

	2018	2019	2020	2021	2022
All population, end of period	18 395 567	18 631 779	18 879 552	19 122 423	19 766 807
including:					
men	8 913 196	9 034 134	9 160 399	9 286 778	9 647 701
women	9 482 371	9 597 645	9 719 153	9 835 645	10 119 106
Population density, people per 1 square. km	6.8	6.8	6.9	7.0	7.2
<b>Demographic load factors</b>					
younger and older than working age	692	713	715	734	740
younger than working age	505	518	526	540	542
older than working age, per 1000 people of working age	187	195	189	194	198

## 2.5 Interstate migration

people

	2018			2019		
	arrived	left	migration balance	arrived	left	migration balance
Total	12 747	41 868	-29 121	12 255	45 225	-32 970
including:						
CIS country	10 055	37 736	-27 681	9 401	40 927	-31 526
Azerbaijan	269	28	241	199	39	160
Armenia	72	4	68	34	6	28
Belarus	113	343	-230	75	355	-280
Kyrgyzstan	497	204	293	374	177	197
Moldova	13	14	-1	15	6	9
Russia	3 901	36 778	-32 877	3 378	39 774	-36 396
Tajikistan	233	10	223	172	5	167
Turkmenistan	366	1	365	879	44	835
Uzbekistan	4 385	245	4 140	4 174	440	3 734
Ukraine	206	109	97	101	81	20
Other country	2 692	4 132	-1 440	2 854	4 298	-1 444
Germany	213	2 685	-2 472	230	2 803	-2 573
Israel	25	137	-112	12	150	-138
Canada	16	128	-112	18	82	-64
Mongolia	255	16	239	270	11	259
Turkey	143	52	91	136	83	53
USA	106	338	-232	83	273	-190
Greece	6	10	-4	3	5	-2
Latvia	4	1	3	0	3	-3
Lithuania	1	7	-6	5	2	3
Estonia	0	2	-2	1	1	0
Georgia	50	9	41	43	3	40
Other countries	1 873	747	1 126	2 053	882	1 171
country not specified	-	-	-	-	-	-



Continuation

	2020			2021			2022		
	arrived	left	migration balance	arrived	left	migration balance	arrived	left	migration balance
Total	11 370	29 088	-17 718	11 039	32 256	-21 217	17 425	24 147	-6 722
including:									
CIS country	8 277	25 747	-17 470	9 435	27 505	-18 070	15 000	20 128	-5 128
Azerbaijan	176	32	144	377	47	330	290	31	259
Armenia	23	2	21	57	0	57	50	2	48
Belarus	42	234	-192	70	288	-218	90	233	-143
Kyrgyzstan	465	85	380	561	122	439	709	175	534
Moldova	9	3	6	9	39	-30	11	4	7
Russia	3 599	25 126	-21 527	3 456	26 717	-23 261	5 891	19 383	-13 492
Tajikistan	150	2	148	269	3	266	491	3	488
Turkmenistan	1 189	0	1 189	347	0	347	633	1	632
Uzbekistan	2 554	192	2 362	4 184	187	3 997	6 631	266	6 365
Ukraine	70	71	-1	105	102	3	204	30	174
Other country	3 093	3 341	-248	1 604	4 751	-3 147	2 425	4 019	-1 594
Germany	175	2 249	-2074	183	3 138	-2 955	276	2 518	-2 242
Israel	9	61	-52	10	165	-155	33	123	-90
Canada	21	111	-90	28	101	-73	37	129	-92
Mongolia	147	3	144	110	14	96	287	40	247
Turkey	312	53	259	217	97	120	249	97	152
USA	72	247	-175	62	338	-276	88	339	-251
Greece	3	9	-6	2	21	-19	5	21	-16
Latvia	0	0	0	0	0	0	-	-	-
Lithuania	0	0	0	0	0	0	-	-	-
Estonia	0	0	0	0	0	0	-	-	-
Georgia	99	8	91	95	4	91	5	7	-2
Other countries country not specified	2 255	600	1 655	301	402	-101	1 445	745	700

## 2.6 Average life expectancy at birth in 2022

	number of years		
	Total population	Female	Male
<b>Republic of Kazakhstan</b>	74.44	78.41	70.26
Abai	73.80	77.76	69.77
Akmola	73.48	77.89	69.06
Aktobe	74.85	78.95	70.49
Almaty	73.87	77.81	70.01
Atyrau	74.66	78.57	70.50
Batys Kazakhstan	73.76	78.36	69.02
Zhambyl	74.87	78.79	70.93
Zhetisu	74.38	78.45	70.22
Karagandy	72.30	76.72	67.60
Kostanai	72.68	77.30	68.00
Kyzylorda	74.21	78.18	70.27
Mangystau	75.83	79.42	72.09
Pavlodar	72.90	77.50	68.17
Soltustik Kazakhstan	72.27	76.49	68.01
Turkistan	75.04	78.23	71.88
Ulytau	71.44	75.58	67.25

Continuation

	Total population	Female	Male
Shygys Kazakhstan	72.37	77.51	67.25
Astana city	77.30	80.47	73.34
Almaty city	77.32	80.66	73.19
Shymkent city	75.61	78.63	72.18

## 2.7 Life expectancy

years

	2018	2019	2020	2021	2022
Entire population	73.15	73.18	71.37	70.23	74.44
including:					
men	68.84	68.82	67.09	66.33	70.26
women	77.19	77.30	75.53	74.03	78.41

## 2.8 Mortality rates by cause in 2022

Classes of causes of death	Number of deaths, people			Mortality rate, per 100000 people		
	total	including		total	including	
		female	male		female	male
Total	133 523	60 984	72 539	680.0	606.6	757.1
including:						
circulatory system diseases	30 314	12 279	18 035	154.4	122.1	188.2
accidents, poisoning and injuries	11 182	2 297	8 885	57.0	22.9	92.7
neoplasms	13 848	6 490	7 358	70.5	64.6	76.8
respiratory diseases	13 108	5 251	7 857	66.8	52.2	82.0
diseases of the digestive system	10 681	4 531	6 150	54.4	45.1	64.2
infectious and parasitic diseases	1 343	537	806	6.8	5.3	8.4
other diseases	53 047	29 599	23 448	270.2	294.4	244.7

## 2.9 Maternal mortality\*

	Number of deaths of pregnant women, pregnant women, postpartum women, people	Per 100000 live births
2018	56	13.9
2019	55	13.7
2020	156	36.5
2021	200	44.7
2022	70	17.0

\* According to the Ministry of Health of the Republic of Kazakhstan.

## 2.10 Infant mortality

number of dead children under 1 per 1000 live births

	Mortality rate		
	Total	female	male
2018	8.0	6.7	9.3
2019	8.4	7.3	9.4
2020	7.8	6.9	8.6
2021	8.4	7.8	9.0
2022	7.7	6.8	8.5

## 2.11 Mortality of children under 5 years old

per 1000 born

	Mortality rate		
	Total	female	male
2018	10.1	8.5	11.6
2019	10.7	9.3	12.0
2020	9.4	8.3	10.5
2021	10.0	9.1	10.9
2022	9.9	8.8	10.9

## 2.12 Morbidity by disease groups\*

	2018	2019	2020	2021	2022
The number of registered diseases with the first established diagnosis - total, thousand cases	10 449.7	10 148.0	10 083.0	10 104.8	9 870.9
Of them:					
infectious and parasitic diseases	244.0	240.8	295.2	250.3	250.5
neoplasms	136.7	130.2	121.9	137.9	146.0
endocrine, nutritional and metabolic disorders	174.8	179.6	187.6	224.8	235.3
diseases of the blood, blood-forming organs and certain disorders involving the immune mechanism	325.5	311.3	266.3	232.2	221.7
mental and behavioral disorders	10.0	9.8	8.5	9.9	11.5
mental and behavioral disorders associated with the use of psychoactive substances	19.3	16.0	14.2	13.4	12.5
nervous system diseases	352.2	345.9	343.6	378.8	389.0
diseases of the eye and its adnexa	449.6	432.6	386.7	421.7	425.9
diseases of the ear and mastoid process	290.5	276.5	241.5	254.3	278.0
circulatory system diseases	503.6	520.5	567.2	519.5	514.1
respiratory diseases	4 445.1	4 303.3	4 333.0	4 195.8	3 934.4
diseases of the digestive system	789.3	780.8	781.1	710.3	763.3
diseases of the genitourinary system	817.3	762.6	664.4	595.0	567.4
complications of pregnancy, childbirth and the postpartum period	251.5	216.4	221.5	204.7	189.4
diseases of the skin and subcutaneous tissue	531.6	514.6	487.2	479.4	456.1
diseases of the musculoskeletal system and connective tissue	387.0	388.5	391.3	409.8	433.2
congenital anomalies (malformations), deformities and chromosomal abnormalities	80.2	78.3	72.8	78.9	73.9
symptoms, signs and abnormalities	30.8	33.6	34.3	63.9	51.8
Injuries, poisoning and some other consequences of external causes	543.7	540.7	505.0	478.0	489.7

\* According to the Ministry of Health of the Republic of Kazakhstan.

## 2.13 The incidence of individual infectious and parasitic diseases\*

thousand cases

	2018	2019	2020	2021	2022
Acute intestinal infections	12.0	11.4	6.9	8.9	13.1
Typhoid and paratyphoid A, B, C	-	0.001	-	-	-
Salmonella infections	1.3	1.1	0.5	0.5	0.9
Viral hepatitis, total	1.1	0.7	0.6	0.2	0.5
Influenza and acute viral infections	602.4	541.4	613.1	1 162.4	1 502.4
Scarlet fever	2.9	0.8	2.2	1.9	7.9

	Continuation				
	2018	2019	2020	2021	2022
Whooping cough	0.097	0.147	0.054	0.001	0.003
Tetanus	0.006	0.001	-	-	-
Measles	0.576	13.3	3.3	0.002	0.04

\* Hereinafter, according to Committee of quality control and safety of goods and services of the Ministry of Health of the Republic of Kazakhstan.

## 2.14 The incidence of individual infectious and parasitic diseases per 100000 population

	thousand cases				
	2018	2019	2020	2021	2022
Acute intestinal infections	65.7	61.6	37.1	47.0	66.4
Typhoid and paratyphoid A, B, C	-	0.005	-	-	-
Salmonella infections	7.2	5.9	2.7	2.6	4.9
Viral hepatitis, total	5.9	3.9	3.1	1.3	2.5
Influenza and acute viral infections	3 339.7	2 924.5	3 269.3	6 117.5	7 610.7
Scarlet fever	16.2	4.1	11.7	10.3	40.4
Коклюш	-	0.8	0.3	0.01	0.02
Tetanus	0.03	0.005	-	-	-
Measles	3.2	72.0	17.4	0.001	0.02

\* According to the branch of the Scientific and practical center for sanitary and epidemiological expertise and monitoring of The Republican State Enterprise with the right of economic management, the National Center for Public Health of the Republic of Kazakhstan.

## 2.15 Morbidity related to the transmission by water\*

	thousand cases				
	2018	2019	2020	2021	2022
<b>Cholera</b>					
<b>Republic of Kazakhstan</b>	5	4	-	-	-
Almaty city	5	2	-	-	-
Astana city	-	-	-	-	-
<b>Typhoid fever</b>					
<b>Republic of Kazakhstan</b>	-	1	-	-	-
Almaty	-	-	-	-	-
Zhambyl	-	-	-	-	-
Astana city	-	1	-	-	-
Almaty city	-	-	-	-	-
<b>Acute intestinal infection</b>					
<b>Republic of Kazakhstan</b>	-	-	179	8 932	13 116
Abai	-	-	-	-	-
Akmola	-	-	3	299	323
Almaty	-	-	16	915	1 209
Atyrau	-	-	0	406	781
Batys Kazakhstan	-	-	11	244	654
Zhambyl	-	-	36	870	1 327
Zhetisu	-	-	-	-	-
Karagandy	-	-	0	1 112	1 030
Kostanai	-	-	1	46	605
Kyzylorda	-	-	30	739	1 838

Continuation

	2018	2019	2020	2021	2022
Mangystau	-	-	1	535	197
Pavlodar	-	-	8	893	394
Soltustik Kazakhstan	-	-	-	-	285
Turkistan	-	-	25	144	539
Ulytau	-	-	-	-	-
Shygys Kazakhstan	-	-	8	330	931
Astana city	-	-	28	264	1 355
Almaty city	-	-	1	349	331
Shymkent city	-	-	11	944	1 048

\* According to the branch of the Scientific and practical center for sanitary and epidemiological expertise and monitoring of the Republican State Enterprise with the right of economic management, the National Center for Public Health of the Republic of Kazakhstan of the Ministry of Health of the Republic of Kazakhstan.

## 2.16 Incidence transmitted by airborne droplets\*

number of cases

	2018	2019	2020	2021	2022
<b>Acute respiratory viral infection</b>					
<b>Republic of Kazakhstan</b>	600 202	539 226	610 453	1 161 815	1 501 338
Abai	-	-	-	-	-
Akmola	23 793	19 602	32 687	69 338	106 963
Aktobe	7 283	6527	11 655	15 336	29 442
Almaty	41 300	30 501	35 856	72 508	70 642
Atyrau	6 376	2 505	3 508	3 620	6 700
Batys Kazakhstan	25 243	23 439	31 382	59 756	58 854
Zhambyl	17 069	13 431	12 122	18 629	65 763
Zhetisu	-	-	-	-	-
Karagandy	57 566	56 324	64 925	74 699	61 380
Kostanai	65 434	60 132	56 306	93 847	111 223
Kyzylorda	15 682	16 320	20 114	30 176	28 543
Mangystau	19109	20 488	14 424	26 237	23 181
Pavlodar	25 000	22 436	44 632	92 199	65 807
Soltustik Kazakhstan	42 398	39 138	46 083	44 509	45 148
Turkistan	8 372	8 422	8 443	9 869	7 776
Ulytau	-	-	-	-	-
Shygys Kazakhstan	76 616	70 987	80 084	114 084	134 157
Astana city	75 386	50 853	33 639	93 969	143 798
Almaty city	81 995	77 980	99 647	323 571	505 514
Shymkent city	11 580	20 141	14 946	19 468	36 447
<b>Influenza</b>					
<b>Republic of Kazakhstan</b>	2 196	2 214	2 678	569	3 055
Abai	-	-	-	-	-
Akmola	158	132	375	1	40
Aktobe	106	156	201	16	257
Almaty	182	75	177	18	286
Atyrau	73	61	14	7	30
Batys Kazakhstan	141	134	181	98	78
Zhambyl	182	110	105	4	89
Zhetisu	-	-	-	-	-

Continuation

	2018	2019	2020	2021	2022
Karagandy	68	83	150	33	330
Kostanai	14	143	71	33	206
Kyzylorda	123	166	188	7	300
Mangystau	154	229	122	101	83
Pavlodar	39	96	187	12	14
Soltustik Kazakhstan	206	226	422	8	282
Turkistan	7	6	-	16	56
Ulytau	-	-	-	-	-
Shygys Kazakhstan	134	72	113	55	434
Astana city	239	232	139	96	296
Almaty city	261	213	208	48	181
Shymkent city	109	80	25	16	93

\* According to the branch of the Scientific and practical center for sanitary and epidemiological expertise and monitoring of The Republican State Enterprise with the right of economic management, the National Center for Public Health of the Republic of Kazakhstan.

## 2.17 Tuberculosis incidence\*

number of cases per 100000 population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	48.2	45.6	35.7	35.9	36.5
Abai	-	-	-	-	-
Akmola	56.6	51.0	42.0	41.5	39.0
Aktobe	51.6	49.7	36.8	35.5	39.3
Almaty	45.4	43.4	35.2	33.9	36.0
Atyrau	74.8	66.6	54.8	62.3	57.3
Batys Kazakhstan	47.7	47.2	44.3	44.2	47.2
Zhambyl	50.2	45.1	35.8	37.4	32.9
Zhetisu	-	-	-	-	-
Karagandy	45.6	43.5	34.7	32.8	40.7
Kostanai	58.8	56.2	44.4	42.2	48.1
Kyzylorda	53.5	51.4	48.5	46.1	48.8
Mangystau	53.3	52.1	46.0	43.0	41.8
Pavlodar	46.9	45.0	38.7	40.9	40.5
Soltustik Kazakhstan	63.4	63.1	40.1	33.9	39.3
Turkistan	37.6	36.0	26.5	27.5	26.1
Ulytau	-	-	-	-	-
Shygys Kazakhstan	52.3	49.3	36.9	41.8	41.9
Astana city	48.2	44.3	33.9	37.6	33.4
Almaty city	35.4	33.6	25.8	23.1	22.3
Shymkent city	43.1	41.4	23.5	28.3	27.2

\* According to the Ministry of Health of the Republic of Kazakhstan.

## 2.18 Incidence of malignant neoplasms\*

number of cases per 100000 population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	195.7	190.0	168.0	190.1	193.9
Abai	-	-	-	-	239.9
Akmola	244.2	236.3	207.3	231.4	238.4

Continuation

	2018	2019	2020	2021	2022
Aktobe	180.2	190.6	161.7	189.7	179.1
Almaty	136.3	135.8	124.0	136.9	136.7
Atyrau	142.8	154.5	138.2	160.4	151.9
Batys Kazakhstan	222.3	228.8	191.6	211.9	219.3
Zhambyl	140.9	137.4	124.6	133.7	131.8
Zhetisu	-	-	-	-	178.2
Karagandy	275.1	268.6	225.4	270.2	345.7
Kostanai	300.6	286.8	250.5	275.9	312.5
Kyzylorda	141.1	132.9	150.8	145.5	140.9
Mangystau	130.9	122.2	100.4	117.1	129.9
Pavlodar	296.7	317.4	265.2	318.4	316.5
Soltustik Kazakhstan	323.4	346.6	289.1	318.5	319.0
Turkistan	93.8	77.7	78.4	78.5	89.0
Ulytau	-	-	-	-	-
Shygys Kazakhstan	285.4	277.6	239.4	293.3	340.8
Astana city	179.8	187.2	157.3	179.7	176.7
Almaty city	220.8	196.5	193.2	224.0	226.8
Shymkent city	132.0	137.3	111.2	122.8	112.6

\* Hereinafter, according to the Ministry of Health of the Republic of Kazakhstan.

## 2.19 Incidence of respiratory diseases\*

number of cases per 100000 population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	28 390.7	23 243.7	23 102.6	22 081.9	20 037.8
Abai	-	-	-	-	21 414.2
Akmola	31 729.7	22 860.8	20 106.8	20 524.7	15 343.3
Aktobe	20 300.3	16 106.3	15 761.0	15 784.1	15 498.4
Almaty	37 021.2	34 077.1	32 411.8	31 444.4	33 036.7
Atyrau	16 303.4	11 177.3	16 858.7	16 753.4	12 106.1
Batys Kazakhstan	20 782.3	17 133.9	17 153.0	18 079.2	17 205.0
Zhambyl	30 253.4	28 333.7	28 848.8	26 919.6	24 848.7
Zhetisu	-	-	-	-	16 992.4
Karagandy	25 683.7	18 909.4	23 812.5	25 569.4	23 348.3
Kostanai	29 888.9	26 213.3	26 296.9	27 366.1	24 913.3
Kyzylorda	18 460.6	16 822.8	17 511.7	15 935.2	14 477.7
Mangystau	22 699.6	17 906.1	15 473.7	16 831.4	11 923.2
Pavlodar	40 286.4	34 202.2	33 197.9	29 991.0	25 376.5
Soltustik Kazakhstan	26 356.1	22 098.1	26 029.2	27 767.1	27 447.2
Turkistan	18 273.1	13 099.9	10 946.0	7 296.9	7 182.2
Ulytau	-	-	-	-	15 594.6
Shygys Kazakhstan	31 385.2	25 518.9	24 305.1	23 741.2	22 225.2
Astana city	34 247.6	26 655.6	26 924.5	29 102.9	34 728.8
Almaty city	37 510.4	29 324.2	28 521.4	23 958.8	20 588.5
Shymkent city	25 055.1	20 133.8	19 324.2	16 914.6	13 262.3

\* Hereinafter, according to the Ministry of Health of the Republic of Kazakhstan.

## 2.20 Anemia incidence by age group

Age groups	number of cases per 100000 population				
	2018	2019	2020	2021	2022
Total	1 680.4	1 555.2	1 272.7	1 016.0	983.2
Children 0-14 years old	3 536.4	3 193.7	2 288.4	1 754.1	1 715.6
Teenagers 15-17 years old	3 369.7	2 984.0	2 292.2	1 891.8	1 725.0
Adults 18 years and older	812.6	776.3	770.5	633.4	605.1

\* Hereinafter, according to the Ministry of Health of the Republic of Kazakhstan.

## 2.21 Incidence of anemia

	number of cases per 100000 population				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	1 680.4	1 555.2	1 272.7	1 016.0	983.2
Abai	-	-	-	-	1 083.2
Akmola	835.3	736.7	574.9	623.8	395.9
Aktobe	1 630.4	1 506.2	1 418.9	1 335.9	1 331.4
Almaty	2 045.8	2 077.5	2 054.5	1 884.2	1 884.3
Atyrau	2 231.7	1 595.1	1 548.4	1 603.1	1 603.0
Batys Kazakhstan	1 844.1	1 775.6	1 719.4	1 714.9	1 619.2
Zhambyl	1 975.1	1 988.2	1 988.6	927.3	1 604.4
Zhetisu	-	-	-	-	1 052.3
Karagandy	595.0	477.2	390.9	273.1	253.7
Kostanai	417.4	385.4	377.6	388.2	384.0
Kyzylorda	3 700.3	3 493.3	2 846.3	2 663.1	2 330.8
Mangystau	2 644.1	2 443.4	1 737.5	1 115.8	1 094.9
Pavlodar	722.2	607.3	473.3	481.2	439.0
Soltustik Kazakhstan	700.9	694.8	689.4	622.3	536.1
Turkistan	2 855.3	2 518.0	1 431.8	648.4	659.1
Ulytau	-	-	-	-	299.8
Shygys Kazakhstan	969.2	903.9	780.1	726.7	460.2
Astana city	846.2	818.9	600.5	470.3	578.7
Almaty city	1 158.0	1 004.2	731.4	660.1	598.2
Shymkent city	2 970.7	2 793.2	2 191.9	1 662.1	1 340.9

## 2.22 The number of patients with anemia consisting on the dispensary

Age groups	people				
	2018	2019	2020	2021	2022
Total	254 850	247 577	270 908	246 691	255 764
Children 0-14 years old	144 678	142 340	138 407	123 148	130 407
Teenagers 15-17 years old	15 339	15 381	15 095	13 075	13 008
Adults 18 years and older	94 833	89 856	117 406	110 468	112 349

## 2.23 Morbidity in ecologically unfavorable regions and the city of Almaty in 2022

	number of cases per 100000 population				
	Republic of Kazakhstan	Shygys Kazakhstan	Kyzylorda	Karagandy	Almaty city
Active tuberculosis	36.5	43.3	49.1	38.9	22.6
Malignant neoplasms	193.9	340.8	140.9	345.7	226.8



Continuation

	Republic of Kazakhstan	Shygyys Kazakhstan	Kyzylorda	Karagandy	Almaty city
Malignant neoplasms of the breast. people.	26.0	44.6	14.5	47.1	34.2
Mental and behavioral disorders due to alcohol use	52.1	113.6	73.0	56.8	14.4
Mental and behavioral disorders	58.7	99.9	66.8	114.4	43.8

\* Hereinafter, according to the Ministry of Health of the Republic of Kazakhstan.

## 2.24 Incidence of skin and subcutaneous tissue diseases associated with exposure to radiation

	number of cases				
	2018	2019	2020	2021	2022
Sunburn	97	124	2	9	0
First degree sunburn	36	38	8	9	0
First degree sunburn	15	16	4	4	0
Third degree sunburn	3	6	-	-	0
Another sunburn	20	35	5	2	0
Unspecified sunburn	23	29	5	2	0
Other skin changes, caused by ultraviolet radiation	584	499	-	-	0
Drug phototoxic reaction	8	27	-	1	0
Drug photoallergic reaction	26	32	1	1	0
Photo contact dermatitis [berloque dermatitis]	386	349	73	110	25
Solar urticaria	45	25	17	38	2
Polymorphic light mouse	31	26	-	1	0
Other refined acute skin changes caused by ultraviolet radiation	40	29	11	9	0
Acute skin change caused by ultraviolet radiation, unspecified	48	11	-	-	0
Skin changes caused by chronic exposure to non-ionizing radiation	97	47	4	2	3
Actinic (photochemical) keratosis	73	35	3	3	0
Actinic reticuloid	2	-	-	-	0
Rhombic skin on the back of the head (neck)	1	1	-	-	0
Poikiloderma Sivatta	2	-	-	-	0
Senile atrophy (lethargy) of the skin	4	4	2	1	0
Actinic (photochemical) granuloma	-	1	-	1	0
Other skin changes, caused by chronic exposure to non-ionizing radiation	13	4	-	1	2
Skin change, caused by chronic exposure to non-ionizing radiation, unspecified	2	2	1	1	1
Radiation dermatitis radiation	-	-	-	-	0
Acute radiation dermatitis	-	-	-	-	0
Chronic radiation dermatitis	-	-	-	-	0
Radiation dermatitis, unspecified	-	-	-	-	0
Other diseases of the skin and subcutaneous tissue associated with radiation	-	47	2	2	4

Continuation

	2018	2019	2020	2021	2022
Erythema burn (dermatitis ab igne)	-	10	3	1	1
Other specified diseases of the skin and subcutaneous tissue associated with radiation	-	8	3	3	2
Skin and subcutaneous tissue disease associated with radiation, unspecified	-	29	3	3	1

## 2.25 Vaccination coverage of children<sup>1)</sup>

	2018	2019	2020	2021	2022
BCG <sup>2)</sup>	95.0	96.6	97.9	96.1	93.4
OPV-3 <sup>3)</sup>	95.5	97.4	88.3	95.2	98.6
AKDS-3 <sup>4)</sup>	98.3	97.4	88.3	95.3	98.6
HBV-3	-	-	-	-	-
Mumps (under 2 years of age)	99.5	99.2	92.9	97.3	99.2
Measles (under 2 years old)	99.5	99.2	92.9	97.4	99.2
BCG revaccination (under 7 years old)	63.2	51.9	58.7	53.3	57.1
Measles booster vaccination	98.4	97.8	-	95.9	97.3
HBV-3 <sup>5)</sup>	98.7	97.7	-	95.4	98.8

<sup>1)</sup> According to the Ministry of Health of the Republic of Kazakhstan, the percentage of immunized children.

<sup>2)</sup> BCG - tuberculosis.

<sup>3)</sup> OPV-3 - complete vaccination of the course against poliomyelitis.

<sup>4)</sup> AKDS-3 - diphtheria, whooping cough, and tetanus.

<sup>5)</sup> HBV-3 - against viral hepatitis B.

## 2.26 The results of preventive examinations of children aged 0-14 years in 2022\*

	1000 examined children identified			
	with reduced hearing acuity	with reduced visual acuity	with scoliosis	with posture violation
<b>Republic of Kazakhstan</b>	1.3	12.6	1.6	1.8
Abai	0.8	11.9	6.1	2.3
Akmola	0.7	5.1	1.1	1.6
Aktobe	1.9	15.9	0.6	1.5
Almaty	0.5	5.1	1.1	1.7
Atyrau	0.9	20.9	1.0	0.7
Batys Kazakhstan	2.1	20.6	1.8	2.6
Zhambyl	0.4	2.3	0.5	0.6
Zhetisu	1.1	8.8	0.6	1.5
Karagandy	3.9	29.9	2.8	4.1
Kostanai	0.7	10.3	1.7	2.0
Kyzylorda	2.8	19.5	0.4	0.6
Mangystau	1.0	11.8	0.9	0.7
Pavlodar	1.1	14.3	5.3	8.3
Soltustik Kazakhstan	1.2	23.0	5.7	2.5
Turkistan	1.0	3.8	0.7	0.6
Ulytau	1.2	7.7	0.8	1.6
Shygys Kazakhstan	3.6	16.2	1.6	2.3

Continuation

	1000 examined children identified			
	with reduced hearing acuity	with reduced visual acuity	with scoliosis	with posture violation
Astana city	0.8	39.9	3.1	5.5
Almaty city	0.8	14.2	-	2.1
Shymkent city	1.9	8.0	1.1	0.7

\* According to the Ministry of Health of the Republic of Kazakhstan.

## 2.27 Tuberculosis mortality

number of cases per 100000 population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	2.55	2.30	2.01	1.87	1.63
Abai	-	-	-	-	1.47
Akmola	1.62	2.58	2.72	2.59	3.18
Aktobe	3.01	2.28	1.69	1.22	0.98
Almaty	1.13	1.22	1.55	1.53	0.67
Atyrau	1.91	2.03	2.30	1.96	1.60
Batys Kazakhstan	2.77	3.21	2.28	2.26	2.04
Zhambyl	2.59	2.84	2.03	1.49	1.24
Zhetisu	-	-	-	-	1.14
Karagandy	4.35	3.99	3.12	2.84	2.56
Kostanai	3.77	3.56	2.89	3.02	1.92
Kyzylorda	2.66	2.00	1.85	1.83	1.69
Mangystau	2.69	2.32	1.27	0.96	1.72
Pavlodar	2.65	2.66	1.86	3.15	1.46
Soltustik Kazakhstan	3.41	4.71	2.93	0.87	2.80
Turkistan	1.72	1.20	0.84	2.72	0.52
Ulytau	-	-	-	-	4.52
Shygys Kazakhstan	3.19	2.04	3.37	2.48	3.96
Astana city	3.03	1.72	2.07	1.45	1.58
Almaty city	2.63	2.39	2.05	1.74	1.88
Shymkent city	1.73	1.56	0.76	1.87	0.93

## 2.28 Mortality from respiratory diseases

number of cases per 100000 population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	86.9	87.9	122.9	108.9	66.76
Abai	-	-	-	-	54.01
Akmola	85.9	81.9	120.5	116.9	67.61
Aktobe	103.6	106.8	186.5	133.8	98.76
Almaty	120.2	130.9	150.8	157.5	91.21
Atyrau	80.5	98.7	160.8	107.0	75.67
Batys Kazakhstan	112.8	117.5	139.4	146.2	97.41
Zhambyl	88.0	94.3	143.0	139.0	80.81
Zhetisu	-	-	-	-	125.8
Karagandy	94.0	90.2	98.1	73.9	49.08
Kostanai	170.9	175.3	178.1	192.2	122.2
Kyzylorda	67.2	65.5	136.3	58.3	45.75
Mangystau	47.8	44.7	98.0	45.0	27.23

Continuation

	2018	2019	2020	2021	2022
Pavlodar	106.6	96.6	156.3	135.5	99.11
Soltustik Kazakhstan	173.6	178.2	273.1	338.8	175.4
Turkistan	40.1	36.9	76.5	71.3	33.98
Ulytau	-	-	-	-	47.93
Shygys Kazakhstan	118.4	104.1	100.7	139.3	69.71
Astana city	30.4	31.1	52.6	33.9	24.45
Almaty city	63.9	69.3	90.9	66.4	50.06
Shymkent city	36.9	45.1	107.0	58.5	29.99

## 2.29 Mortality from lack of safe water, safe sanitation and hygiene, and unintentional poisoning (SDG 3.9.2, 3.9.3)

per 100000 people

	2018	2019	2020	2021	2022
Mortality from a lack of safe water, safe sanitation and hygiene (from a lack of safe services in the field of water supply, sanitation and hygiene)	0.83	1.28	1.28	1.29	0.60
Mortality from unintentional poisoning	2.77	2.33	2.03	1.69	1.46

## 2.30 Accidents, poisonings and injuries

	Number of deaths, people					Per 100000 people				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	12 170	12 098	10 834	11 352	11 182	66.6	65.4	57.8	59.7	56.95
Abai	-	-	-	-	478	-	-	-	-	78.39
Akmola	640	610	650	644	596	86.6	82.7	88.3	87.6	75.74
Aktobe	540	490	458	494	491	62.5	56.0	51.6	54.9	53.23
Almaty	1 390	1 412	1 252	1 228	964	68.5	69.0	60.6	58.7	64.8
Atyrau	309	277	283	306	276	49.3	43.3	43.5	46.2	40.17
Batys Kazakhstan	516	508	479	477	485	79.4	77.6	72.7	71.9	70.73
Zhambyl	685	693	589	554	707	61.2	61.5	51.9	48.4	58.24
Zhetisu	-	-	-	-	513	-	-	-	-	73.42
Karagandy	1 169	1 109	1 020	1 054	878	84.7	80.5	74.1	76.7	77.36
Kostanai	822	826	824	887	752	94.0	94.9	95.1	103.0	90.29
Kyzylorda	281	308	300	347	383	35.6	38.6	37.1	42.2	46.23
Mangystau	281	270	254	325	294	42.0	39.2	35.8	44.5	38.86
Pavlodar	706	716	667	674	623	93.6	95.1	88.8	90.0	82.44
Soltustik Kazakhstan	585	591	558	514	442	105.1	107.1	102.2	95.1	82.37
Turkistan	1 015	1 035	822	967	890	51.3	51.8	40.5	46.9	42.44
Ulytau	-	-	-	-	157	-	-	-	-	70.99
Shygys Kazakhstan	1 560	1 493	1 288	1 411	726	113.0	108.7	94.2	103.7	99.1
Astana city	446	421	399	485	433	42.3	38.0	34.4	40.0	32.6
Almaty city	852	912	616	603	694	46.6	48.4	31.6	30.1	32.42
Shymkent city	373	427	375	382	400	38.0	41.7	35.5	34.9	33.72

## Accessibility of education

### 2.31 Gross enrollment ratio in higher education \*

	in percent				
	2018	2019	2020	2021	2022
Total in the country	60.7	67.0	64.1	62.6	59.1
including:					
men	54.7	61.0	58.1	56.3	53.6
women	67.0	73.2	70.4	69.2	64.9

*The gross enrollment ratio of higher education is determined as the ratio of the number of students, regardless of age, studying in technical and vocational education organizations (ISCED-5) and universities (ISCED 6-8), to the total population aged 18-22 years.*

### 2.32 Gross secondary school enrollment ratio

	in percent				
	2018	2019	2020	2021	2022
Total in the country	106.2	104.6	105.4	104.4	101.0
including:					
men	105.6	104.6	105.4	104.3	101.0
women	106.8	104.6	105.5	104.6	101.1

*Note: The gross enrollment ratio of secondary education is defined as the ratio of the number of students, regardless of age, studying at the first stage of basic secondary and general secondary education (ISCED 2.3) and in technical and vocational education organizations (ISCED-3), to the total population at the age of 11-17 years.*

### 2.33 The share of graduates in universities to the total number of students in them

	in percent				
	2018	2019	2020	2021	2022
Total in the country	24.1	23.6	26.6	26.4	28.0
including:					
men	10.5	10.5	11.8	11.9	12.5
women	13.6	13.1	14.8	14.5	15.5

### 2.34 The share of graduates in technical and vocational education organizations to the total number of students in them

	in percent				
	2018	2019	2020	2021	2022
Total in the country	25.6	30.4	30.6	29.8	26.4
including:					
men	11.0	16.1	16.3	15.6	13.8
women	14.6	14.3	14.3	14.2	12.6

## 2.35 Graduates of higher education institutions for environmental professions

Name of specialties	people				
	2018	2019	2020	2021	2022
Ecology	960	988	897	705	711
Life safety and environmental protection	949	1 300	1 483	1 183	1 022
Water resources and water use	300	298	275	287	220
Land management	173	190	235	220	229
Forest resources and forestry	189	239	290	502	316
Total graduates in environmental professions	2 571	3 015	3 180	2 897	2 498
The share of graduates in environmental professions in the total number of graduates of higher educational institutions	1.97	2.12	2.07	1.91	1.54
For reference: Graduation of students of higher educational institutions	130 691	142 435	153 627	151 679	161 974

## 2.36 The number of employees engaged in harmful and adverse working conditions

	people				
	2018	2019	2020	2021	2022
Total number of employees	1 671 572	1 683 146	1 645 247	1 641 593	1 671 149
Including:					
employed in conditions that do not meet sanitary and hygienic requirements	373 142	370 277	366 898	374 987	386 349
of them:					
working under the influence of increased noise and vibration	169 332	170 034	169 802	169 438	180 975
increased dustiness and gas contamination of the working area exceeding the MPC	128 311	120 825	119 666	120 556	128 135
adverse temperature conditions	65 871	62 799	62 202	61 660	64 571
engaged in heavy physical labor	85 274	93 972	94 319	93 647	102 668
working on equipment that does not meet safety requirements	2 855	3 561	3 556	4 168	2 121

## 2.37 The proportion in the total number of employees

	in percent				
	2018	2019	2020	2021	2022
Total number of employees	100.0	100.0	100.0	100.0	100.0
Including:					
employed in conditions that do not meet sanitary and hygienic requirements	22.3	22.0	22.3	22.8	23.1
of them:					
working under the influence of increased noise and vibration	10.1	10.1	10.3	10.3	10.8
increased dustiness and gas contamination of the working area exceeding the MPC	7.7	7.2	7.3	7.3	7.7
adverse temperature conditions	3.9	3.7	3.8	3.8	3.9
engaged in heavy physical labor	5.1	5.6	5.7	5.7	6.1
working on equipment that does not meet safety requirements	0.2	0.2	0.2	0.3	0.1

## 2.38 Number of employees employed in harmful and unfavorable working conditions in 2022

people

	Total number of employees	of them					
		employed in conditions that do not meet sanitary and hygienic requirements (standards)	of them working under the influence			engaged in heavy physical labor	working on equipment that does not meet safety requirements
			increased noise and vibration	increased dustiness and gas contamination of the working area exceeding the MPC	adverse temperature conditions		
Industry, total	629 858	255 254	139 900	109 202	50 488	55 380	1 116
including:							
mining and quarrying	192 073	97 911	57 374	43 051	16 013	28 422	826
manufacturing industry	296 196	107 899	56 190	47 578	21 881	17 808	102
electricity, gas, steam and air conditioning	100 622	36 319	21 049	14 852	11 159	4 590	x
water supply; Sewerage system, waste collection and distribution control	40 967	13 125	5 287	3 721	1 435	4 560	74
Construction	150 644	15 115	6 996	6 955	4 436	6 274	34
Transport and warehousing	217 490	54 001	25 613	7 541	5 462	32 734	-
Information and communication	62 535	860	422	263	x	372	162
Professional, scientific and technical activities	51 741	8 261	5 616	1 105	2 236	1 633	x
Health and social services	457 745	48 228	1 155	1 590	822	5 143	755

## 2.39 The number of victims of accidents connected with work

	2018	2019	2020	2021	2022
The number of victims of accidents related to work, total, people	2 160	2 111	2 033	2 133	2 449
including:fatal	215	190	203	176	205
The number of people injured in work-related accidents per 1,000 employees, people	0.4	0.4	0.4	0.4	-
including:fatal	0.04	0.04	0.04	0.03	-

## 2.40 The distribution of the number of victims of accidents according to occupation

people

Name of groups	2018	2019	
Military establishment		42	27
Heads (representatives) of authorities at all levels. including heads of organizations		229	275
Specialists of the highest qualification level		151	176
Professionals of average skill level (support staff)		26	20

Continuation		
Name of groups	2018	2019
Employees engaged in the preparation of information, paperwork, accounting and maintenance	149	160
Employees in the service sector, housing and communal services, trade and related activities	22	23
Qualified employees in agriculture, forestry, hunting, fish farming and fisheries	823	724
Qualified employees of large and small industrial organizations, art crafts, construction, transport, communications, geology and exploration of mineral resources	416	412
Operators, apparatuses, drivers of plants and machines and mechanics - assemblers	268	255
Unqualified employees	34	39

Continuation			
Name of groups	2020	2021	2022
Executives and civil servants			
Professional specialists	32	18	20
Technicians and other professional support staff	180	186	221
Administration Officers	153	156	157
Service and sales staff	13	20	8
Farmers and workers in agriculture and forestry, fish farming and fisheries	117	123	146
Employees in industry, construction, transport and other related occupations	32	32	32
Production Equipment Operators, Assemblers and Drivers	813	795	1 009
Unqualified employees	361	519	602
Non-Employees	302	260	235

## 2.41 The number of victims of accidents by reasons

Causes of accidents	people				
	2018	2019	2020	2021	2022
Constructive defects of machines, mechanisms and equipment	19	17	13	14	7
Operation of defective machines, mechanisms and equipment	16	21	6	11	16
Violation of technological processes	39	30	22	17	10
Violation of safety requirements for vehicle operation	49	59	34	54	49
Violation of road traffic rules	177	208	200	165	163
Violation of railway traffic rules	5	2	3	-	1
Violation of air traffic rules	-	3	-	-	2
Violation of the rules of water transport traffic	-	1	-	-	1
Unsatisfactory work organization	212	225	269	266	257
The unsatisfactory technical condition of buildings, structures, maintenance of territories and deficiencies in the organization of workplaces	46	27	34	34	44
Deficiencies in learning safe labor practices	38	32	33	41	32
Insecurity or non-use of personal protective equipment	19	20	23	19	18
Insecurity of collective protection	-	1	4	11	7
Violation of labor and production discipline	34	26	34	39	40



Continuation

Causes of accidents	2018	2019	2020	2021	2022
Increased dust and gas pollution of the working area	5	4	5	10	5
Increased noise level	1	1	3	1	-
Increased vibration	1	2	1	-	-
Increased level of ionizing radiation	-	-	-	1	-
Contact with sources of infectious diseases	3	2	1	-	2
The impact on the human body physical overload	3	6	5	3	6
Violation of the established labor regime	2	6	4	6	6
Violation of the rules of safety and labor protection	279	306	258	276	234
Accidents	83	59	47	63	99
Gross negligence of the victim	809	736	733	688	687
Other	66	66	64	63	106

## 2.42 The number of deaths as a result of accidents

people

Causes of accidents	2018	2019	2020	2021	2022
Constructive defects of machines. mechanisms and equipment	3	1	1	1	1
Operation of defective machines. mechanisms and equipment	1	2	2	-	2
Violation of technological processes	11	2	3	3	2
Violation of safety requirements for vehicle operation	12	9	7	10	7
Traffic offense	20	25	19	20	26
Violation of air traffic rules	-	2	2	-	-
Violation of railway traffic rules	2	1	-	-	1
Unsatisfactory work organization	34	18	31	26	32
The unsatisfactory technical condition of buildings. structures. maintenance of territories and deficiencies in the organization of workplaces	5	3	5	3	10
Deficiencies in learning safe labor practices	2	2	1	5	4
Insecurity or non-use of personal protective equipment	-	1	1	1	2
Violation of labor and production discipline	5	7	10	9	8
Increased dust and gas pollution of the working area	1	-	2	1	1
Increased noise level	1	-	-	-	-
The impact on the human body physical overload	-	-	-	-	-
Violation of the established labor regime	1	1	1	-	1
Violation of the rules of safety and labor protection	26	33	42	19	22
Accidents	16	12	9	13	13
Gross negligence of the victim	70	61	62	61	60
Other	4	10	5	4	11

## 2.43 The number of victims of occupational diseases

	2018	2019	2020	2021	2022
The number of victims of occupational diseases. total. people	254	251	237	351	657
of these. the number of cases of diseases by type of disease:					
Toxic effects of metals	-	1	-	-	1
toxic effect of other inorganic substances	21	15	6	1	3
brucellosis	1	-	-	-	-
Lesions of the trigeminal nerve	-	1	-	-	-

	Continuation				
	2018	2019	2020	2021	2022
bronchitis and pneumonitis caused by chemicals. gases. fumes and vapors	11	5	4	22	28
Respiratory tract inflammation caused by chemicals. gases. fumes and vapors. not classified elsewhere	2	-	1	15	10
Chemical respiratory conditions caused by chemicals . gases. fumes and vapors: emphysema (diffuse) (chronic). obliterating bronchitis (chronic) (acute). pulmonary fibrosis (chronic) – caused by inhalation of chemicals ha	34	10	10	38	38
Polyneuropathy caused by other toxic substances	2	1	-	-	-
kin diseases: epidermosis. contact dermatitis. photodermatitis. onychia. paranechia. toxic melasma. oily folliculitis	-	-	-	-	-
Coal miner pneumoconiosis	-	2	4	5	14
Pneumoconiosis caused by dust containing silicon	24	53	49	33	89
Pneumoconiosis caused by other inorganic dust	-	2	1	1	2
A respiratory disease caused by specific organic dust (Byssinosis etc.)	1	5	1	-	4
Tuberculosis-associated pneumoconiosis	-	-	-	-	-
Professional bronchitis (dust. toxic-dust). including non-obstructive and obstructive	18	28	39	-	-
Other chronic sinusitis	-	-	-	-	-
Vibration disease	43	46	36	73	95
Two-way neurosensory hearing loss	66	50	28	22	33
Mixed conductive and sensorineural hearing loss bilateral	17	14	7	20	24
Autonomic-sensory (angioneurosis) polyneuropathy of hands	11	5	1	-	-
Other polyneuropathy	2	1	1	1	-
Coxarthrosis (hip joint arthrosis)	-	-	-	-	-
Gonarthritis (arthrosis of the knee joint)	1	2	-	-	-
Other arthrosis	15	15	5	15	25
Damage to the intervertebral discs of the cervical spine	5	-	2	8	1
Damage to the intervertebral discs of other departments	81	110	85	57	211
Other dorsopathies. not elsewhere classified	3	1	-	-	-
Osteoporosis in diseases classified elsewhere	-	-	-	-	-
Respiratory tuberculosis. confirmed bacteriologically and histologically	2	7	-	-	-
asthma	4	9	3	-	-
asthmatic status	1	12	2	-	-
other acquired musculoskeletal deformities and connective tissues	1	-	-	-	-
Seropositive rheumatoid arthritis	-	-	2	-	-
Toxic encephalopathy	-	-	1	-	-
Other respiratory conditions caused by chemicals. gases. fumes and vapors	-	-	1	-	-
dorsalgia	51	30	61	200	289

## 2.44 Deaths from road-traffic accidents

	Number of deaths, people					per 100000 people				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	2 413	2 726	2 136	2 281	2 715	13.4	14.7	11.4	12.0	13.8
Abai	-	-	-	-	86	-	-	-	-	14.1
Akmola	78	106	91	91	150	10.6	14.4	12.4	12.4	19.1
Aktobe	110	124	93	154	154	12.9	14.2	10.5	17.1	16.7
Almaty	339	419	340	353	272	16.9	20.5	16.5	16.9	18.2
Atyrau	101	74	95	61	75	16.4	11.6	14.6	9.2	10.9
Batys Kazakhstan	116	131	88	85	102	18.0	20.0	13.4	12.8	14.9
Zhambyl	197	220	171	160	209	17.6	19.5	15.1	14.0	17.2
Zhetisu	-	-	-	-	126	-	-	-	-	18.0
Karagandy	203	181	180	161	197	14.7	13.1	13.1	11.7	17.4
Kostanai	85	90	96	98	157	9.7	10.3	11.1	11.4	18.8
Kyzylorda	95	126	100	120	129	12.2	15.8	12.4	14.6	15.6
Mangystau	52	85	86	78	89	8.0	12.3	12.1	10.7	11.8
Pavlodar	85	81	66	71	116	11.2	10.8	8.8	9.5	15.3
Soltustik Kazakhstan	54	40	55	50	71	9.6	7.3	10.1	9.3	13.2
Turkistan	368	483	333	363	308	18.7	24.1	16.4	17.6	14.6
Ulytau	-	-	-	-	34	-	-	-	-	15.4
Shygys Kazakhstan	149	136	80	107	91	10.7	9.9	5.9	7.9	12.4
Astana city	86	74	65	94	113	8.6	6.7	5.6	7.8	8.5
Almaty city	183	216	91	97	148	10.3	11.5	4.7	4.8	6.9
Shymkent city	112	140	106	138	88	12.0	13.7	10.0	12.6	7.5

## 2.45 Unequal distribution of income\*

in percent

	Proportion of population with incomes lower than*		Depthpoverty*	Severity of poverty*	Gini coefficient		Income ratio of 10% of the most and least well-off population, times
	subsistence minimum	food basket cost			for 10% of population groups	for 20% of population groups	
2018	4.3	0.1	0.7	0.2	0.289	0.275	6.0
2019	4.3	0.1	0.7	0.2	0.290	0.275	6.0
2020	5.3	0.2	0.8	0.2	0.291	0.276	5.9
2021	5.2	0.1	0.8	0.2	0.294	0.279	6.0
2022	5.2	0.1	0.8	0.2	0.285	0.271	5.7

\* Hereinafter, data are obtained using the income equivalence scale.

## 2.46 The share of population with incomes used for consumption is below the subsistence minimum

in percent

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	4.3	4.3	5.3	5.2	5.2
Abai	9.6	10.5	10.2	6.8	5.9
Akmola	4.2	4.3	5.9	6.4	6.0
Aktobe	2.9	3.0	3.5	3.7	4.4
Almaty	2.5	1.0	2.8	3.4	3.8
Atyrau	2.5	2.5	3.0	3.3	3.3
Batys Kazakhstan	3.2	3.7	3.9	4.4	4.2

	Continuation				
	2018	2019	2020	2021	2022
Zhambyl	4.6	4.8	5.8	5.3	5.0
Zhetisu	5.4	5.7	5.7	5.7	5.5
Karagandy	2.4	2.8	3.5	3.7	3.8
Kostanai	4.1	3.4	3.5	3.4	5.0
Kyzylorda	4.9	4.9	5.8	5.5	5.0
Mangystau	4.9	4.3	5.7	8.6	8.1
Pavlodar	3.1	3.8	3.9	3.9	3.9
Soltustik Kazakhstan	4.7	5.6	6.7	5.5	5.7
Turkistan	10.6	10.8	12.2	9.8	9.7
Ulytau	1.9	1.6	1.3	1.1	2.2
Shygys Kazakhstan	3.7	3.2	4.0	4.6	4.8
Astana city	0.9	1.1	1.5	2.2	1.9
Almaty city	2.8	2.8	4.9	5.2	4.8
Shymkent city	2.5	2.8	5.0	5.5	6.6

### 2.47 The share of the urban population with incomes used for consumption is below the subsistence minimum

	in percent					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	2.5	2.7	3.7	3.8	4.0	
Abai	4.5	6.6	9.5	6.3	5.1	
Akmola	3.4	3.3	4.7	5.7	5.8	
Aktobe	1.9	2.1	2.3	2.6	3.3	
Almaty	2.3	1.8	...	2.7	4.6	
Atyrau	0.5	...	0.6	0.7	1.5	
Batys Kazakhstan	1.4	2.2	2.1	2.4	2.3	
Zhambyl	2.3	2.9	3.7	3.1	2.8	
Zhetisu	3.9	2.7	3.9	2.8	3.5	
Karagandy	1.8	2.6	3.6	3.8	4.0	
Kostanai	2.0	2.4	2.1	2.3	3.4	
Kyzylorda	4.6	3.5	4.0	5.2	4.3	
Mangystau	1.3	0.5	2.5	2.9	2.4	
Pavlodar	2.1	3.0	3.3	3.4	3.3	
Soltustik Kazakhstan	3.9	4.4	5.1	3.9	3.1	
Turkistan	8.7	8.8	9.9	7.6	7.2	
Ulytau	1.5	1.7	1.2	0.9	2.2	
Shygys Kazakhstan	1.9	0.6	1.6	2.4	2.4	
Astana city	0.9	1.1	1.5	2.2	1.9	
Almaty city	2.8	2.8	4.9	5.2	4.8	
Shymkent city	2.5	2.8	5.0	5.5	6.6	

### 2.48 The share of the rural population with incomes used for consumption is below the subsistence minimum

	in percent					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	6.7	6.6	7.6	7.2	7.3	
Abai	16.6	16.4	11.2	7.4	7.3	
Akmola	4.9	5.2	6.9	7.0	6.4	
Aktobe	4.7	5.0	6.4	6.6	7.4	

Continuation

	2018	2019	2020	2021	2022
Almaty	2.5	1.1	3.2	3.5	3.7
Atyrau	4.7	4.4	5.9	6.4	5.5
Batys Kazakhstan	5.2	5.4	6.0	6.5	6.6
Zhambyl	6.2	6.1	7.2	6.7	6.6
Zhetisu	6.3	7.5	6.7	7.0	7.0
Karagandy	4.2	3.6	3.1	3.6	2.7
Kostanai	6.5	4.6	5.6	4.9	7.7
Kyzylorda	5.1	6.0	7.2	5.7	5.6
Mangystau	7.3	6.8	7.9	12.5	12.9
Pavlodar	5.3	5.5	5.3	5.1	5.2
Soltustik Kazakhstan	5.3	6.6	8.0	7.0	8.2
Turkistan	11.1	11.3	12.7	10.5	10.5
Ulytau	6.2	...	2.5	2.9	2.5
Shygys Kazakhstan	7.1	7.7	8.2	9.6	9.5

## 2.49 The share of population with income used for consumption is lower than the cost of the food basket

in percent

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	0.1	0.1	0.2	0.1	0.1
Abai	0.1	0.2	0.2	0.2	0.1
Akmola	0.3	0.2	0.3	0.2	0.4
Aktobe	...	0.1	...	0.1	...
Almaty	0.1	0.1	0.2	0.1	...
Atyrau	...	...	...	...	...
Batys Kazakhstan	0.1	...	0.1	...	...
Zhambyl	...	0.1	...	0.1	...
Zhetisu	...	...	...	...	0.2
Karagandy	0.2	0.4	...	0.4	0.2
Kostanai	0.4	0.2	0.4	0.2	...
Kyzylorda	...	0.1	...	0.1	...
Mangystau	0.4	0.2	0.7	0.2	0.1
Pavlodar	...	0.0	...	0.0	...
Soltustik Kazakhstan	0.1	0.1	...	0.1	0.2
Turkistan	0.2	0.1	0.2	0.1	0.1
Ulytau	...	...	...	...	...
Shygys Kazakhstan	...	0.5	...	0.5	0.6
Astana city	0.1	...	-	...	...
Almaty city	0.1	0.0	-	0.0	0.2
Shymkent city	...	...	-	...	0.1

## 2.50 The share of the urban population with income used for consumption is lower than the cost of the food basket

in percent

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	0.1	0.1	0.1	0.1	0.1
Abai	...	...	...	...	...
Akmola	0.4	...	0.2	0.4	0.4

Continuation					
	2018	2019	2020	2021	2022
Aktobe	...	...	...	...	...
Almaty	...	...	...	...	...
Atyrau	...	...	...	...	...
Batys Kazakhstan	...	...	...	...	...
Zhambyl	...	...	...	...	...
Zhetisu	...	...	...	...	...
Karagandy	0.3	0.3	0.5	0.2	0.2
Kostanai	0.4	0.2	...	...	...
Kyzylorda	...	...	...	0.1	...
Mangystau	...	...	...	...	...
Pavlodar	...	...	0.3	...	...
Soltustik Kazakhstan	0.1	...	0.1	...	0.1
Turkistan	...	0.2	0.2	...	0.1
Ulytau	...	...	...	...	...
Shygys Kazakhstan	...	...	...	...	...
Astana city	0.1	...	...	0.1	...
Almaty city	0.1	0.0	0.2	0.3	0.2
Shymkent city	...	...	...	...	0.1

## 2.51 The share of the rural population with income used for consumption is lower than the cost of the food basket

in percent					
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	0.2	0.2	0.2	0.2	0.1
Abai	0.2	0.5	...	0.2	0.2
Akmola	0.3	0.5	0.5	0.6	0.4
Aktobe	...	0.3	0.2	...	...
Almaty	0.2	0.1	0.2	0.2	...
Atyrau	...	...	...	...	...
Batys Kazakhstan	0.1	...	...	...	...
Zhambyl	...	0.2	0.1	0.4	...
Zhetisu	...	...	...	...	0.4
Karagandy	...	...	0.1	...	0.1
Kostanai	0.4	0.1	...	0.2	0.1
Kyzylorda	...	0.2	...	0.1	...
Mangystau	0.7	0.3	0.4	0.8	0.1
Pavlodar	...	0.1	...	...	...
Soltustik Kazakhstan	...	0.2	0.2	...	0.3
Turkistan	0.2	0.1	0.3	0.3	0.1
Ulytau	...	...	...	...	...
Shygys Kazakhstan	...	1.3	0.4	...	1.7

## 2.52 The spread of poverty in Kazakhstan

in percent					
	2018	2019	2020	2021	2022
<b>Share of the population of regions to the national population</b>					
<b>Republic of Kazakhstan</b>	100.0	100.0	100.0	100	100.0
Abai	3.3	3.1	3.0	3.1	3.1
Akmola	4.0	4.0	3.9	3.8	4.0

Continuation

	2018	2019	2020	2021	2022
Aktobe	4.7	4.7	4.7	4.8	4.7
Almaty	6.6	6.7	6.6	7.1	7.6
Atyrau	3.5	3.5	3.5	3.5	3.5
Batys Kazakhstan	3.6	3.5	3.5	3.5	3.5
Zhambyl	6.1	6.1	6.0	6.0	6.2
Zhetisu	4.5	4.4	4.4	4.0	3.5
Karagandy	5.9	5.8	5.7	5.7	5.8
Kostanai	4.8	4.7	4.6	4.5	4.2
Kyzylorda	4.1	4.1	4.1	4.1	4.0
Mangystau	3.7	3.8	3.8	3.9	3.9
Pavlodar	4.1	4.0	4.0	3.9	3.8
Soltustik Kazakhstan	3.0	3.0	2.9	2.8	2.7
Turkistan	10.8	10.9	11.0	10.9	10.7
Ulytau	1.6	1.6	1.6	1.5	1.1
Shygys Kazakhstan	4.2	4.3	4.3	4.0	3.7
Astana city	5.9	6.1	6.3	6.5	6.9
Almaty city	10.1	10.3	10.5	10.6	11.0
Shymkent city	5.5	5.6	5.7	5.8	6.1
<b>Share of the poor population of the regions to the nationwide number of poor</b>					
<b>Republic of Kazakhstan</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Abai	7.9	7.5	5.7	4.1	3.5
Akmola	3.9	3.9	4.3	4.7	4.6
Aktobe	3.2	3.3	3.1	3.4	3.9
Almaty	3.0	1.5	3.6	4.6	5.6
Atyrau	2.0	2.0	2.0	2.2	2.2
Batys Kazakhstan	2.7	3.1	2.6	2.9	2.8
Zhambyl	6.6	6.8	6.7	6.1	5.9
Zhetisu	4.5	5.8	4.7	4.3	3.7
Karagandy	3.6	3.8	3.7	4.1	4.1
Kostanai	4.5	3.7	3.1	2.9	4.1
Kyzylorda	4.6	4.7	4.5	4.4	3.9
Mangystau	4.2	3.8	4.1	6.4	6.0
Pavlodar	2.9	3.5	2.9	2.9	2.9
Soltustik Kazakhstan	3.3	3.8	3.6	3.0	2.9
Turkistan	26.6	27.1	25.0	20.6	19.9
Ulytau	0.7	0.6	0.4	0.3	0.5
Shygys Kazakhstan	5.2	3.2	3.2	3.5	3.4
Astana city	1.2	1.6	1.8	2.8	2.4
Almaty city	6.6	6.6	9.6	10.5	10.0
Shymkent city	3.2	3.6	5.4	6.1	7.7

## 2.53 Poverty indicators

in percent

	2018	2019	2020	2021	2022
<b>Share of povetry</b>					
<b>Republic of Kazakhstan</b>	<b>4.3</b>	<b>4.3</b>	<b>5.3</b>	<b>5.2</b>	<b>5.2</b>
Abai	9.6	10.5	10.2	6.8	5.9
Akmola	4.2	4.3	5.9	6.4	6.0
Aktobe	2.9	3.0	3.5	3.7	4.4
Almaty	2.5	1.0	2.8	3.4	3.8

	Continuation				
	2018	2019	2020	2021	2022
Atyrau	2.5	2.5	3.0	3.3	3.3
Batys Kazakhstan	3.2	3.7	3.9	4.4	4.2
Zhambyl	4.6	4.8	5.8	5.3	5.0
Zhetisu	5.4	5.7	5.7	5.7	5.5
Karagandy	2.4	2.8	3.5	3.7	3.8
Kostanai	4.1	3.4	3.5	3.4	5.0
Kyzylorda	4.9	4.9	5.8	5.5	5.0
Mangystau	4.9	4.3	5.7	8.6	8.1
Pavlodar	3.1	3.8	3.9	3.9	3.9
Soltustik Kazakhstan	4.7	5.6	6.7	5.5	5.7
Turkistan	10.6	10.8	12.2	9.8	9.7
Ulytau	1.9	1.6	1.3	1.1	2.2
Shygys Kazakhstan	3.7	3.2	4.0	4.6	4.8
Astana city	0.9	1.1	1.5	2.2	1.9
Almaty city	2.8	2.8	4.9	5.2	4.8
Shymkent city	2.5	2.8	5.0	5.5	6.6
	<b>Depth of poverty</b>				
<b>Republic of Kazakhstan</b>	0.7	0.7	0.8	0.8	0.8
Abai	1.3	1.4	1.6	1.1	0.9
Akmola	0.8	0.8	1.0	1.2	1.2
Aktobe	0.4	0.4	0.6	0.6	0.7
Almaty	0.3	0.2	0.4	0.5	0.5
Atyrau	0.2	0.2	0.2	0.2	0.3
Batys Kazakhstan	0.5	0.5	0.7	0.7	0.8
Zhetisu	0.4	0.6	0.7	0.5	0.5
Zhambyl	0.7	0.9	0.9	0.9	0.9
Karagandy	0.5	0.5	0.7	0.6	0.7
Kostanai	0.8	0.6	0.5	0.5	0.6
Kyzylorda	0.5	0.7	0.8	0.7	0.5
Mangystau	1.4	1.4	1.6	1.6	1.9
Pavlodar	0.3	0.4	0.6	0.6	0.6
Soltustik Kazakhstan	0.8	0.9	1.2	0.8	0.9
Turkistan	1.3	1.4	1.6	1.3	1.2
Ulytau	0.5	0.3	0.2	0.2	0.2
Shygys Kazakhstan	0.5	0.7	0.7	0.7	1.1
Astana city	0.3	0.2	0.2	0.3	0.3
Almaty city	0.6	0.6	0.8	1.0	1.0
Shymkent city	0.6	0.2	0.7	0.9	1.1
	<b>Severity of poverty</b>				
<b>Republic of Kazakhstan</b>	0.2	0.2	0.2	0.2	0.2
Abai	0.4	0.4	0.4	0.3	0.2
Akmola	0.2	0.3	0.3	0.4	0.4
Aktobe	0.1	0.1	0.1	0.1	0.2
Almaty	0.1	0.1	0.1	0.1	0.1
Atyrau	0.0	0.0	0.0	0.0	0.0
Batys Kazakhstan	0.1	0.1	0.1	0.1	0.2
Zhambyl	0.1	0.1	0.1	0.1	0.1
Zhetisu	0.1	0.2	0.2	0.2	0.2
Karagandy	0.2	0.2	0.2	0.2	0.2
Kostanai	0.2	0.2	0.1	0.1	0.1
Kyzylorda	0.1	0.2	0.2	0.2	0.1



	Continuation				
	2018	2019	2020	2021	2022
Mangystau	0.5	0.5	0.6	0.5	0.6
Pavlodar	0.1	0.1	0.2	0.1	0.1
Soltustik Kazakhstan	0.2	0.2	0.4	0.2	0.2
Turkistan	0.3	0.3	0.4	0.3	0.2
Ulytau	0.1	0.1	0.1	0.0	...
Shygys Kazakhstan	0.2	0.3	0.2	0.2	0.4
Astana city	0.1	0.1	0.0	0.1	0.1
Almaty city	0.2	0.2	0.2	0.3	0.3
Shymkent city	0.2	0.0	0.2	0.2	0.3

## 2.54 Share of low-income population depending on the size of households in 2022

	Households consisting				
	from 1 person	from 2 persons	from 3 persons	from 4 persons	from 5 and more persons
Total population, people	862 439	2 717 847	3 233 081	3 678 548	9 238 488
the proportion of the population with lower incomes:					
subsistence minimum, in percentage	0.15	0.48	1.41	2.80	9.41
food basket cost, in percentage	...	0.02	0.02	0.02	0.20

## 2.55 Share of income of the population by 10 percent (decile) population groups\*

in percent

	Percentage of population income by decile groups									
	1 (with the lowest income)	2	3	4	5	6	7	8	9	10 (with the highest incomes)
2018	4.06	5.26	6.13	6.89	7.74	8.79	10.09	11.89	14.83	24.32
2019	4.09	5.27	6.07	6.86	7.73	8.78	10.09	11.86	14.83	24.42
2020	4.15	5.27	6.05	6.81	7.67	8.71	10.05	11.90	14.78	24.61
2021	4.22	5.31	6.02	6.75	7.56	8.58	9.92	11.76	14.73	25.15
2022	4.30	5.47	6.14	6.84	7.66	8.65	9.95	11.76	14.68	24.55

\* Hereinafter, without an equivalence scale, according to established incomes.

## 2.56 Share of income of the population by 10 percent (decile) population groups in 2018

in percent

	1	2	3	4	5	6	7	8	9	10	Total
<b>Republic of Kazakhstan</b>	4.06	5.26	6.13	6.89	7.74	8.79	10.09	11.89	14.83	24.32	100.0
Akmola	3.87	5.20	6.08	6.91	7.89	9.05	10.45	12.26	15.06	23.23	100.0
Aktobe	4.77	5.66	6.50	7.44	8.36	9.31	10.45	12.03	14.31	21.17	100.0
Almaty	4.26	5.51	6.25	6.94	7.80	8.79	10.12	11.90	14.98	23.45	100.0
Atyrau	5.25	6.29	7.08	7.80	8.52	9.40	10.48	11.98	13.95	19.25	100.0
Batys Kazakhstan	4.57	5.46	6.23	7.04	8.01	9.03	10.40	12.09	14.59	22.58	100.0
Zhambyl	5.29	6.39	6.98	7.51	8.23	9.07	10.20	11.67	14.31	20.35	100.0
Karagandy	3.69	5.08	5.96	6.80	7.75	8.88	10.29	12.24	15.15	24.16	100.0
Kostanai	4.42	5.76	6.62	7.45	8.28	9.21	10.37	11.97	14.46	21.46	100.0
Kyzylorda	4.98	6.03	6.71	7.32	8.07	8.99	10.12	11.52	13.87	22.39	100.0

	Continuation										
	1	2	3	4	5	6	7	8	9	10	Total
Mangystau	5.52	7.29	7.75	8.25	8.82	9.48	10.32	11.42	12.93	18.22	100.0
Pavlodar	4.01	5.29	6.21	7.14	8.16	9.21	10.63	12.21	14.80	22.34	100.0
Soltustik Kazakhstan	3.52	5.05	5.99	6.99	8.00	9.22	10.56	12.34	15.11	23.22	100.0
Turkistan	5.39	6.71	7.66	8.50	8.80	9.65	10.56	11.50	13.13	18.10	100.0
Shygys Kazakhstan	3.55	4.69	5.78	6.76	7.87	9.09	10.45	12.46	15.64	23.71	100.0
Astana city	5.04	6.04	6.75	7.52	8.35	9.27	10.26	11.83	13.73	21.21	100.0
Almaty city	3.62	5.00	5.95	6.87	7.94	9.09	10.42	12.13	15.04	23.94	100.0
Shymkent city	4.87	6.80	7.82	8.40	9.08	10.14	10.62	12.11	13.70	16.46	100.0

## 2.57 Share of income of the population by 10 percent (decile) population groups in 2019

	in percent										
	1	2	3	4	5	6	7	8	9	10	Total
<b>Republic of Kazakhstan</b>	4.09	5.27	6.07	6.86	7.73	8.78	10.09	11.86	14.83	24.42	100.0
Akmola	3.94	5.29	6.17	7.06	8.01	9.08	10.35	12.16	14.96	22.98	100.0
Aktobe	4.66	5.72	6.48	7.35	8.20	9.15	10.30	11.99	14.25	21.90	100.0
Almaty	4.22	5.40	6.20	6.92	7.85	8.94	10.15	11.92	15.18	23.22	100.0
Atyrau	5.31	6.43	7.20	7.94	8.56	9.29	10.23	11.57	13.69	19.78	100.0
Batys Kazakhstan	4.61	5.84	6.52	7.31	8.12	9.07	10.28	11.84	14.32	22.09	100.0
Zhambyl	5.03	6.35	6.95	7.56	8.16	8.96	10.01	11.44	13.90	21.64	100.0
Karagandy	3.64	5.00	5.97	6.96	7.97	8.99	10.35	12.02	14.87	24.23	100.0
Kostanai	4.63	5.95	6.77	7.49	8.33	9.32	10.28	11.66	14.14	21.43	100.0
Kyzylorda	4.90	6.18	6.88	7.58	8.37	9.14	10.14	11.54	13.78	21.49	100.0
Mangystau	5.48	7.17	7.68	8.23	8.83	9.56	10.44	11.54	13.41	17.66	100.0
Pavlodar	4.01	5.42	6.42	7.35	8.24	9.31	10.39	12.02	14.66	22.18	100.0
Soltustik Kazakhstan	3.54	4.94	5.99	6.94	8.02	9.16	10.45	12.15	15.32	23.49	100.0
Turkistan	5.56	6.94	7.60	8.29	8.89	9.61	10.46	11.53	13.28	17.84	100.0
Shygys Kazakhstan	3.52	4.54	5.50	6.57	7.68	8.99	10.57	12.71	15.68	24.24	100.0
Astana city	5.06	6.07	6.70	7.38	8.28	9.19	10.29	11.91	14.12	21.00	100.0
Almaty city	3.61	5.16	6.11	7.07	7.97	9.13	10.41	12.27	15.12	23.15	100.0
Shymkent city	5.47	6.59	7.27	8.05	8.81	9.73	10.86	12.11	13.71	17.40	100.0

## 2.58 Share of income of the population by 10 percent (decile) population groups in 2020

	in percent										
	1	2	3	4	5	6	7	8	9	10	Total
<b>Republic of Kazakhstan</b>	4.15	5.27	6.05	6.81	7.67	8.71	10.05	11.90	14.78	24.61	100.0
Akmola	3.88	5.22	6.15	7.11	8.11	9.13	10.40	12.16	14.84	23.00	100.0
Aktobe	4.57	5.50	6.26	7.14	8.04	9.15	10.36	12.27	14.91	21.80	100.0
Almaty	4.18	5.35	6.07	6.89	7.73	8.82	10.19	11.95	15.08	23.74	100.0
Atyrau	5.36	6.45	7.20	7.93	8.64	9.48	10.54	11.70	13.86	18.84	100.0
Batys Kazakhstan	4.76	5.96	6.68	7.38	8.20	9.28	10.48	12.06	14.40	20.80	100.0
Zhambyl	5.05	6.37	7.07	7.66	8.35	9.07	10.08	11.39	13.86	21.10	100.0
Karagandy	3.58	4.77	5.73	6.82	7.91	9.11	10.51	12.06	15.00	24.51	100.0
Kostanai	4.57	5.63	6.41	7.23	8.11	9.11	10.24	11.74	14.13	22.83	100.0
Kyzylorda	4.94	6.09	6.85	7.72	8.48	9.39	10.43	11.95	14.16	19.99	100.0
Mangystau	5.41	7.29	7.81	8.18	8.73	9.43	10.37	11.60	13.49	17.69	100.0
Pavlodar	3.83	5.22	6.12	6.93	7.89	8.98	10.35	12.07	14.95	23.66	100.0
Soltustik Kazakhstan	3.47	4.88	5.98	6.85	7.94	9.15	10.55	12.50	15.37	23.31	100.0
Turkistan	5.64	6.89	7.44	8.08	8.73	9.42	10.32	11.54	13.37	18.57	100.0

Continuation

	1	2	3	4	5	6	7	8	9	10	Total
Shygys Kazakhstan	3.60	4.51	5.36	6.40	7.53	8.87	10.46	12.51	15.77	24.99	100.0
Astana city	5.34	6.29	6.75	7.44	8.17	9.05	10.28	11.80	13.97	20.91	100.0
Almaty city	3.45	4.75	5.73	6.72	7.74	8.96	10.38	12.33	15.64	24.30	100.0
Shymkent city	5.50	6.82	7.38	7.98	8.71	9.52	10.53	11.81	13.75	18.00	100.0

## 2.59 Share of income of the population by 10 percent (decile) population groups in 2021

in percent

	1	2	3	4	5	6	7	8	9	10	Total
<b>Republic of Kazakhstan</b>	4.22	5.31	6.02	6.75	7.56	8.58	9.92	11.76	14.73	25.15	100.0
Akmola	3.96	5.1	6.09	7.05	8.03	9.07	10.39	12.06	14.73	23.52	100.0
Aktobe	4.54	5.27	5.83	6.78	7.8	8.82	10.29	12.23	14.75	23.7	100.0
Almaty	4.32	5.45	6.22	6.96	7.71	8.83	10.14	12.07	15.06	23.25	100.0
Atyrau	5.39	6.32	6.99	7.65	8.36	9.22	10.18	11.67	13.86	20.36	100.0
Batys Kazakhstan	4.89	6.04	6.61	7.26	8.1	8.99	10.24	11.77	14.2	21.91	100.0
Zhambyl	5.38	6.59	7.15	7.66	8.23	9.00	10.03	11.35	13.86	20.74	100.0
Karagandy	3.65	4.83	5.73	6.7	7.8	8.93	10.22	12.03	14.91	25.19	100.0
Kostanai	4.41	5.76	6.65	7.45	8.25	9.14	10.19	11.78	14.06	22.31	100.0
Kyzylorda	5.00	6.28	7.00	7.73	8.43	9.15	10.03	11.46	13.75	21.17	100.0
Mangystau	5.40	7.10	7.70	8.20	8.90	9.50	10.50	11.70	13.30	17.80	100.0
Pavlodar	3.98	4.95	5.71	6.54	7.48	8.65	10	11.87	14.91	25.92	100.0
Soltustik Kazakhstan	3.59	5.1	5.99	6.9	7.91	8.98	10.34	12.13	15.16	23.91	100.0
Turkistan	5.53	6.92	7.53	8.15	8.77	9.51	10.25	11.28	13.11	18.95	100.0
Shygys Kazakhstan	3.73	4.6	5.5	6.45	7.55	8.77	10.3	12.31	15.47	25.31	100.0
Astana city	4.71	5.79	6.47	7.25	8.07	9.04	10.24	11.78	14.38	22.27	100.0
Almaty city	3.4	4.74	5.65	6.55	7.55	8.74	10.17	12.36	15.52	25.32	100.0
Shymkent city	5.67	7.1	7.6	8.15	8.61	9.37	10.25	11.47	13.49	18.28	100.0

## 2.60 Share of income of the population by 10 percent (decile) population groups in 2022

in percent

	1	2	3	4	5	6	7	8	9	10	Total
<b>Republic of Kazakhstan</b>	4.30	5.47	6.14	6.84	7.66	8.65	9.95	11.76	14.68	24.55	100.0
Abai	4.88	5.77	6.46	7.20	7.87	8.73	10.25	12.14	15.05	21.67	100.0
Akmola	4.03	5.30	6.22	7.09	8.07	9.09	10.28	12.09	14.82	23.01	100.0
Aktobe	4.39	5.18	5.84	6.69	7.64	8.77	10.29	12.01	14.62	24.58	100.0
Almaty	4.72	5.79	6.30	7.03	7.78	8.66	9.90	11.74	14.45	23.64	100.0
Atyrau	5.40	6.48	7.20	7.85	8.53	9.23	10.21	11.64	13.44	20.03	100.0
Batys Kazakhstan	5.02	6.41	6.93	7.57	8.27	9.27	10.47	12.15	14.44	19.47	100.0
Zhambyl	5.55	6.61	7.10	7.56	8.18	8.88	9.93	11.48	14.05	20.67	100.0
Zhetisu	4.55	6.11	6.32	7.31	7.67	8.72	9.98	11.96	15.16	22.24	100.0
Karagandy	3.50	4.90	5.74	6.66	7.70	8.85	10.24	12.14	14.94	25.33	100.0
Kostanai	4.48	5.62	6.57	7.48	8.43	9.41	10.58	11.99	14.30	21.15	100.0
Kyzylorda	5.02	6.23	6.93	7.72	8.39	9.31	10.27	11.75	13.89	20.48	100.0
Mangystau	5.39	7.27	7.89	8.44	8.89	9.59	10.36	11.40	13.26	17.51	100.0
Pavlodar	4.38	5.31	5.90	6.64	7.55	8.73	10.29	11.90	14.67	24.62	100.0
Soltustik Kazakhstan	3.79	5.17	6.14	7.16	8.15	9.26	10.47	11.97	14.77	23.12	100.0
Turkistan	5.27	6.60	7.28	8.00	8.62	9.41	10.28	11.50	13.46	19.58	100.0
Ulytau	4.09	5.01	5.57	6.27	8.39	8.96	10.31	12.87	15.84	22.70	100.0

Continuation

	1	2	3	4	5	6	7	8	9	10	Total
Shygys Kazakhstan	3.39	4.40	5.49	6.49	7.66	9.06	10.66	12.70	15.67	24.48	100.0
Astana city	4.75	5.88	6.46	7.21	8.02	9.07	10.42	12.11	14.78	21.32	100.0
Almaty city	3.50	4.87	5.73	6.65	7.58	8.75	10.18	12.13	15.34	25.26	100.0
Shymkent city	5.44	7.06	7.62	8.17	8.72	9.21	10.03	11.42	13.45	18.89	100.0

## 2.61 Improvement of housing stock

in percent

	2018	2019	2020	2021	2022
The share of the total area of the total housing stock, (in percent ) equipped:					
water supply	98	98	98	98	98.2
sewage	70	70	71	73	74.0
central heating	41	42	42	43	43.9
gas	88	87	87	87	85.7
central hot water supply	36	36	37	37	37.7
in a bath or shower	42	42	43	43	44.2
floor electric stoves	11	11	12	12	13.2
The share of the total area of urban housing stock, (in percent ) equipped:					
it is one in the supply	100	100	100	100	99.7
to the analysis	88	88	88	89	89.8
central heating	63	63	64	64	65.1
gas	82	82	81	81	79.5
central hot water supply	56	56	56	56	56.7
bath or shower	63	63	63	62	63.2
floor electric stoves	16	17	17	18	19.4
The share of the total area of rural housing stock, (in percent ) equipped :					
it is one in the supply	96	96	96	96	95.4
to the analysis	39	40	41	42	44.5
central heating	4	4	4	4	4.3
gas	97	97	97	97	97.2
central hot water supply	2	2	2	2	2.1
in a bath or shower	7	7	7	8	8.6
floor electric stoves	1	2	2	2	1.6

## 2.62 Drinking water quality of decentralized water supply facilities\*

the proportion of water samples that do not meet the standards, the percent

	2018	2019	2020	2021	2022
<b>By sanitary and chemical indicators</b>					
<b>Republic of Kazakhstan</b>	21.9	14.7	14.0	10.0	13.0
Abai	-	-	-	-	-
Akmola	36.0	36.2	27.3	23.3	38.2
Aktobe	6.4	12.2	4.2	0.	0.0
Almaty	0	0	0	2.5	11.9
Atyrau	0	0	0	0.0	0.0
Batys Kazakhstan	13.4	18.1	27.4	2.1	22.7
Zhambyl	0	-	0	43.2	0.0
Zhetisu	-	-	-	-	-

Continuation

	2018	2019	2020	2021	2022
Karagandy	21.0	11.1	5.6	24.5	12.1
Kostanai	21.3	14.6	9.2	7.5	15.1
Kyzylorda	100	20	10.0	8.1	0.0
Mangystau	6.8	7.2	9.1	50.0	9.4
Pavlodar	35.5	28.7	23.6	5.6	4.8
Soltustik Kazakhstan	19.4	7.5	-	10.2	24.5
Turkistan	1.9	2.6	6.8	7.2	8.3
Ulytau	-	-	-	-	-
Shygys Kazakhstan	2.2	2.6	0	7.7	22.5
Astana city	-	-	-	-	0.0
Almaty city	-	-	-	-	0.0
Shymkent city	-	-	-	-	0.0
<b>By microbiological indicators</b>					
<b>Republic of Kazakhstan</b>	11.3	8.7	7.4	5.8	6.3
Abai	-	-	-	-	-
Akmola	24.1	14.0	0.38	18.5	7.0
Aktobe	6.4	14.4	5.6	0.0	0.0
Almaty	-	0	0	3.6	5.3
Atyrau	-	-	0	0.0	0.0
Batys Kazakhstan	6.2	13.8	0	5.2	20.7
Zhambyl	-	-	0	5.4	0.0
Zhetisu	-	-	-	-	-
Karagandy	4.3	5.4	0.7	18.5	0.0
Kostanai	15.0	5.9	7.6	0.0	9.5
Kyzylorda	-	-	10.0	4.5	0.0
Mangystau	-	0	9.1	0.0	0.0
Pavlodar	11.9	21.2	15.1	2.6	1.4
Soltustik Kazakhstan	4.9	2.4	2.3	2.1	1.4
Turkistan	0.8	2.9	8.1	3.7	5.1
Ulytau	-	-	-	-	-
Shygys Kazakhstan	0.4	-	14.0	6.1	14.2
Astana city	-	-	0	2.3	0.0
Almaty city	-	-	11.2	-	0.0
Shymkent city	-	-	-	-	0.0

\* Hereinafter, according to the Committee of Sanitary and Epidemiological Control of the Ministry of Health of the Republic of Kazakhstan.

## 2.63 Drinking water quality of centralized water supply facilities

the proportion of samples of tap water that do not meet the standards, in percent

	2018	2019	2020	2021	2022
<b>By sanitary and chemical indicators</b>					
<b>Republic of Kazakhstan</b>	4.0	4.2	5.7	5.2	4.2
Abai	-	-	-	-	-
Akmola	16.1	17.7	15.2	17.2	16.7
Aktobe	3.5	2.4	2.9	0.0	2.4
Almaty	3.2	2.4	5.3	6.6	3.3
Atyrau	9.1	4.8	2.5	5.8	6.5
Batys Kazakhstan	4.2	11.3	11.0	0.8	11.5
Zhambyl	5.2	0.2	5.1	2.3	3.6

	Continuation				
	2018	2019	2020	2021	2022
Zhetisu	-	-	-	-	-
Karagandy	0.5	0.5	0.1	9.0	1.2
Kostanai	4.6	2.9	4.5	0.2	3.2
Kyzylorda	9.8	13.7	11.5	9.8	8.2
Mangystau	5.0	3.6	5.6	14.0	5.8
Pavlodar	9.0	9.4	11.7	3.2	5.1
Soltustik Kazakhstan	5.4	1.2	5.0	6.5	1.6
Turkistan	1.7	2.3	6.2	2.3	2.3
Ulytau	-	-	-	-	-
Shygys Kazakhstan	1.0	0.9	1.3	2.7	2.7
Astana city	1.7	2.3	1.9	0.0	5.9
Almaty city	-	0	0	0.0	0.0
Shymkent city	-	1.0	0.3	1.9	3.2
<b>By microbiological indicators</b>					
<b>Republic of Kazakhstan</b>	2.6	2.2	3.0	2.4	2.4
Abai	-	-	-	-	-
Akmola	11.3	9.5	9.6	6.5	8.5
Aktobe	1.8	1.4	0.1	0.0	1.3
Almaty	3.1	4.1	5.7	3.9	4.7
Atyrau	5.4	1.6	2.5	1.6	2.7
Batys Kazakhstan	2.0	5.4	5.8	2.5	5.5
Zhambyl	4.7	1.8	1.9	1.5	3.3
Zhetisu	-	-	-	-	-
Karagandy	0.1	0.1	0.01	5.3	0.2
Kostanai	2.1	0.5	1.8	0.1	1.9
Kyzylorda	6.4	7.1	3.5	2.6	9.0
Mangystau	0.6	0.8	1.2	5.5	1.7
Pavlodar	3.9	4.5	7.9	1.0	3.1
Soltustik Kazakhstan	1.2	1.2	0.1	5.4	0.2
Turkistan	5.0	2.5	4.0	0.3	2.4
Ulytau	-	-	-	-	-
Shygys Kazakhstan	1.7	1.6	2.8	2.5	5.4
Astana city	2.1	0	0.6	2.0	1.0
Almaty city	0.2	1.2	1.0	0.2	0.4
Shymkent city	1.7	1.0	0.6	0.1	0.2

## 2.64 Drinking water quality\*

	units				
	2018	2019	2020	2021	2022
<b>Purified water in centralized water supply systems</b>					
Total number of samples	48 470	63 401	63 504	66 684	65 622
The number of samples exceeding the standards established in the country	1 595	2 027	2 769	26 11	2 137
of them:					
on microbiological indicators	669	767	1 786	1 007	859
by chemical parameters	926	1 260	983	1 604	1 278
Percentage of samples exceeding established standards in the country, in percent	3.2	3.1	4.3	3.9	3.2

Continuation

	2018	2019	2020	2021	2022
<b>Decentralized water supply facilities</b>					
Total number of samples	11 468	14 193	81 03	10 666	7 304
The number of samples exceeding the standards established in the country	1 938	1 663	894	854	697
of them:					
on microbiological indicators	603	620	277	298	232
by chemical parameters	1 335	1 043	617	556	465
Percentage of samples exceeding established standards in the country, in percent	16.8	11.7	11.0	8.0	9.5

*\* According to the branch of the Scientific and practical center for sanitary and epidemiological expertise and monitoring of The Republican State Enterprise with the right of economic management, the National Center for Public Health of the Republic of Kazakhstan.*

## 2.65 Provision of water supply and sanitation services to the population in the Republic of Kazakhstan

	2018	2019	2020	2021	2022
Public access to water services, including					
in cities	94.5	97.2	97.5	98.1	98.4
in villages	59.9	64.3	90.1	93	94.8
Provision of the population with centralized water supply, including					
in cities	94.5	97.2	97.5	98.1	98.4
in villages	59.9	64.3	88.1	90.4	92.1
Public access to centralized water disposal systems, including					
in cities	...	...	...	...	...
in villages	...	...	...	...	...
Coverage of the population with wastewater treatment, including					
in cities	68.7	70.5	70.5	75.7	77.1 <sup>1</sup>
in villages	8.6	8.8	...	...	...

<sup>1)</sup>Here in after according to the Ministry of industry and construction of the Republic of Kazakhstan.

<sup>2)</sup>Coverage of the population with wastewater treatment in cities of republican significance and regional centers

## 2.66 Public access to water supply services

as a percent of the total population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>					
in cities	94.5	97.2	97.5	98.1	98.4
in villages	59.9	64.3	90.1	93	94.8
<b>Abai</b>					
in cities	-	-	-	-	92.8
in villages	-	-	-	-	90.6
<b>Akmola</b>					
in cities	86.0	97.8	98.8	95.1	95.3
in villages	59.5	60.1	88.8	89.3	93
<b>Aktobe</b>					

	Continuation				
	2018	2019	2020	2021	2022
in cities	98.5	99.2	99.5	99.6	100
in villages	55.2	56.5	88.8	91.3	95
<b>Almaty</b>					
in cities	96.8	96.8	98.4	99.5	99.9
in villages	87.1	89.2	98.3	99.1	99.3
<b>Atyrau</b>					
in cities	100	100	100	100	100
in villages	78.6	83.5	98.5	99.0	99.3
<b>Batys Kazakhstan</b>					
in cities	94.8	95.9	96.9	97.8	100
in villages	44.8	50.0	88.0	89.8	92.0
<b>Zhambyl</b>					
in cities	86.6	88.0	88.9	91.0	92
in villages	64.8	66.9	82.2	88.8	92
<b>Zhetisu</b>					
in cities	-	-	-	-	100
in villages	-	-	-	-	98.8
<b>Karagandy</b>					
in cities	92.0	97.0	98.0	98.5	98.5
in villages	55.3	62.0	90.8	91.8	92.9
<b>Kostanai</b>					
in cities	97.6	97.6	97.8	98.0	98.2
in villages	31.2	31.4	64.7	97.8	80.4
<b>Kyzylorda</b>					
in cities	93.0	95.0	98.0	100	100
in villages	75.0	76.5	97.6	97.8	98.1
<b>Mangystau</b>					
in cities	100	100	100	100	100
in villages	69.0	75.4	92.2	96.2	100
<b>Pavlodar</b>					
in cities	92.0	93.0	94.5	95.0	96
in villages	27.9	31.0	88.4	94	95.1
<b>Soltustik Kazakhstan</b>					
in cities	100.0	100.0	100	100	100
in villages	59.2	59.5	82.1	83.5	85
<b>Turkistan</b>					
in cities	95.3	96.5	97.9	99.4	99.4
in villages	73.6	75.1	92.1	93.3	94.3
<b>Ulytau</b>					
in cities	-	-	-	-	100.
in villages	-	-	-	-	95.1
<b>Shygys Kazakhstan</b>					
in cities	97.8	98.2	98.6	98.1	99.7
in villages	51.1	56.0	81.4	93	95.5



	Continuation				
	2018	2019	2020	2021	2022
Astana city					
in cities	94.9	95.4	96.5	98.1	98.9
Almaty city					
in cities	97.1	98.0	98.3	98.5	99
Shymkent city					
in cities	93.0	94.7	95.6	98.0	98.5

## 2.67 Provision of centralized water supply to the population

as a percent of the total population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>					
in cities	94.5	97.2	97.5	98.1	98.4
in villages	59.9	64.3	88.1	90.4	92.1
Abai					
in cities	-	-	-	-	92.8
in villages	-	-	-	-	79
Akmola					
in cities	86.0	97.8	98.8	95.1	95.3
in villages	59.5	60.1	82.7	82.9	86.7
Aktobe					
in cities	98.5	99.2	99.5	99.6	100
in villages	55.2	56.5	88.8	90.1	92.3
Almaty					
in cities	96.8	98.5	98.4	99.5	99.9
in villages	87.1	89.2	98.3	99.1	99.3
Atyrau					
in cities	100	100	100	100	100
in villages	78.6	83.5	98.5	99.0	99.3
Batys Kazakhstan					
in cities	94.8	95.9	96.9	97.8	100
in villages	44.8	50.0	88.0	89.5	90.7
Zhambyl					
in cities	86.6	88.0	88.9	91.0	92
in villages	64.8	66.9	82.2	88.8	92
Zhetisu					
in cities	-	-	-	-	100
in villages	-	-	-	-	98.8
Karagandy					
in cities	92.0	97.0	98.0	98.5	98.5
in villages	55.3	62.0	90.8	91.8	92.9
Kostanai					
in cities	97.6	97.6	97.8	98.0	98.2
in villages	31.2	31.4	63.1	64.7	69.9
Kyzylorda					
in cities	93.0	95.0	98.0	100	100
in villages	75.0	76.5	97.3	97.8	98.1
Mangystau					
in cities	100	100	100	100	100
in villages	69.0	75.4	92.2	96.2	99.3

	Continuation				
	2018	2019	2020	2021	2022
<b>Pavlodar</b>					
in cities	92.0	93.0	94.5	95	96
in villages	27.9	31.0	82.4	88	89.3
<b>Soltustik Kazakhstan</b>					
in cities	100	100	100	100	100
in villages	59.2	59.5	51.9	49.9	57
<b>Turkistan</b>					
in cities	95.3	96.5	97.9	99.4	99.4
in villages	73.6	75.1	92.1	93.3	94.3
<b>Ulytau</b>					
in cities	-	-	-	-	100
in villages	-	-	-	-	95.1
<b>Shygys Kazakhstan</b>					
in cities	97.8	98.2	98.6	99.1	99.7
in villages	51.1	56.0	77.9	87.2	89.5
<b>Astana city</b>	94.9	95.4	96.5	98	98.9
<b>Almaty city</b>	97.1	98.0	98.3	98.5	99
<b>Shymkent city</b>	93.0	94.7	95.6	98	98.5

## 2.68 Coverage of the population by wastewater treatment

as a percent of the total population

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>					
in cities	68.7	70.5	70.5	75.7	77.1
in villages	8.6	8.8	...	...	...
<b>Abai</b>					
in cities	-	-	-	-	67.7
in villages	-	-	-	-	...
<b>Akmola</b>					
in cities	71.8	72.1	72.1	79.1	100
in villages	14.7	14.7	...	...	...
<b>Aktobe</b>					
in cities	67.4	95.3	67.4	95.6	100
in villages	6.6	6.6	...	...	...
<b>Almaty</b>					
in cities	95.1	95.1	95.1	55.9	100
in villages	6.3	6.3	...	...	...
<b>Atyrau</b>					
in cities	37.2	37.2	37.2	54.1	65.9
in villages	9.4	9.5	...	...	...
<b>Batys Kazakhstan</b>					
in cities	90.2	91.2	91.2	91.2	91.5
in villages	0	0	...	...	...
<b>Zhambyl</b>					
in cities	0	0	0	0	0
in villages	0	0	...	...	...
<b>Zhetisu</b>					
in cities	-	-	-	-	58
in villages	-	-	-	-	...
<b>Karagandy</b>					

Continuation

	2018	2019	2020	2021	2022
in cities	63.0	66.0	66.0	72.9	74.2
in villages	20.9	20.9	...	...	...
Kostanai					
in cities	100	100	100	94.8	0
in villages	17.1	17.1	...	...	...
Kyzylorda					
in cities	48.9	48.9	48.9	55.0	57
in villages	0.4	0.4	...	...	...
Mangystau					
in cities	93.1	93.1	93.1	93.1	100
in villages	3.8	3.8	...	...	...
Pavlodar					
in cities	75.6	87.0	76.1	88.0	88.5
in villages	5.3	5.3	...	...	...
Soltustik Kazakhstan					
in cities	74.4	84.0	74.4	74.4	86.4
in villages	0.6	0.6	...	...	...
Turkistan					
in cities	25.7	25.7	25.7	33.2	27.9
in villages	9.4	9.4	...	...	...
Ulytau					
in cities	-	-	-	-	86.2
in villages	-	-	-	-	...
Shygys Kazakhstan					
in cities	70.0	72.0	72.0	74.0	80.7
in villages	28.2	30.1	...	...	...
Astana city	90.8	91.0	100.0	100.0	100
Almaty city	79.2	80.0	80.0	92.5	92.5
Shymkent city	49.1	60.7	50.2	54.0	60

## 2.69 Respondents' opinion on satisfaction with the quality of drinking water

in percent

	Total re-spondent	2018				2019			
		satis-fied	partially satis-fied	not satis-fied	diffi-cult to answer	satis-fied	partially satisfied	not satis-fied	diffi-cult to an-swer
<b>Republic of Kazakhstan</b>	100.0	42.6	43.6	13.5	0.3	42.7	46.2	11.0	0.1
Akmola	100.0	39.3	39.3	20.3	1.1	35.7	42.0	22.3	...
Aktobe	100.0	42.6	57.2	...	0.2	31.9	61.3	6.7	0.1
Almaty	100.0	68.9	28.0	2.8	0.3	62.8	33.3	3.8	0.1
Atyrau	100.0	55.9	39.9	3.8	0.4	54.1	37.2	8.7	...
Batys Kazakhstan	100.0	46.1	45.2	7.4	1.3	42.9	45.1	11.6	0.4
Zhambyl	100.0	60.5	36.9	2.6	...	74.7	24.4	0.9	...
Karagandy	100.0	19.2	36.3	44.0	0.5	18.5	54.0	27.2	0.3
Kostanai	100.0	26.6	54.1	19.3	...	19.2	57.5	23.3	...
Kyzylorda	100.0	62.6	37.2	...	0.2	70.2	29.4	0.2	0.2
Mangystau	100.0	8.1	39.5	2.4	...	47.6	50.4	2.0	...
Pavlodar	100.0	45.6	45.2	9.2	...	33.1	60.8	6.1	...

Continuation

	Total respondent	2018				2019			
		satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Soltustik Kazakhstan	100.0	35.4	52.8	11.8	...	42.7	46.2	11.0	0.1
Turkistan	100.0	...	...	...	...	35.7	42.0	22.3	...
Shygys Kazakhstan	100.0	48.0	34.8	17.1	0.1	31.9	61.3	6.7	0.1
Astana city	100.0	22.1	66.3	11.0	0.6	62.8	33.3	3.8	0.1
Almaty city	100.0	23.3	47.7	29.0	...	54.1	37.2	8.7	...
Shymkent city	100.0	...	...	...	...	42.9	45.1	11.6	0.4

Continuation

	2020				2021			
	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
<b>Republic of Kazakhstan</b>	47.1	42.5	10.0	0.4	44.1	46.5	9.1	0.3
Akmola	45.4	33.5	20.4	0.7	42.6	35.1	21.5	0.8
Aktobe	15.8	81.7	2.5	-	11.1	84.4	4.3	0.2
Almaty	73.6	22.9	2.2	1.3	74.6	21.2	3.0	1.2
Atyrau	65.9	29.3	2.3	2.5	66.5	28.6	4.5	0.4
Batys Kazakhstan	46.4	40.0	13.2	0.4	41.2	53.1	5.5	0.2
Zhambyl	79.3	16.7	3.8	0.2	80.7	15.3	4.0	...
Karagandy	19.9	48.7	31.1	0.3	22.4	51.5	26.0	0.1
Kostanai	24.0	60.6	15.2	0.2	24.4	52.2	23.2	0.2
Kyzylorda	65.3	31.5	2.4	0.8	63.2	35.4	1.1	0.3
Mangystau	55.2	42.3	2.5	-	59.3	39.3	1.4	...
Pavlodar	44.4	46.2	9.3	0.1	43.6	51.7	4.7	...
Soltustik Kazakhstan	31.7	55.6	12.7	-	32.2	58.2	9.6	...
Turkistan	62.8	36.3	0.9	-	49.8	48.6	1.6	...
Shygys Kazakhstan	55.4	37.0	7.5	0.1	50.6	46.3	3.1	...
Astana city	31.0	56.5	12.0	0.5	17.8	62.0	19.9	0.3
Almaty city	22.7	60.0	17.3	-	23.5	66.1	10.4	...
Shymkent city	79.5	19.7	0.2	0.6	68.3	30.0	0.2	1.5

Continuation

	2022				
	satisfied	partially satisfied	not satisfied	difficult to answer	
<b>Republic of Kazakhstan</b>	43.0		47.5	9.0	0.5
Abai	38.8		33.8	27.1	0.3
Akmola	38.4		58.7	2.3	0.6
Aktobe	69.8		26.2	3.2	0.8
Almaty	58.3		30.6	10.7	0.4
Atyrau	41.0		52.9	5.0	1.1
Batys Kazakhstan	80.7		14.4	4.3	0.6
Zhambyl	30.0		42.9	25.7	1.4
Zhetisu	23.6		64.1	12.3	0.0
Karagandy	71.7		26.3	0.0	2.0
Kostanai	65.6		30.7	2.7	1.0
Kyzylorda	49.6		43.0	7.4	0.0
Mangystau	26.9		63.8	9.3	0.0
Pavlodar	44.2		55.4	0.2	0.2

Continuation

	2022			
	satisfied	partially satisfied	not satisfied	difficult to answer
Soltustik Kazakhstan	45.3	47.3	7.4	0.0
Turkistan	22.1	61.5	15.9	0.5
Ulytau	14.3	75.6	10.1	0.0
Shygys Kazakhstan	59.9	37.4	1.8	0.9
Astana city	43.0	47.5	9.0	0.5
Almaty city	38.8	33.8	27.1	0.3
Shymkent city	38.4	58.7	2.3	0.6

## 2.70 Respondents' opinion on satisfaction with the cleanliness of the air (absence of emissions, smoke, dust and dirt)

in percent

	Total respondents	2018				2019			
		satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
<b>Republic of Kazakhstan</b>	100.0	41.4	47.3	10.7	0.6	41.4	49.6	8.8	0.2
Akmola	100.0	47.4	39.6	9.3	3.7	44.5	43.8	10.9	0.8
Aktobe	100.0	44.5	53.3	2.3	...	29.1	63.8	7.1	...
Almaty	100.0	68.7	29.4	1.1	0.8	62.7	33.9	3.0	0.4
Atyrau	100.0	58.0	38.5	3.3	0.2	54.9	39.8	5.3	...
Batys									
Kazakhstan	100.0	43.2	48.2	4.7	3.9	46.5	47.8	4.6	1.1
Zhambyl	100.0	53.6	43.0	3.1	0.2	70.1	29.3	0.6	...
Karagandy	100.0	20.2	53.3	25.2	1.3	16.7	62.1	20.8	0.4
Kostanai	100.0	44.7	50.3	4.9	...	31.6	65.0	3.4	...
Kyzylorda	100.0	57.8	41.1	1.1	...	62.6	36.5	0.2	0.7
Mangystau	100.0	46.8	48.8	4.4	...	38.0	58.5	3.5	...
Ontustik									
Kazakhstan	100.0	44.6	51.2	3.6	0.5	...	...	...	...
Pavlodar	100.0	35.5	47.0	17.5	...	27.9	60.5	11.6	...
Soltustik									
Kazakhstan	100.0	48.7	44.9	6.4	...	35.1	59.4	5.5	...
Turkistan	100.0	...	...	...	...	52.0	45.8	2.2	...
Shygys									
Kazakhstan	100.0	40.8	32.7	26.5	...	39.8	33.1	27.1	...
Astana city	100.0	25.7	62.2	11.7	0.5	35.4	61.2	3.2	0.2
Almaty city	100.0	18.3	62.5	19.1	0.1	24.0	62.3	13.6	0.1
Shymkent city	100.0	...	...	...	...	56.1	43.7	...	0.2

Continuation

	2020				2021			
	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
<b>Republic of Kazakhstan</b>	45.2	46.7	7.8	0.3	44.8	47.8	7.0	0.4
Akmola	50.0	41.5	7.0	1.5	50.9	41.8	6.7	0.6
Aktobe	14.8	81.8	3.3	0.1	12.7	83.8	3.3	0.2

Continuation

	2020				2021			
	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Almaty	76.4	21.6	1.9	0.1	75.4	22.3	1.4	0.9
Atyrau	58.3	35.9	2.3	3.5	58.4	34.2	7.0	0.4
Batys Kazakhstan	45.0	51.2	3.5	0.3	49.8	46.4	3.2	0.6
Zhambyl	73.7	25.0	1.0	0.3	76.2	23.3	0.5	...
Karagandy	16.5	63.1	20.2	0.2	22.4	59.1	18.2	0.3
Kostanai	45.4	52.3	2.3	-	41.1	57.3	1.6	...
Kyzylorda	58.9	37.4	3.7	-	64.5	34.5	0.7	0.3
Mangystau	43.5	50.7	5.8	-	52.2	46.6	0.8	0.4
Pavlodar	34.8	54.1	11.1	-	39.2	49.2	11.6	...
Soltustik Kazakhstan	45.0	47.4	7.6	-	45.4	51.3	3.3	...
Turkistan	62.3	37.2	0.5	-	54.9	44.8	0.3	...
Shygys Kazakhstan	38.9	39.1	22.0	-	40.5	46.4	13.1	...
Astana city	31.2	61.7	6.1	1.0	20.2	72.7	6.9	0.2
Almaty city	17.7	68.7	13.4	0.2	22.2	60.0	17.8	...
Shymkent city	78.2	21.0	0.2	0.6	64.6	32.4	0.6	2.4

Continuation

	2022			
	satisfied	partially satisfied	not satisfied	difficult to answer
<b>Republic of Kazakhstan</b>	48.7	48.0	2.7	0.6
Abai	-	-	-	-
Akmola	52.4	43.0	2.7	1.9
Aktobe	41.6	57.3	0.3	0.8
Almaty	63.4	31.9	3.6	1.1
Atyrau	61.7	35.6	2.5	0.2
Batys Kazakhstan	54.1	42.1	1.7	2.1
Zhambyl	77.6	21.2	0.6	0.6
Zhetisu	-	-	-	-
Karagandy	40.8	52.1	6.3	0.8
Kostanai	38.2	61.0	0.8	0.0
Kyzylorda	75.7	22.3	0.0	2.0
Mangystau	60.3	38.2	0.9	0.6
Pavlodar	53.0	45.4	1.6	0.0
Soltustik Kazakhstan	41.6	55.3	3.1	0.0
Turkistan	65.5	34.3	0.2	0.0
Ulytau	-	-	-	-
Shygys Kazakhstan	41.1	55.5	3.4	0.0
Astana city	27.8	67.8	4.1	0.3
Almaty city	24.2	71.7	3.9	0.2
Shymkent city	61.8	33.9	2.8	1.5

Note: According to the population survey "Quality of life of the population", which is an integral part of the program of sample surveys of households to assess the standard of living.

## 2.71 The main performance indicators of water supply companies

	2018	2019	2020	2021	2022
Number of water supply facilities	3 145	3 255	3 786	3 830	3 844

Continuation

	2018	2019	2020	2021	2022
Number of individual water supply networks	1 188	1 145	1 164	1 162	1 183
Number of street water taps (booths, columns, taps)	19 238	18 120	16 689	16 085	15 124
Number of accidents	2 837	2275	1 895	1 870	1 917
of these, on ad networks	2 697	2177	1 712	1 620	1 385
Length of water pipes	78 892.6	83 909.7	85 105.9	88 718.0	93 511.9
Replaced networks	922.8	619.9	706.6	448.0	655.6
Length of worn-out water supply networks	15 936	15 116	17 241	17 412	18 529
Repaired several of them, major repairs	496.6	579.2	567.5	471.8	389.0
	266.9	357.4	303.8	180.0	161.7
The performance of the construction of water supply system	31 743.1	32 669.0	32 918.1	33 127.6	32 428.4
The production capacity of the water supply	15 134.8	14 495.4	14 456.63	13 818.016	13 552.968
Number of pumping stations	5 236	5 419	5 587	5 705	5 967
Number of water treatment plants	362	381	396	405	425
Water supplied to the network	2 359 893.0	2 339 939.5	2 412 266.9	2 474 160.4	2 390 578.3
Water was released to consumers, of which	1 168 289.2	1 160 918.3	1 205 611.1	1 286 944.0	1 330 153.3
to the population for the utility needs of enterprises for the production needs of enterprises	516 874.1	536 127.8	573 698.8	609 157.5	635 617.0
	159 795.3	158 249.5	154 427.4	166 717.8	182 534.8
	371 644.9	353 565.1	357 997.0	378 578.0	367 723.9
to other consumers	117 492.2	112 975.9	119 488.0	132 490.8	144 277.7
Spent on own production needs	973 839.9	937990.8	960 901.2	938 561.7	834 680.9
Leakage and unrecorded consumption	217 772.9	241 031.1	246 752.5	249 735.9	226 382.3
Average daily vacation per resident	77.5	79.3	83.8	87.8	88.7

## 2.72 The main performance indicators of water disposal companies

	2018	2019	2020	2021	2022
Length of drainage system networks	16 169.7	16 593.0	16 886.3	17 231.4	17 727.4
Replaced networks	156.1	130.0	79.2	118.1	74.4
Design capacity of pumping stations of the drainage system	8 468.5	8 365.7	8 317.7	8 547.0	9 384.1
Number of pumping stations for water disposal systems	1 358	1 367	1 420	1 464	1 475
Number of discharge stations (points)	...	72	73	76	73
Number of wastewater treatment plants	186	238	244	245	252
Waste water skipped	668 642.0	685 668.1	682 889.2	706 702.1	713 986.7
Waste water passed through treatment facilities	580 700.4	579 225.8	578 676.2	596 913.9	621 967.7

	Continuation				
	2018	2019	2020	2021	2022
of these. biological treatment facilities	532 920.9	495 526.0	501 153.9	517 229.7	537 112.7
Discharged treated wastewater into natural water bodies (river. lake. sea)	...	496 976.8	462 753.1	474 354.8	374 754.5



### 3. Economic factors

#### 3.1 Main economic indicators

	2018	2019	2020	2021	2022
Index of physical volume of GDP, as a percentage of the previous year	104.1	104.5	97.5	104.3	103.2
Index of physical volume of GDP, as a percentage of 1990 GDP at current prices, mln, tenge	61 819 536.4	69 532 626.5	70 649 033.2	83 951 587.9	103 765 518.2
GDP, at current prices, million USD	179 337.8	181 665.9	171 083.7	197 055.6	225 342.1
GDP per capita, tenge	3 382 469.2	3 755 744.6	3 766 810.2	4 418 504.6	5 284 726.7
GDP per capita, USD	9 812.5	9 812.5	9 121.7	10 371.3	11 476.6
Share of industry, as a percentage of GDP	28.2	27.5	27.1	29.6	29.7
Dwelling houses, th, 1,meters (total area)	12 521	13 126	15 332	16 910	1 566 605
Foreign trade turnover with non-CIS countries*, million USD	69 167.5	70 400.6	61 269.6	68 498.5	98 393.1
including:					
export	51 542.9	47 956.1	38 389.5	47 827.5	69 004.9
import	17 624.6	22 444.5	22 280.1	20 671.0	29 388.2
Foreign trade turnover with CIS countries*, million USD	25 602.2	27 374.3	25 200.3	33 237.9	37 134.3
including:					
export	9 568.3	10 109.5	9 151.3	12 493.5	15 588.1
import	16 033.9	17 264.8	16 049.0	20 744.4	21 546.2

\*According to the State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan.

#### 3.2 Structure of gross domestic product

	Share of economic sectors in total GDP, as a percent				
	2018	2019	2020	2021	2022
Agriculture, forestry and fisheries	4.4	4.4	5.4	5.0	5.2
Industry	28.2	27.5	27.1	29.7	29.5
Mining and quarrying	14.9	14.5	12.2	14.2	14.5
Manufacturing industry	11.4	11.4	13.1	13.6	13.4
Electricity, gas, steam and air conditioning	1.6	1.4	1.6	1.6	1.4
Water supply; sewer system, control over the collection and distribution of waste	0.3	0.2	0.2	0.3	0.2
Construction	5.3	5.5	6.1	5.7	5.3
Wholesale and retail trade; car and motorcycle repair	16.8	17.0	17.2	16.8	16.4
Transport and storage	8.2	8.0	6.8	6.8	6.2
Accommodation and food services	1.1	1.1	1.0	1.0	1.0
Information and Communication	1.9	2.0	2.4	2.3	2.1
Financial and insurance activities	3.3	3.2	3.4	2.9	3.1
Real estate operations	7.8	7.5	7.2	6.5	6.5
Professional, scientific and technical activities	4.4	4.4	4.1	3.7	3.3

Continuation

	Share of economic sectors in total GDP, as a percent				
	2018	2019	2020	2021	2022
Administrative and support activities	2.2	2.3	2.3	2.1	2.1
Public Administration and Defense; compulsory social security	1.5	1.7	1.9	1.8	1.9
Education	2.7	2.7	3.6	3.9	4.1
Health and social services	1.9	1.9	2.6	2.9	2.9
Arts, entertainment and recreation	0.8	0.7	0.9	0.9	0.9
The provision of other types of services	2.8	3.0	2.5	2.2	2.3
Activities of households employing domestic workers and producing goods and services for their own consumption	0.1	0.1	0.1	0.1	0.1
Total by industry	93.4	93.4	94.6	94.2	92.9
Gross value added	93.4	93.0	94.6	94.2	92.9
Net taxes on products and imports	6.6	7.0	5.4	5.8	7.1
Product and Import Taxes	6.9	7.3	5.8	6.1	7.5
Subsidies for products and imports	0.3	0.3	0.4	0.4	0.4
Gross domestic product	100	100	100	100	100

Note: The calculations were made in accordance with the new Methodology for assessing the unobservable economy registered in the Ministry of Justice of the Republic of Kazakhstan (№19215 of 08.08.2019).

### 3.3 Gross disposable income in the Republic of Kazakhstan

million tenge

	2018	2019	2020	2021	2022
Gross disposable income	54 512 287.4	61 114 519.2	64 951 498.4	73 296 220.9	...

### 3.4 Labor productivity indices in the Republic of Kazakhstan

percent

	2018	2019	2020	2021	2022
In general, in the economy	103.1	103.7	97.5	103.3	101.3
Agriculture, forestry and fisheries	112.2	103.8	105.2	98.4	116.3
Industry	103.7	104.4	100.0	102.8	99.1
Mining and quarrying	103.7	105.4	97.1	101.5	100.2
Manufacturing industry	104.7	105.3	104.3	104.0	98.9
Electricity, gas, steam and air conditioning	102.5	100.9	100.7	105.2	101.8
Water supply; sewer system, control over the collection and distribution of waste	92.4	105.7	97.0	107.2	95.4
Construction	102	112.1	112.4	106.5	107.3
Wholesale and retail trade; car and motorcycle repair	102.7	104.5	97.4	102.4	101.4
Transport and storage	101.8	103.2	79.9	111.3	96.4
Accommodation and food services	104.8	98.3	82.3	106.9	98.7
Information and Communication	97.6	107.5	112.0	110.9	96.1
Financial and insurance activities	93	95.5	101.9	102.9	102.4
Real estate operations	105.9	104.1	93.7	95.7	103.7
Professional, scientific and technical activities	98.9	98.4	95.6	104.9	91.8
Administrative and support activities	99	100.8	97.7	99.3	105.9
Public Administration and Defense; compulsory social security	97	109.5	102.6	105.9	98.2
Education	100	105.2	105.5	102.2	102.8

Continuation

	2018	2019	2020	2021	2022
Health and social services	98.1	101.1	101.8	100.6	96.5
Arts, entertainment and recreation	95.3	102.9	106.1	108.2	100.3
The provision of other types of services	107.8	85.1	79.8	95.2	99.3

### 3.5 The relative importance of trade

	2018	2019	2020	2021	2022
2017 gross domestic product at constant prices (PPP), billion international dollars	466.9	487.9	475.2	494.6	512.0
Commodity circulation, billion US dollars	94.8	97.8	86.5	101.7	134.4
Export of goods, billion US dollars	61.1	58.1	47.5	60.3	84.4
Import of goods, billion US dollars	33.7	39.7	39.0	41.4	50.0
The relative importance of trade (the ratio of turnover to GDP), %	20.3	20.0	18.2	20.6	26.3

### 3.6 The average cost of labor in trade

tenge

	2018		2019		2020		2021		2022	
	per employee	for 1 hour worked by an employee	per employee	for 1 hour worked by an employee	per employee	for 1 hour worked by an employee	per employee	for 1 hour worked by an employee	per employee	for 1 hour worked by an employee
Total of them in certain sectors of the economy	2 129.6	1.2 2 418.8	1.5 2 776.4	1.7 3 255.3	2.0 4 113.7	2.4				
Agriculture, forestry and fisheries	1 134.6	0.7 1 419.8	0.8 1 520.5	0.9 1 806.6	1.0 2 325.4	1.3				
Industry	3 248.8	1.9 3 616.0	2.2 4 246.6	2.6 4 576.2	2.8 5 897.0	3.5				
Construction	2 714.3	1.6 3 006.9	1.8 3 020.4	1.9 3 737.3	2.2 5 539.6	3.2				
Wholesale and retail trade; car and motorcycle repair	2 103.7	1.2 2 222.1	1.3 2 394.6	1.5 2 884.1	1.7 3 523.6	2.1				
Retail trade, excluding trade in cars and motorcycles	1 529.9	0.9 1 771.3	1.1 1 891.4	1.2 2 452.0	1.5	...	...			
Transport and warehousing	2 919.0	1.7 3 103.0	1.8 3 300.7	2.0 3 896.6	2.4 5 375.1	3.3				
Accommodation and food services	1 934.5	1.1 2 032.2	1.1 2 216.5	1.4 2 718.0	1.6 3 559.1	2.0				

### 3.7 Consumer price index

	percent				
	2018	2019	2020	2021	2022
<b>To the previous year</b>					
Goods and services	106.0	105.3	106.8	108.0	115.0
Products	106.3	107.1	108.3	...	...
Foodstuffs	105.1	108.2	110.4	110.8	119.0
Non-grocery goods	107.8	105.7	105.5	106.9	114.0
Paid services for the population	105.3	101.2	103.3	105.5	110.3
<b>At the end of the period, December 2000 = 100</b>					
Goods and services	398.6	420.1	451.5	489.6	589.0
Products	407.9	438.7	477.8	...	...
Foodstuffs	432	473.4	526.8	579.2	725.6
Non-grocery goods	361.6	379.5	400.5	434.7	518.9
Paid services for the population	376.9	379.5	395.4	421.2	480.5
<b>At the end of the period, December 2005 = 100</b>					
Goods and services	286.8	302.4	324.9	352.4	423.9
Products	288.9	310.8	338.5	...	...
Foodstuffs	298	326.6	363.4	399.5	500.5
Non-grocery goods	270.7	284.1	299.9	325.5	388.5
Paid services for the population	284.1	286.1	298.1	317.5	362.2
<b>At the end of the period, December 2010 = 100</b>					
Goods and services	177.9	187.5	201.5	218.5	262.9
Products	181.2	195.0	212.3	...	...
Foodstuffs	174.7	191.4	213.0	234.2	293.4
Non-grocery goods	188.7	198.1	209.0	226.9	270.8
Paid services for the population	171.1	172.3	179.6	191.3	218.2
<b>At the end of the period, December 2015 = 100</b>					
Goods and services	122.3	128.9	138.5	150.2	180.7
Products	124.6	134.1	146.0	...	...
Foodstuffs	122.8	134.6	149.7	164.2	206.2
Non-grocery goods	126.9	133.2	140.6	152.5	182.2
Paid services for the population	117.4	118.2	123.2	131.2	149.7

### 3.8 Indexes of physical volume of industrial production

	as a percent of the previous year				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	104.4	104.1	99.5	103.6	101.2
Abai	2.0	23.5	106.8	109.5	110.1
Akmola	107.3	105.7	106.8	108.1	113.8
Aktobe	105.1	104.9	102.6	102.4	101.2
Almaty	102.7	109.9	102.5	111.9	109.1
Atyrau	110.6	105.4	94.5	102.8	98.3
Batys Kazakhstan	96.1	93.1	103.9	92.6	99.5
Zhambyl	101.8	106.8	103.3	106.0	110.5
Zhetisu	108.8	113.1	104.3	113.5	101.6
Karagandy	100.9	101.4	101.2	100.9	98.1
Kostanai	110.6	115.9	107.8	110.6	96.0
Kyzylorda	94.3	89.8	87.1	101.8	98.4
Mangystau	101.1	100.9	94.1	98.3	101.9
Pavlodar	105.2	102.7	101.2	102.5	99.8

Continuation

	2018	2019	2020	2021	2022
Soltustik Kazakhstan	101.9	103.9	105.1	107.2	104.6
Turkistan	98.1	107.2	96.1	105.6	93.1
Ulytau	-	91.8	88.7	89.0	103.5
Shygys Kazakhstan	109.5	110.7	101.1	100.1	102.3
Astana city	107.1	118.2	102.8	115.6	103.3
Almaty city	104.3	108.6	105.2	125.3	109.1
Shymkent city	105.4	113.4	99.1	105.2	106.1

### 3.9 The volume of industrial production by economic activity

million tenge

	2018	2019	2020	2021	2022
Industry - total	27 218 063	29 380 342	27 028 506	37 606 243	48 777 089
including:					
mining industry	14 877 068	15 978 061	11 785 557	17 976 976	24 926 378
coal mining, lignite	342 996	357 768	335 981	395 505	642 254
crude oil and natural gas production	12 060 235	12 653 589	8 274 652	13 181 562	19 372 319
metal ore mining	1 474 218	1 908 282	2 256 236	3 370 042	3 471 012
other mining industries	265 709	248 735	231 665	341 134	501 785
technical services in the field of mining industry	733 909	809 687	687 023	688 733	939 008
manufacturing industry	10 403 854	11 573 350	13 232 696	17 121 392	21 161 830
of them:					
food production	1 527 687	1 708 013	1 957 241	2 287 783	3 070 130
beverage industry	343 794	398 492	443 428	565 288	770 298
tobacco production	123 620	112 491	211 590	237 126	285 119
manufacture of textiles	52 594	60 238	75 997	84 888	109 313
manufacture of wearing apparel	36 568	43 964	53 627	54 440	65 558
manufacture of leather and related products	10 188	11 641	13 098	14 299	18 360
manufacture of wood and cork products, except furniture; manufacture of products from straw and materials for weaving	23 741	24 590	26 283	29 667	40 207
paper and paper products	62 381	67 848	71 073	93 028	128 940
production of coke and refined petroleum products	901 982	839 688	837 535	1 104 216	1 153 691
manufacture of industrial products	401 141	475 139	476 329	573 589	924 575
manufacture of rubber and plastic products	211 380	244 351	257 931	343 216	455 830
manufacture of other non-metallic mineral products	563 678	632 437	732 210	965 149	1 205 247
metallurgical industry	4 614 873	4 965 432	5 662 784	7 676 586	9 036 308
manufacture of finished metal products, except machinery and equipment	239 609	264 388	291 109	334 446	398 693
engineering	1 089 800	1 472 284	1 823 922	2 386 182	3 151 710
manufacture of other finished products	29 493	41 173	48 334	44 587	46 685
power supply, gas, steam and air conditioning	1 693 343	1 561 366	1 740 718	2 150 972	2 327 194
water supply; sewage system, control over the collection and distribution of waste	243 797	267 565	269 535	356 902	361 686

Continuation

	2018	2019	2020	2021	2022
collection, treatment and distribution of water	111 600	113 953	112 616	127 525	139 610

### 3.10 Employment in the economy

	2018	2019	2020	2021	2022
Employed in the economy, total	8 695.0	8780.8	8 732.0	8 807.1	8 971.5
Agriculture, forestry and fisheries	1 228.2	1184.7	1 175.1	1 176.4	1 108.9
Industry	1 097.8	1094.9	1 089.2	1 098.0	1 121.2
Mining and quarrying	286.2	279.9	276.9	277.9	274.8
Manufacturing industry	580.5	583.6	581.8	585.6	613.7
Electricity, gas, steam and air conditioning	150.6	150.2	149.0	150.1	148.1
Water supply; sewer system, control over the collection and distribution of waste	80.4	81.2	81.5	84.3	84.6
Construction	629.1	635.6	630.9	641.4	658.9
Wholesale and retail trade; car and motorcycle repair	1 396.7	1431.1	1 421.3	1 451.9	1 497.9
Transport and storage	624.7	637.9	617.5	609.5	640.6
Accommodation and food services	187.7	196.9	193.7	190.9	198.4
Information and Communication	166.5	161.7	159.7	161.7	166.5
Financial and insurance activities	180.3	190.5	189.0	184.9	186.3
Real estate operations	157.6	154.5	158.4	168.4	166.1
Professional, scientific and technical activities	248.9	256.4	254.7	247.3	253.7
Administrative and support activities	288.3	292.3	285.5	287.5	280.8
Public Administration and Defense; compulsory social security	500.5	495.3	489.3	484.1	508.5
Education	1 095.8	1108.7	1 109.5	1 120.1	1 142.3
Health and social services	498.8	502.7	512.4	526.0	561.2
Arts, entertainment and recreation	145.6	142.0	138.4	134.7	137.9
The provision of other types of services	248.6	295.8	307.5	324.4	342.5
Activities of households employing domestic workers and producing goods and services for their own consumption	-	-	-	-	-
Activities of extraterritorial organizations and bodies	-	-	-	-	-
The number of unemployed, thousand people	443.6	440.7	448.8	449.6	458.3

### 3.11 Labor force share and unemployment rate

thousand people

	2018	2019	2020	2021	2022
Work force	9 138.6	9 221.5	9 180.8	9256.8	9 429.8
Employed population:	8 695.0	8 780.8	8 732.0	8807.1	8 971.5
wage-earners	6 612.5	6 681.6	6 686.7	6 710.2	6 847.3
self-employed workers	2 082.5	2 099.2	2 045.4	2 096.9	2 124.2
Labor share	70.0	70.1	69.2	69.3	68.7
Unemployment rate	4.9	4.8	4.9	4.9	4.9

### 3.12 Crop area of crops

thousand hectares

	2018	2019	2020	2021	2022
Total sown area	21 899.4	22 135.8	22 582.3	22 925.7	23 162.1
of them:					
Cereals (including rice) and legumes	15 150.0	15 396.6	15 878.4	16 108.0	16 114.4
Sugar beet	17.4	15.2	15.2	15.5	10.2
Potatoes	193.0	193.0	194.4	195.8	199.2
Vegetables	152.3	159.1	163.4	168.6	170.2
Bakhchi	96.1	102.1	101.9	110.1	100.3
Oilseeds	2 834.2	2 861.1	2 905.1	3 102.4	3 461.8
of them sunflower	856.9	818.0	757.7	960.5	1 094.6

### 3.13 Harvested crop area

thousand hectares

	2018	2019	2020	2021	2022
Cereals (including rice) and legumes	15 034.6	15 227.0	15 685.9	15 800.7	16 011.7
Sunflower	850.0	815.3	749.9	939.8	1 090.5
Sugar beet	17.0	15.0	14.4	12.1	9.0
Potatoes	192.3	192.3	193.8	194.4	198.7
Vegetables	151.7	158.8	163.2	168.4	169.9

### 3.14 Gross harvest of main crops

in all categories of farms, thousand tons

	2018	2019	2020	2021	2022
Cereals (including rice) and legumes	20 273.7	17 428.6	20 065.3	16 375.9	22 030.5
Sunflower	847.7	838.7	844.3	1 031.8	1 304.3
Sugar beet	504.5	485.5	466.3	332.2	305.6
Potatoes	3 807.0	3 912.1	4 006.8	4 031.6	4 080.5
Vegetables	4 081.9	4 138.3	4 340.7	4 512.0	4 610.2

### 3.15 Yield of main crops

in all categories of farms, quintals per hectare

	2018	2019	2020	2021	2022
Cereals (including rice) and legumes	13.5	11.4	12.8	10.4	14.5
Sunflower	10.0	10.3	11.3	11.0	13.0
Sugar beet	305.3	324.5	323.2	275.5	364.0
Potatoes	197.9	203.4	206.7	207.4	205.4
Vegetables	257.3	260.5	265.9	268.0	271.3

### 3.16 Livestock and poultry

in all categories of farms, at the end of the year, thousand heads

	2018	2019	2020	2021	2022
Cattle	7 150.9	7 436.4	7 850.0	8 192.4	8 538.1
Pigs	798.7	813.3	816.7	776.1	705.0
Sheep and goats	18 699.1	19 155.7	20 057.6	20 876.8	21 786.0
Horses	2 646.5	2 852.3	3 139.8	3 489.8	3 856.0
Camels	207.6	216.4	227.7	243.4	259.1
Fowls	44 337.9	45 041.4	43 335.0	47 884.7	49 787.7

### 3.17 Production of main livestock products

	2018	2019	2020	2021	2022
Meat (slaughter weight), million tons	1.1	1.1	1.2	1.2	1.2
Milk, million tons	5.7	5.9	6.1	6.2	6.4
Eggs, billion pieces	5.6	5.5	5.1	4.8	5.0

### 3.18 Availability of vehicles\*

	The number of vehicles thousand units	Including			Provision of the population of cars in the personal property per 100 population
		trucks	buses	cars	
2018	4 342.1	404.8	89.3	3 848.0	19.9
2019	4 325.3	461.8	86.6	3 776.9	19.3
2020	4 433.5	479.6	83.6	3 870.3	19.5
2021	4 386.9	506.6	82.2	3 798.1	18.9
2022	4 449.3	446.5	93.2	3 909.6	18.6

\* Hereinafter, according to the Ministry of Internal Affairs of the Republic of Kazakhstan.

### 3.19 The availability of registered passenger vehicles by type of fuel used

on January 1, 2023, units

	Total	Including					
		petrol	diesel fuel	gas balloon	mixed fuel	electric	not specified
<b>Republic of Kazakhstan</b>	3 909 559	3 451 775	75 982	4 160	322 350	812	54 480
Abai	7 107	6 663	86	1	295	-	62
Akmola	168 398	152 063	2 196	84	9 820	11	4 224
Aktobe	132 833	94 541	1 000	191	35 798	3	1 300
Almaty	483 233	450 514	12 767	435	17 629	31	1 857
Atyrau	98 227	83 133	3 123	104	11 033	1	833
Batys Kazakhstan	111 300	94 001	2 643	37	13 753	40	826
Zhambyl	203 725	188 776	3 566	109	8 707	18	2 549
Zhetisu	9 974	9 224	283	8	409	1	49
Karagandy	281 402	257 803	6 339	134	12 448	45	4 633
Kostanai	164 384	149 022	4 196	29	9 973	10	1 154
Kyzylorda	105 598	86 651	1 044	152	17 501	5	245
Mangystau	127 832	49 768	1 830	208	74 303	10	1 713
Pavlodar	150 097	141 175	1 021	107	5 344	7	2 443
Soltustik Kazakhstan	123 520	107 275	1 864	335	11 908	108	2 030
Turkistan	174 984	149 395	2 158	293	23 096	-	42
Ulytau	3 495	3 165	61	3	229	1	36



Continuation

	Total	Including					
		petrol	diesel fuel	gas balloon	mixed fuel	electric	not specified
Shygys Kazakhstan	285 397	275 413	3 311	94	4 812	9	1 758
Astana city	287 538	267 738	2 780	313	16 379	61	267
Almaty city	484 041	442 058	18 677	553	20 171	420	2 162
Shymkent city	137 544	122 405	1 921	446	12 677	20	75
Diplomatic numbers	30 967	26 681	2 407	27	1 756	-	96
Not specified region	182 848	149 567	1 468	332	8 469	10	23 002

Note: "electric" - using an electric battery; "Mixed" - on gasoline and on electric fuel.

### 3.20 The availability of registered passenger vehicles by year of manufacture

on January 1, 2023, units

	Total	Including				
		no more than 3 years	more than 3 years, but not more than 7 years	more than 7 years, but not more than 10 years	more than 10 years	other
<b>Republic of Kazakhstan</b>	3 909 559	319 818	250 272	571 976	815 968	1 945 197
Abai	7 107	739	392	1 422	1 790	2 761
Akmola	168 398	8 845	8 474	20 169	31 467	99 031
Aktobe	132 833	10 242	10 381	28 837	34 077	49 173
Almaty	483 233	17 699	15 176	43 090	88 797	317 771
Atyrau	98 227	12 666	13 811	27 018	24 287	20 420
Batys Kazakhstan	111 300	12 158	10 586	20 985	24 272	43 098
Zhambyl	203 725	6 450	5 264	15 177	31 744	144 977
Zhetisu	9 974	518	238	652	1 817	6 749
Karagandy	281 402	20 405	15 560	33 770	53 974	157 293
Kostanai	164 384	15 542	12 319	23 778	30 480	81 901
Kyzylorda	105 598	6 537	4 708	13 193	22 276	58 789
Mangystau	127 832	10 095	10 115	28 996	38 880	39 686
Pavlodar	150 097	10 539	8 349	19 325	27 993	83 719
Soltustik Kazakhstan	123 520	6 308	5 799	13 226	23 498	74 437
Turkistan	174 984	15 787	7 304	29 860	38 743	83 290
Ulytau	3 495	414	191	397	669	1 824
Shygys Kazakhstan	285 397	16 514	14 756	42 051	56 834	154 919
Astana city	287 538	51 968	33 330	63 872	64 603	73 590
Almaty city	484 041	56 517	40 118	76 571	133 401	177 215
Shymkent city	137 544	21 074	10 043	26 365	30 971	49 090
Diplomatic numbers	30 967	5 609	5 671	6 150	7 223	6 308
Not specified region	182 848	13 192	13 636	18 841	18 827	115 913

Note: «other» - not determined year.

### 3.21 The average age of the road vehicle fleet

	2018	2019	2020	2021	2022
	<b>Cars</b>				
Total amount per 1000 units	3 848.0	3 776.9	3 870.3	3 798.1	3 909.6
	<b>including</b>				

	Continuation				
	2018	2019	2020	2021	2022
<= 3 years, per 1000 units	416.7	401.1	462.6	516.8	319.8
<= 3 years, in percentage	10.8	10.6	12.0	13.6	8.2
3 <= 7 years, per 1000 units	574.0	593.0	570.9	494.7	250.3
3 <= 7 years, in percentage	14.9	15.7	14.7	13.1	6.4
7 <= 10 years, per 1000 units	268.6	240.2	268.3	317.3	572.0
7 <= 10 years, in percentage	7.0	6.4	6.9	8.4	14.6
> 10 years, per 1000 units	2 480.7	2 459.0	2 495.4	2 407.0	816.0
> 10 years, in percentage	64.5	65.1	64.5	63.3	20.9
Other, per 1000 units	108.0	83.5	73.1	62.2	6.3
Other, in percentage	2.8	2.2	1.9	1.6	0.2
<b>Buses</b>					
Total amount per 1000 units	89.3	86.6	83.6	82.2	93.2
<b>Trolley buses</b>					
Total amount per 1000 units	x	x	x	0.2	0.2
<b>Trucks</b>					
Total amount per 1000 units	404.8	461.8	479.6	506.6	446.5

### 3.22 Passenger traffic of all types of transport

	million pkm				
	2018	2019	2020	2021	2022
Total	281 484.1*	295 516.6*	108 711.0*	107 759.0*	114 073.1
of them:					
railway	18 562.2	17 721.0	9 163.3	12 750.0	16 690.9
automotive and urban	247 931.2	260 909.1	91 021.7	80 157.2	77 340.7
inland water	x	0.7	0.5	1.4	2.0
air	14 989.7	16 885.5	8 525.2	14 849.8	20 038.8
Population of the country, million people	18.2	18.5	18.8	19.0	19.6
Passenger turnover per capita, km	15 502.5	15 973.9	5 782.5	5 671.5	5809.7

\* Taking into account the transportation of passengers by subway.

### 3.23 The turnover of goods transported by individual modes of transport

	billion tkm				
	2018	2019	2020	2021	2022
Total	609.5	597.6	584.0	607.7	596.6
of them:					
railway	283.3	286.7	299.2	297.4	307.6
automobile and urban electric	185.2	173.5	160.0	157.9	146.9
inland water transport	0.04	0.01	0.02	0.05	0.05
pipeline	x	136.7	124.2	151.7	141.3
marine	x	0.7	x	0.6	0.7
air	0.06	83.8	0.06	0.08	0.05
GDP by PPP in constant prices 2017, billion international dollar	466.9	487.9	475.2	494.6	512.0
Cargo turnover per unit of GDP, t-km / 1000 international dollars	1 305.4	1 224.8	1 228.9	1 228.6	1 165.2

### 3.24 Composition of road motor vehicle fleet by fuel type

	unit				
	2018	2019	2020	2021	2022
Passenger cars					
Total	3 847 981	3 776 893	3 870 318	3 798 071	3 909 559
Gasoline	3 455 517	3 362 957	3 426 786	3 343 736	3 451 775
Diesel fuel	86 840	74 226	75 758	73 867	75 982
Gas cylinder	3 751	3 623	3 951	3 886	4 160
Mixed	236 101	276 273	292 437	297 120	322 350
Electric	703	613	550	491	812
Fuel type not specified	65 069	59 201	70 836	78 971	54 480

### 3.25 The volume of expenditures for research and development (R&D)

	2018	2019	2020	2021	2022
Total R&D expenditures	99 706 704.0	118 070 668.3	116 742 870.0	134 933 920.7	152 801 597.8
Total R&D expenditures in the business sector	53 812 842.0	63 472 602.5	59 829 555.5	59 039 788.1	57 842 556.3
R&D expenditures in the business sector in the total R&D expenditures	54.0	53.8	51.2	43.8	37.9

### 3.26 Internal R & d expenditures in the field of environmental protection and energy efficiency by region for 2022

	thousand tenge					
	Total	Including by source of funding				
		own funds	republican budget	Foreign budget	Foreign funds	other funds
<b>Republic of Kazakhstan</b>	15 723 083.5	3 251 842.4	10 971 867.3	74 650.0	x	1 369 984.9
Abai	234 848.0	-	234 848.0	-	-	-
Akmola	447 038.8	x	446 513.8	-	-	-
Almaty	x	x	x	-	-	-
Batys Kazakhstan	33 186.0	2 100.0	24 586.0	-	-	6 500.0
Zhambyl	2 921 724.0	x	2 661 424.5	14 887.0	-	187 257.5
Zhetisu	x	-	x	-	-	-
Karagandy	302 747.4	13 102.0	133 267.4	36 753.0	-	119 625.0
Kyzylorda	10 447.5	-	-	1 010.0	-	9 437.5
Mangystau	849 370.7	360 408.7	439 636.0	-	-	x
Pavlodar	81 889.0	-	81 889.0	-	-	-
Soltustik Kazakhstan	4 200.0	4 200.0	-	-	-	-
Ulytau	3 584.0	-	-	-	-	3 584.0
Shygyz Kazakhstan	383 645.2	225 440.0	50 005.0	-	-	108 200.2
Astana city	3 308 396.9	126 296.0	2 522 236.9	-	-	x
Almaty city	6 915 435.8	2 373 157.5	4 239 348.7	x	x	226 190.7
Shymkent city	4 009.2	4 009.2	-	-	-	-

### 3.27 Internal R & d expenditures in the field of environmental protection and energy efficiency

thousand tenge

	2021			2022		
	Total	Including by type of work		Total	Including by type of work	
		scientific research	development projects		scientific research	Foreign budget other funds
<b>Republic of Kazakhstan</b>	12 136 922.0	11 444 126.4	692 795.6	15 723 083.5	14 657 768.7	1 065 314.8
Abai	-	-	-	234 848.0	234 848.0	-
Akmola	459 156.1	459 156.1	-	447 038.8	447 038.8	-
Aktobe	-	-	-	x	x	-
Almaty	214 263.4	214 263.4	-	33 186.0	25 486.0	7 700.0
Batys Kazakhstan	32 807.1	22 509.1	10 298.0	2 921 724.0	2 659 016.0	262 708.0
Zhambyl	3 879 567.0	3 717 331.0	162 236.0	x	x	-
Zhetisu	-	-	-	302 747.4	293 371.4	9 376.0
Karagandy	245 433.0	240 779.0	4 654.0	10 447.5	10 447.5	-
Kostanay	-	-	-	849 370.7	552 371.0	296 999.7
Kyzylorda	-	-	-	81 889.0	81 889.0	-
Mangystau	724 903.3	511 410.0	213 493.3	4 200.0	-	4 200.0
Pavlodar	51 596.7	51 596.7	-	3 584.0	-	3 584.0
Soltustik Kazakhstan				383 645.2	54 662.0	328 983.2
Turkistan	x	x	-	-	-	-
Ulytau	-	-	-	3 308 396.9	3 231 546.9	76 850.0
Shygyz Kazakhstan	349 690.3	150 247.0	199 443.3	6 915 435.8	6 840 521.9	74 913.9
Astana city	2 463 800.1	2 462 665.1	x	15 723 083.5	14 657 768.7	1 065 314.8
Almaty city	3 696 705.0	3 595 169.0	101 536.0	234 848.0	234 848.0	-
Shymkent city	-	-	-	4 009.2	4 009.2	-

### 3.28 Internal R & d expenditures in the field of environmental protection and energy efficiency by type of environmental protection activities for 2022

thousand tenge

	Total	Including by source of funding				
		own funds	republican budget	local budget	foreign funds	other funds
Domestic expenditure on R & d	15 723 083.5	3 251 842.4	10 971 867.3	74 650.0	x	1 369 984.9
including:						
protection of atmospheric air and climate	959 421.1	241 204.0	718 217.1	-	-	-
protection of water bodies	1 154 522.2	238 480.0	911 451.4	-	x	x
waste management	1 043 897.8	250 474.0	763 648.8	-	-	29 775.0
protection of soil and groundwater	1 103 306.6	204 389.0	868 760.6	-	-	30 157.0
protection of biological species and habitats (habitats)	x	x	-	-	-	-
on protection from radiation exposure	2 905 466.0	x	2 809 772.0	-	-	94 868.0

Continuation

	Total	Including by source of funding				
		own funds	republican budget	local budget	foreign funds	other funds
other research and development of them	120 345.7	98 382.0	21 963.7	-	-	-
in the field of renewable energy	8 435 824.1	2 217 787.4	4 878 053.7	74 650.0	x	1 213 359.9
in the field of energy-saving technologies and energy efficiency	697 005.1	x	647 079.1	-	-	x
	1 021 029.9	285 695.0	419 373.0	-	-	315 961.9

### 3.29 Internal R & d expenditures in the field of environmental protection and energy efficiency

thousand tenge

	2021			2022		
	Total	Including by type of work		Total	Including by type of work	
		scientific research	development projects		scientific research	Foreign budget other funds
Domestic expenditure on R & d	12 136 922.0	11 444 126.4	692 795.6	15 723 083.5	14 657 768.7	1 065 314.8
including:						
protection of atmospheric air and climate	341 667.2	341 667.2	-	959 421.1	955 145.1	x
protection of water bodies	525 876.8	525 876.8	-	1 154 522.2	1 152 422.2	2 100.0
waste management	553 415.3	551 813.3	1 602.0	1 043 897.8	1 041 939.8	1 958.0
protection of soil and groundwater	1 193 218.7	1 185 218.7	8000.0	1 103 306.6	1 094 706.6	8 600.0
protection of biological species and habitats (habitats)	4 357 910.0	4 357 910.0	-	x	x	-
on protection from radiation exposure	24 883.0	24 863.0	20.0	2 905 466.0	2 905 466.0	-
other research and development of them	5 139 951.0	4 456 777.4	683 173.6	120 345.7	120 151.7	194.0
in the field of renewable energy				8 435 824.1	7 387 637.3	1 048 186.8
in the field of energy-saving technologies and energy efficiency	552 839.7	552 839.7	-	697 005.1	696 405.1	x
	539 766.9	281 272.6	258 494.3	1 021 029.9	629 007.7	392 022.2

## 4. Environmental factors

### 4.1 The total expenses on environment protection

	thousand tenge				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	302 177 008	420 392 105	384 015 734	416 955 575	444 514 269
Abai	3 242 648	2 309 533	2 600 586	3 244 786	5 804 267
Akmola	30 083 852	22 128 905	63 945 393	18 839 038	19 313 971
Aktobe	27 272 350	54 121 971	38 153 904	59 259 824	44 987 100
Almaty	2 817 040	910 304	1 472 042	1 814 394	2 096 057
Atyrau	39 720 005	55 376 398	43 869 542	76 753 130	100 859 822
Batys Kazakhstan	14 776 661	13 329 572	16 593 098	13 014 366	9 678 433
Zhambyl	22 240 684	52 768 246	12 148 355	58 751 671	26 993 650
Zhetisu	441 261	450 008	925 141	936 822	993 228
Karagandy	29 043 247	41 117 058	25 663 529	24 173 817	45 973 744
Kostanai	8 508 370	9 404 196	23 327 794	25 046 596	22 624 807
Kyzylorda	3 086 699	34 534 401	16 131 739	4 767 423	3 889 222
Mangystau	27 268 698	20 167 295	16 727 282	13 762 285	13 734 770
Pavlodar	34 640 550	37 133 277	40 474 833	38 155 928	37 326 905
Soltustik Kazakhstan	2 818 568	3 892 011	4 328 499	4 924 202	11 771 800
Turkistan	7 005 406	20 466 213	2 768 430	1 948 430	8 544 944
Ulytau	7 262 225	7 916 974	8 133 856	12 646 350	12 860 844
Shygys Kazakhstan	23 212 910	27825965	36 915 932	36 863 495	33 451 971
Astana city	8 393 430	4 781 433	17 222 878	8 219 235	16 852 108
Almaty city	4 984 642	5 115 686	5 060 060	8 893 841	7 519 421
Shymkent city	5 357 762	6 642 659	7 552 841	4 939 942	19 237 205

### 4.2 Total environmental protection expenses by type of environmental protection activity

	thousand tenge				
	2018	2019	2020	2021	2022
<b>Total</b>	302 177 008	420 392 105	384 015 734	416 955 575	444 514 269
including					
air and climate protection	69 987 357	85 393 439	88 476 190	82 513 454	127 995 826
on waste water treatment management	58 106 735	58 810 960	66 978 966	94 165 799	113 096 310
on waste management	66 994 576	75 350 139	73 248 476	90 899 013	107 096 519
to protect and restore soil, groundwater and surface water sources	19 817 072	22 507 594	16 180 047	26 808 738	23 695 591
to combat noise and vibration (excluding measures of an in-house nature on labor protection in the workplace)	59 762	53 062	38 788	94 492	163 944
to protect landscape biodiversity on protection from radiation exposure (excluding issues of external state security-news)	4 192 409	6 268 908	6 038 736	2 199 854	3307758
for research and development in the field of environmental protection (R & d)	1 281 712	906 201	955 709	779 270	880252
for other environmental protection activities	5 085 830	4 214 328	4 502 777	4 921 332	3 479 430
	76 651 555	166 887 474	127 596 045	114 573 623	64 798 639

### 4.3 Current costs on environmental protection

	thousand tenge				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	191 015 579	221 670 479	210 397 122	245 790 216	284 853 377
Abai	2 316 393	2 309 533	2 600 586	3 244 786	4 569 245
Akmola	2 715 372	3 165 432	3 261 696	4 791 410	4 783 079
Aktobe	23 454 296	24 811 608	26 847 144	32 455 655	40 651 798
Almaty	425 852	837 074	860 967	1 367 871	1 965 645
Atyrau	38 408 581	51 198 333	39 940 657	52 132 403	56 508 271
Batys Kazakhstan	9 659 834	12 631 764	13 685 551	9 038 468	8 434 895
Zhambyl	3 629 200	4 782 879	4 951 362	5 765 390	7 328 188
Zhetisu	415 360	450 008	925 141	936 822	973 288
Karagandy	16 783 402	18 957 980	20 369 294	24 124 305	32 904 100
Kostanai	8 400 631	8 797 401	10 423 346	13 722 916	18 068 017
Kyzylorda	2 639 628	2 853 868	2 863 434	3 300 927	3 827 088
Mangystau	11 809 507	11 127 425	9 632 475	7 823 690	7 783 851
Pavlodar	29 016 058	33 159 437	25 259 670	30 579 926	30 291 043
Soltustik Kazakhstan	2 700 396	3 688 821	3 102 405	4 919 885	4 419 072
Turkistan	1 279 159	1 581 227	1 294 883	1 472 529	1 649 601
Ulytau	7 262 225	7 916 974	8 133 856	12 646 350	12 860 844
Shygys Kazakhstan	18 809 298	20 576 334	23 034 866	25 567 469	29 156 691
Astana city	2 032 590	1 678 216	1 032 748	955 667	6 057 361
Almaty city	3 918 314	4 512 795	4 984 200	6 003 805	7 326 231
Shymkent city	5 339 483	6 633 370	7 552 841	4 939 942	5 295 069

### 4.4 Current expenses s on environmental protection by type of environmental protection activity

	thousand tenge				
	2018	2019	2020	2021	2022
<b>Total</b>	191 015 579	221 670 479	210 397 122	245 790 216	284 853 377
including					
air and climate protection	59 654 228	74 385 432	73 049 345	74 466 978	89 897 029
on waste water treatment management	51 927 229	55 901 946	55 203 897	63 149 240	69 640 426
on waste management to protect and restore soil.	59 453 066	66 280 727	62 097 465	76 490 710	98 376 788
groundwater and surface water sources	9 934 442	13 732 360	9 071 184	16 323 180	12 403 139
to combat noise and vibration (excluding measures of an in-house nature on labor protection in the workplace)	43 178	52 623	38 788	70 892	163 944
to protect landscape biodiversity	619 111	2 114 424	801 745	1 443 986	1 322 879
on protection from radiation exposure (excluding issues of external state security-news)	1 190 754	905 865	921 317	630 128	619 965
for research and development in the field of environmental protection (R & d)	4 762 808	4 132 099	4 027 575	4 593 547	3 395 026
for other environmental protection activities	3 430 763	4 165 003	5 185 806	8 621 555	9 034 181

## 4.5 Current expenses for environmental protection by types of environmental activities in 2022

thousand tenge

	Total	Including							radiation safety	research and development	other areas of environmental activities
		air protection and climate change issues	Cleaning of drains	waste management	protection and rehabilitation of soil, groundwater and surface water	noise and vibration reduction	biodiversity conservation and habitat				
<b>Republic of Kazakhstan</b>	284 853 377	89 897 029	69 640 426	98 376 788	12 403 139	163 944	1 322 879	619 965	3 395 026	9 034 181	
Abai	4 569 245	965 163	1 504 269	1 660 956	168 209	4 450	13 909	17 885	133 802	100 602	
Akmola	4 783 079	248 100	959 120	1 074 605	570 022	986	25 354	53 256	44 429	1 807 207	
Aktobe	40 651 798	17 752 216	5 297 679	15 889 959	1 226 077	1 543	12 468	14 522	-	457 334	
Almaty	1 965 645	322 016	547 322	627 571	159 458	4 229	83 161	6 931	117 076	97 881	
Atyrau	56 508 271	19 973 523	9 564 079	19 910 507	3 098 719	1 152	646 087	141 648	1 093 085	2 079 471	
Batys Kazakhstan	8 434 895	1 359 993	373 889	5 475 780	222 013	160	7 792	3 327	207 185	784 756	
Zhambyl	7 328 188	2 217 856	2 580 117	2 335 708	56 994	x	-	68 705	-	62 998	
Zhetisu	973 288	92 712	679 939	117 528	67 675	-	-	-	1 312	14 122	
Karagandy	32 904 100	5 796 706	9 187 054	16 075 625	1 287 329	19 247	59 680	3 813	132 731	341 915	
Kostanai	18 068 017	6 870 827	5 698 894	3 236 373	1 845 836	72 936	16 887	1 629	164 461	160 174	
Kyzylorda	3 827 088	581 505	325 908	2 168 987	154 342	4 689	192 562	38 409	153 430	207 256	
Mangystau	7 783 851	1 378 131	1 572 569	3 865 764	407 772	6 967	43 285	36 588	284 175	188 600	
Pavlodar	30 291 043	9 784 455	7 129 358	11 136 713	325 526	553	185 681	47 546	108 654	1 572 557	
Soltustik Kazakhstan	4 419 072	483 385	2 209 386	839 935	749 182	891	-	x	4 140	124 752	
Turkistan	1 649 601	201 262	86 655	575 098	89 394	37 953	2 984	121 287	375 036	159 932	
Ulytau	12 860 844	3 184 545	8 111 183	457 134	1 049 261	-	28 508	1 695	9 281	19 237	
Shygyz											
Kazakhstan	29 156 691	15 603 391	5 495 526	6 560 353	318 299	-	2 979	3 229	507 616	665 298	
Astana city	6 057 361	181 069	5 226 324	542 067	5 905	2 277	x	1 123	-	98 246	
Almaty city	7 326 231	1 025 055	194 414	5 455 330	543 689	-	-	50 862	15 041	41 840	
Shymkent city	5 295 069	1 875 119	2 896 741	370 795	57 437	x	1 192	109	43 572	50 003	



## 4.6 Investing in environmental protection

	thousand tenge				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	111 161 429	198 721 626	173 618 612	171 165 359	159 660 892
Abai	926 255	471 837	10 856 704	557 633	1 235 022
Akmola	27 368 480	18 963 473	60 683 697	14 047 628	14 530 892
Aktobe	3 818 054	29 310 363	11 306 760	26 804 169	4 335 302
Almaty	2391 188	47 878	27 849	441 007	130 412
Atyrau	1 311 424	4 178 065	3 928 885	24 620 727	44 351 551
Batys Kazakhstan	5 116 827	697 808	2 907 547	3 975 898	1 243 538
Zhambyl	18 611 484	47 985 367	7 556 993	52 986 281	19 665 462
Zhetisu	25 901	25 352	583 226	5 516	19 940
Karagandy	12 259 845	22 110 396	5 294 235	48 951	13 069 644
Kostanai	107 739	606 795	12 904 448	11 323 680	4 556 790
Kyzylorda	447 071	31 680 533	13 268 305	1 466 496	62 134
Mangystau	15 459 191	9 039 870	7 094 807	5 938 595	5 950 919
Pavlodar	5 624 492	3 973 840	15 215 163	7 576 002	7 035 862
Soltustik Kazakhstan	118 172	x	1 226 094	4 317	7 352 728
Turkistan	5 726 247	18 884 986	1 473 547	475 901	6 895 343
Ulytau	-	48 682	-	561	-
Shygys Kazakhstan	4403612	6 777 794	3024362	10 738 393	4 295 280
Astana city	6 360 840	3 103 217	16 190 130	7 263 568	10 794 747
Almaty city	1 066 328	602 891	75 860	2 890 036	193 190
Shymkent city	18 279	x	-	-	13 942 136

## 4.7 Investments aimed at protecting the environment by type of environmental activity

	thousand tenge				
	2018	2019	2020	2021	2022
Environmental investments including:	111 161429	198 721 626	173 618 612	171 165 359	159 660 892
on air protection and climate change issues	10 333 129	11 008 007	15 426 845	8 046 476	38 098 797
for wastewater treatment	6 179 506	2 909 014	11 775 069	31 016 559	43 455 884
for waste management	7 541 510	9 069 412	11 151 011	14 408 303	8 719 731
for the protection and rehabilitation of soil, groundwater and surface water	9 882 630	8 775 234	7 108 863	10 485 558	11 292 452
to reduce noise and vibration	16 584	x	-	x	-
conservation of biodiversity and habitat	3 573 298	4 154 484	5 236 991	755 868	1 984 879
on radiation safety	90 958	x	34 392	149 142	260 287
for research work	323 022	82 229	475 202	327 785	84 404
to other areas of environmental detail related to the green economy of them	73 220 792	162 722 471	122 410 239	105 952 068	55 764 458
enewable energy investments	70 941690	162 448 828	114 218 620	98 901 557	44 910 238
investments in energy-saving technologies and energy efficiency	1 793464	234749	5 959 183	4 833 394	6 843 924
investments aimed at reducing greenhouse gas emissions	105 610	399 190	65 385	31988	1 145 120

## 4.8 Investments to protect the environment by types of environmental activities in 2022

thousand tenge

	Total	Including							other areas of environmental activities	
		air protection and climate change issues	Cleaning of drains	waste management	protection and rehabilitation of soil, groundwater and surface water	noise and vibration reduction	biodiversity conservation and habitat	radiation safety		research and development
<b>Republic of Kazakhstan</b>	159 660 892	38 098 797	43 455 884	8 719 731	11 292 452	-	1 984 879	260 287	84 404	55 764 458
Abai	1 235 022	653	-	x	x	-	-	-	-	-
Akmola	14 530 892	192 684	-	-	x	-	-	-	-	10 948 634
Aktobe	4 335 302	983 871	-	-	497 448	-	-	-	-	x
Alматы	130 412	x	-	x	x	-	74 057	-	x	7 411
Atyrau	44 351 551	x	33 920 884	-	-	-	-	-	-	3 572 551
Batys										
Kazakhstan	1 243 538	x	-	3 982	-	-	-	-	-	-
Zhambyl	19 665 462	-	-	-	-	-	-	-	-	19 665 462
Zhetisu	19 940	19 940	-	-	-	-	-	-	-	-
Karagandy	13 069 644	11 900 680	271 877	895 687	-	-	-	-	-	1 400
Kostanai	4 556 790	-	-	-	-	-	-	-	13 440	x
Kyzylorda	62 134	-	500	1 632	8 603	-	-	321	2 999	-
Mangystau	5 950 919	145 907	4 894	120 223	5 638 100	-	x	x	20 000	20 271
Pavlodar	7 035 862	5 914 431	479 485	x	-	-	-	x	-	442 849
Soltustik										
Kazakhstan	7 352 728	6 709 661	31 152	-	611 915	-	-	-	-	-
Turkistan	6 895 343	-	-	-	-	-	-	-	-	6 895 343
Ulytau										
Shyngys										
Kazakhstan	4 295 280	1 447 673	714 923	1 548 232	311 155	-	-	-	45 460	227 837
Astana city	10 794 747	-	1 969 135	224 555	-	-	-	1 861 235	156 120	6 583 702
Alматы city	193 190	-	-	172 102	x	-	-	-	-	1 665
Shymkent city	13 942 136	2 656 960	6 063 034	5 212 802	9 340	-	-	-	-	-

#### 4.9 Investments aimed at protecting the environment by type of economic activity of the investor

	thousand tenge				
	2018	2019	2020	2021	2022
Environmental investments	111 161 429	198 721 626	173 618 612	171 165 359	159 660 892
domestic investment	85 477 492	58 704 956	105 256 779	92 134 392	101 010 042
external investment	25 683 938	140 016 671	68 361 834	79 030 967	58 650 851
Including by type of economic activity:					
Agriculture, forestry and fisheries	50 725	25 582	2 136 487	255 309	9 552
Industry	94 337 719	172459 977	151 867 132	146 193 242	140 081 084
including:					
Mining and quarrying	16 679 332	13 027 150	14 537 196	32 975 370	50 961 402
Manufacturing industry	11 804 342	42 984 031	21 063 395	3 287 298	36 727 267
Electricity, gas, steam and air conditioning	64 739 230	115 893 750	115 784 294	107 404 049	51 879 047
Water supply; sewage system, control over the collection and distribution of waste	1 114 815	555 046	482 247	2 526 525	513 368
Construction	1 706 393	12 989 537	5 795 366	5 468 649	9 896 944
Wholesale and retail trade; car and motorcycle repair	6 777 140	x	2 223	31 051	-
Transportation and warehousing	526	x	-	-	x
Accommodation and Food Services	-	-	-	-	-
Information and communication	-	-	x	-	-
Financial and insurance activities	-	-	-	-	-
Real estate transactions	-	-	-	-	x
Professional, scientific and technical activities	2 290 730	5 899 311	53 425	633 760	14 574
Administrative and support services	17	x	-	-	-
Public administration and defense; compulsory social security	5 985 607	5 356 446	13 760 979	17 038 832	8 119 164
Education	12 294	-	2 136 487	x	-
Health and social services	-	-	151 867 132	-	-
Arts, entertainment and recreation	278	x	-	20 616	-
Provision of other services	-	1 820 577	14 537 196	x	-

#### 4.10 Investments aimed at a "green economy"

	thousand tenge			
	2022			
	Total	Including		
		investment in renewable energy	investments in energy-saving technologies and energy efficiency	investments to reduce greenhouse gas emissions
<b>Republic of Kazakhstan</b>	52 899 282	44 910 238	6 843 924	1 145 120
Abai	-	-	-	-
Akmola	11 137 757	10 948 634	-	189 123
Aktobe	2 853 983	2 853 983	-	-
Almaty	1 801	1 801	-	-

Continuation

	2022			
	Total	Including		
		investment in renewable energy	investments in energy-saving technologies and energy efficiency	investments to reduce greenhouse gas emissions
Atyrau	-	-	-	-
Zhambyl	19 665 462	19 665 462	-	-
Zhetisu	-	-	-	-
Karagandy	-	-	-	-
Kostanai	4 543 350	4 543 350	-	-
Kyzylorda	-	-	-	-
Mangystau	21 756	-	8 521	13 235
Pavlodar	741 382	-	23 864	717 518
Turkistan	6 895 343	6 895 343	-	-
Ulytau	-	-	-	-
Shygys Kazakhstan	227 837	-	227 837	-
Astana city	6 583 702	-	6 583 702	-
Almaty city	1 665	1 665	-	-
Shymkent city	225 244	-	-	225 244

#### 4.11 The amount of funds allocated to finance scientific and technical projects on the “green economy” in the framework of grant and program-targeted funding

	2019	2020	2021	2022
Number of scientific and technical projects on the «green economy», unit	7	7	3	6
Expenditures on scientific and technical projects related to the « green economy», thousand tenge	144 249.2	163 998.4	175 215.8	221 931.8

*According to the National center for state scientific and technical expertise of the Ministry of education and science of the Republic of Kazakhstan (the amount of funding for scientific and technical projects approved by National scientific councils).*

#### 4.12 The volume of work performed on the “green” construction

	2018	2019	2020	2021	2022
The volume of construction work (services), million tenge	3 862 994.9	4 431 666.2	4 934 069.2	5 530 680.7	6 304 274.1
The volume of work performed on the “green” construction, million tenge	9 687.4	12 103.2	13 884	58 329	165 447.4
The proportion of work performed on the “green” construction, %	0.3	0.3	0.3	1.1	2.6

#### 4.13 Production of environmentally friendly products

	2018	2019	2020	2021	2022
Production in value terms, million tenge	27 218 063.3	29 380 341.4	27 028 506	37 606 243	48 777 089
of them environmentally friendly products, million tenge	60 866.0	52674.4	57 987	58 329	91 322
share of environmentally friendly products in total production, %	0.2	0.2	0.2	0.2	0.2

#### 4.14 Gross organic crop production in 2022

	Cereals (including rice) and legumes	Including			The culture of olives	centner
		wheat	orghum (white durra), millet and other grains cultures*	dried leguminous vegetables		
<b>Republic of Kazakhstan</b>	33 199.0	33 199.0	-	-	-	
Akmola	33 199.0	33 199.0	-	-	-	
Share of organic crop production. %	0.015	0.020	-	-	-	
Gross harvest of crop production	220 304 547,5	164 044 912,5	1 142 716,3	3 078 669,0	30 512 956,7	

\* Other grain crops (buckwheat, triticale, a mixture of cereals).

#### 4.15 Number of licenses issued for the performance of work and the provision of services in the field of environmental protection\*

	2018	2019	2020	2021	2022	units
Number of issued certificates, licenses, patents in the field of environmental protection	101	142	109	154	297	

\* Hereinafter, according to the Ministry of ecology, Geology and natural resources of the Republic of Kazakhstan.

#### 4.16 Number of approved projects impact assessment on the environment

	2018	2019	2020	2021	2022	units
Number of approved projects impact assessment on the environment	3 402	1 174	800	107	376	

#### 4.17 Number of publications in the field of the environment

	2018	2019*	2020*	2021*	2022	units
Number of publications in the field of the environment	220	12 363	13 829	13 192	6 155	

\* Data is calculated in accordance with the Method of formation (calculation) of target indicators and indicators of results in the areas of ecology, Geology and natural resources, included in the documents of state planning system of Kazakhstan, approved by order of the Ministry of ecology, Geology and natural resources of the Republic of Kazakhstan from 20.02.2020 year № 49-P.

#### 4.18 Number of environmental education programs / projects\*

	2018	2019	2020	2021	2022	units
Total number of issued patents	1 728	1 779	1 816	1 773	1 449	
From them						
Number of patents issued in the field of environmenta protection and energy efficiency	134	125	110	142	166	
Including:						

	Continuation				
	2018	2019	2020	2021	2022
on energy technologies	113	105	58	65	63
Including those, related to RES	42	32	13	19	28
on environmental technologies	21	20	52	77	103

*\* According to RSE national institute of intellectual property of the Ministry of Justice of the Republic of Kazakhstan.*

#### 4.19 Number of enterprises with environmental innovations

	2018	2019	2020	2021	2022
Number of enterprises with environmental innovations, units	84	72	65	88	97
Level of activity in the field of environmental innovation, percent	0.3	0.3	0.2	0.3	0.3
Share of environmental innovation in total innovation, percent	2.6	2.2	2.0	3.0	3.0

#### 4.20 Number of environmental innovations by type of innovation

	2018	2019	2020	2021	2022
Product innovations	33	25	23	29	49
Process innovations	48	54	47	58	61
Marketing innovation		2	3	5	...
Organizational innovations	18	4	11	20	...

*\* Since 2022 marketing and organizational innovations have been included in Business process innovation.*

#### 4. 21 The number of enterprises with environmental innovations and costs by type of activity in 2022

	Number of enterprises with environmental innovations, units	The level of activity in the field of environmental innovation, %	The share of environmental innovations in the total number of innovations, %	Number of environmental innovations by type of innovation, units	including by type		Environmental innovation costs, million tenge
					Product innovations	Business-process innovations	
Total	97	0.3	2.8	97	49	61	11 720.7
Agriculture, forestry and fisheries	7	0.3	3.6	7	6	2	x
Mining and quarrying	12	1.4	9.4	12	2	12	389.8
Manufacturing industry	21	0.4	3.2	21	10	13	10 922.2
Supply of electricity, gas, steam, hot water and air-conditioned	3	0.6	5.3	3	1	2	226.2
Collection, treatment and disposal of waste; disposal (recovery) of materials							
Pollution elimination activities and other waste disposal services	2	0.8	16.6	2	1	2	34.5
Wholesale and retail trade; repair of cars and motorcycles	11	0.1	0.8	11	9	3	14.6
Transportation and warehousing	2	0.1	1.6	2	-	2	14.6
Information and communication	2	0.1	1.1	2	1	1	-
Activities in the field of architecture, engineering surveys, technical tests and analysis	1	0.1	1.3	1	1	-	-
Research and development	6	2.8	7.4	6	3	4	-
Other professional, scientific and technical activities	9	2.7	25.0	9	5	4	-
Higher education	14	11.6	20.2	14	7	11	131.9
Health care activities	7	0.3	1.9	7	3	5	-

## 4.22 The number of natural hazards\*

	units					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	68	56	123	142	159	
Abai	-	-	-	-	5	
Akmola	7	4	4	11	10	
Aktobe	1	1	3	2	8	
Almaty	17	5	9	15	6	
Atyrau	-	1	-	22	7	
Batys Kazakhstan	1	4	6	10	13	
Zhambyl	4	1	4	8	7	
Zhetisu	-	-	-	-	4	
Karagandy	-	5	6	12	17	
Kostanai	-	4	15	9	8	
Kyzylorda	1	4	3	4	8	
Mangystau	-	-	1	2	11	
Pavlodar	3	4	3	4	4	
Soltustik Kazakhstan	2	6	13	7	4	
Turkistan	5	3	21	15	12	
Ulytau	-	-	-	-	3	
Shygys Kazakhstan	12	10	22	18	20	
Astana city	3	-	1	-	1	
Almaty city	7	3	8	-	7	
Shymkent city	5	1	4	3	4	

\* Hereinafter, according to the Ministry for Emergency Situation of the Republic of Kazakhstan.



#### 4.23 The number of hazardous phenomena of natural and man-made

units

	2018		2019		2020		2021		2022						
	Natural total	of which Water	man- made	natural total	of which water	man- made	natural total	of which water	man- made	natural total	of which water				
<b>Republic of Kazakhstan</b>	2 023	12	14 596	1 589	10	14 232	1 438	5	13 258	1 476	9	11 562	1 518	19	11 837
Abai	-	-	-	-	-	-	-	-	-	-	-	-	-	302	786
Akmola	61	-	910	72	-	946	67	-	929	180	1	888	95	4	905
Aktobe	54	-	791	56	-	892	56	-	770	67	-	623	46	1	601
Alматы	225	1	1 739	178	-	1 481	120	-	1 141	133	-	1 056	66	-	847
Atyrau	94	-	343	36	-	294	28	-	264	64	1	339	45	2	320
Batys Kazakhstan	85	-	706	60	-	585	123	-	535	88	1	527	59	2	549
Zhambyl	266	1	703	202	-	774	132	-	718	21	1	666	27	1	760
Zhetisu	-	-	-	-	-	-	-	-	-	-	-	-	24	-	508
Karagandy	31	-	1 788	60	5	1 554	53	-	1 410	122	3	1 020	150	4	766
Kostanai	89	-	1 086	118	-	1 162	98	-	1 088	152	1	903	100	-	786
Kyzylorda	235	-	505	84	-	548	101	-	562	51	-	457	55	-	470
Mangystau	18	-	326	5	-	292	4	-	269	14	-	268	23	3	264
Pavlodar	135	1	854	202	-	898	155	-	940	152	-	583	168	1	357
Soltustik Kazakhstan	65	9	744	38	-	698	54	-	704	80	-	719	53	-	662
Turkistan	327	-	636	189	1	754	111	2	590	56	1	512	145	-	514
Ulytau	-	-	-	-	-	-	-	-	-	-	-	-	14	-	197
Shygyz Kazakhstan	290	-	2 003	251	4	1 911	290	2	1 823	269	-	1 287	110	1	757
Astana city	14	-	664	6	-	671	5	-	627	10	-	721	12	-	834
Alматы city	26	-	754	28	-	673	11	-	671	5	-	765	7	-	725
Shymkent city	8	-	44	4	-	99	30	1	217	12	-	228	17	-	229

## 4.24 Number of victims from emergency situations

	person									
	Emergency of technogenic character					Emergency of nature				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	964	1 145	875	1 052	939	1 570	1 041	142 981	783	1019
Abai	-	-	-	-	72	-	-	-	-	25
Akmola	30	26	49	69	60	23	13	7 252	40	12
Aktobe	43	65	33	49	32	18	15	3 699	29	26
Almaty	98	188	86	81	46	154	170	7 154	77	33
Atyrau	39	29	13	22	17	95	57	13 497	52	85
Batys Kazakhstan	41	24	32	20	22	80	65	9 222	41	146
Zhambyl	58	44	25	152	25	199	184	5 094	22	17
Zhetisu	-	-	-	-	20	-	-	-	-	5
Karagandy	46	32	92	112	74	13	18	12 074	48	47
Kostanai	42	48	59	62	80	56	44	7 590	28	44
Kyzylorda	72	51	21	39	24	210	77	3 422	41	35
Mangystau	30	19	14	27	23	8	5	1 699	11	11
Pavlodar	59	46	62	48	55	67	31	4 030	31	80
Soltustik Kazakhstan	27	43	67	96	70	36	11	8 632	42	8
Turkistan	57	150	40	35	42	284	217	3 691	66	206
Ulytau	-	-	-	-	25	-	-	-	-	1
Shygyz Kazakhstan	122	148	123	104	86	85	86	12 806	197	17
Astana city	83	102	82	36	53	24	21	18 535	10	207
Almaty city	97	66	57	71	72	18	25	19 030	5	5
Shymkent city	20	64	20	29	41	200	2	5 554	43	9

\* The number of injured includes the number of injured and dead

## 4.25 Number of deaths from ES

	person									
	Emergency of technogenic character					Emergency of nature				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	682	557	414	460	396	351	16	2 379	436	267
Abai	-	-	-	-	24	-	-	-	-	21
Akmola	47	32	30	36	35	20	-	100	38	11
Aktobe	70	19	7	19	14	15	-	42	26	20
Almaty	80	82	43	38	24	63	3	83	63	25
Atyrau	27	13	6	10	6	22	-	101	28	21
Batys Kazakhstan	19	20	12	8	12	15	-	169	33	19
Zhambyl	41	37	13	39	9	23	1	62	9	7
Zhetisu	-	-	-	-	14	-	-	-	-	5
Karagandy	59	42	41	54	37	13	-	292	25	18
Kostanai	28	48	38	47	55	16	1	49	24	28
Kyzylorda	19	26	8	15	9	23	1	15	23	18
Mangystau	30	6	4	12	11	10	-	76	11	11
Pavlodar	40	32	32	22	16	26	1	51	29	11
Soltustik Kazakhstan	42	46	47	53	39	13	2	41	22	6
Turkistan	40	36	15	18	10	28	3	47	39	20
Ulytau	-	-	-	-	6	-	-	-	-	1
Shygyz Kazakhstan	88	64	63	48	31	45	2	415	48	12

Continuation

	Emergency of technogenic character					Emergency of nature				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Astana city	10	21	22	11	22	11	-	365	10	6
Almaty city	17	15	26	22	11	3	-	389	5	2
Shymkent city	25	18	7	8	11	5	2	82	3	5

#### 4.26 Emergency reserve of the Government of the Republic of Kazakhstan for the elimination of natural and man-made emergencies on the territory of the Republic of Kazakhstan and other states\*

million tenge

	2018	2019	2020	2021	2022
Total funds allocated	3 808.4	29 556.0	19 087.4	3 450.8	65 532.4

\* According to the Ministry of Finance of the Republic of Kazakhstan.

#### 4.27 Expenditures aimed at eliminating emergencies and their consequences (at the expense of the local budget)\*

thousand tenge

	2018	2019	2020	2021	2022
<b>Emergency of nature</b>					
<b>Republic of Kazakhstan</b>	1 219 596.0	4 552 244.6	7 408 195.5	7 335 470.9	16 532 217.1
Abai	-	-	-	-	783 379.36
Akmola	143 191.2	-	565 149.2	621 077.3	-
Aktobe	34 530.4	699.5	-	-	1 233 396.3
Almaty	674 039	487 687	1 006 824	595 676.9	266 769.0
Atyrau	-	-	-	2 800.0	334 914.0
Batys Kazakhstan	-	464 678.1	19 241.8	313 357.6	1 054 607.4
Zhambyl	71.7	21.0	-	300 460.9	141 218.0
Zhetisu	-	-	-	-	244 716.7
Karagandy	21 981.0	61 401.5	50 781.5	457 892.1	156 206.6
Kostanai	48 704.0	35 377.9	508 056.5	51 812.7	631 203.6
Kyzylorda	60 881.0	38 342.0	-	244 769.9	30 698.4
Mangystau	-	-	-	-	3 894.0
Pavlodar	47 217.7	-	-	-	491 405.4
Soltustik Kazakhstan	1 500.0	1000	193 492.9	35 164.8	48 080.1
Turkistan	-	-	348 687	270 802.0	1 860 077.3
Ulytau	-	-	-	-	-
Shygys Kazakhstan	187 480.0	101 398.2	486 711.6	134 418.0	109 849.2
Astana city	-	-	2 256 052.9	-	-
Almaty city	-	3 361 639.4	1 687 618.1	4 307 238.7	9 141 801.7
Shymkent city	-	-	285 580	-	-
<b>Emergency of technogenic character</b>					
<b>Republic of Kazakhstan</b>	4 014 984.1	3 022 010.4	1 979 722.4	2 531 987.2	29 259 202.1
Abai	-	-	-	-	26 890 766.76
Akmola	338 700.0	-	-	-	-
Aktobe	5 971.0	10 000.0	-	-	-
Almaty	7 309	62 492	88 336	-	333 447.0
Atyrau	154 154.3	-	900 747.8	-	-
Batys Kazakhstan	-	6 950	-	26 706.5	43 610.8

	Continuation				
	2018	2019	2020	2021	2022
Zhambyl	85.5	78.9	260 369.6	41 969.6	491 873.3
Zhetisu	-	-	-	-	249 342.4
Karagandy	295 447.0	19 100.4	-	26 035.0	81 985.9
Kostanai	-	-	-	-	-
Kyzylorda	308 500	38 064.0	-	-	332 261.0
Mangystau	39 400.0	-	-	-	-
Pavlodar	75 620.3	478 779.1	-	1 458.0	321 796.1
Soltustik Kazakhstan	101 200.0	-	-	80 980.1	-
Turkistan	-	146 300	108 282	55 300.0	-
Ulytau	-	-	-	-	14 892.0
Shygys Kazakhstan	-	56 876.0	32 120.4	29 142.0	269 319.2
Astana city	-	-	-	-	-
Almaty city	2 688 597	1 169 241	589 866.6	1 897 224.3	229 907.6
Shymkent city	-	1 034 129.0	-	373 171.7	-

\* According to local executive bodies. the data has been updated.

#### 4.28 Commissioning of capacities for the protection of natural resources \*

	2018	2019	2020	2021	2022
Wastewater treatment facilities, thousand cubic meters. m per day	3 189.2	297.0	275.7	89.2	26 444.7
Circulating water supply systems, thousand cubic meters. m per day	3.7	-	2.0	7.2	0.1
Facilities, installations and equipment for the capture and neutralization of harmful substances polluting the atmospheric air, thousand cubic meters per day	-	-	1 080.0	28.8	-

\*Taking into account the reconstruction, expansion and technical reequipment of capacities

#### 4.29 Commissioning of facilities for the protection of water resources from pollution (wastewater treatment facilities)

	thousand cubic meters per day				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	3 189.4	123 75.1	275.7	89.9	71.7
Abai	0.2	-	-	0.7	0.4
Akmola	-	-	210	-	-
Almaty	2 800.0	-	-	-	-
Atyrau	89.0	-	-	-	-
Zhambyl	-	-	-	87.5	1.9
Mangystau	-	-	0.1	0.1	-
Pavlodar	-	-	0.3	-	26.4
Turkistan	-	-	-	0.9	-
Shygys Kazakhstan	-	4.2	-	-	0.1
Astana city	0.2	-	-	0.7	-
Akmola	300	12 370.9	65.3	-	42.3

### 4.30 Commissioning of facilities for the protection of atmospheric air from pollution (installations for the capture and disposal of harmful substances from exhaust gases)

thousand cubic meters m per day

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	-	-	1 080.0	28.8	-
Pavlodar	-	-	-	28.8	-
Shygys Kazakhstan	-	-	1 080.0	-	-
Astana city	-	-	-	-	-

### 4.31 Environmental taxation\*

Type of environmental tax	2018	2019	2020	2021	2022
<b>Environmental taxes</b>					
Energy Taxes,	1 654 232 346.1	1 706 402 804.8	881 692 071.6	1 592 128 229	1 991 002 465.5
Transport taxes	72 060 566.9	78 318 677.5	63 439 188.2	77 638 335	87 760 624.3
Pollution taxes	87 125 547.6	100 809 615.2	85 593 121.1	110 934 387.7	98 604 623.9
Resource Use Taxes	335 135 667.3	394 415 327.2	359 187 842.0	487 890 932.2	586 621 414.3
Total environmental taxes,			1 389 912	2 268 591	
thousand tenge	2 148 554 128.0	2 279 946 424.8	223.0	883.7	2 763 989 128.0
The share of environmental taxes to the total volume of tax revenues, %	31.5	24.7	16.2	17.4	18.6
<b>The share of environmental taxes in GDP, as a percentage</b>					
Energy Taxes	2.7	2.5	1.2	1.4	1.9
Transport taxes	0.1	0.1	0.1	0.1	0.1
Pollution taxes	0.1	0.1	0.1	0.1	0.1
Resource Use Taxes	0.5	0.6	0.5	0.6	0.6
Total environmental taxes, %	3.5	3.3	2.0	2.2	2.7
<b>Environmental tax structure, as a percentage</b>					
Energy Taxes	77.0	74.8	63.4	63.8	72.0
Transport taxes	3.4	3.4	4.6	4.2	3.2
Pollution taxes	4.1	4.4	6.2	5.9	3.6
Resource Use Taxes	15.6	17.3	25.8	26.1	21.2
Total environmental taxes, % to total	100.0	100.0	100.0	100.0	100

\* Data of the State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan.

## 4.32 Payments for the use of natural resources in 2022 (including the amount of income to the National Fund)

thousand tenge

	Payment for the use of water resources of surface sources	Payment for forest use	Payment for the use of the animal world	Payment for the use of specially protected natural territories of national significance	Payment for the use of land plots	Funds received from nature users on claims for compensation for damage	Payment for emissions to the environment			
							for the discharge of pollutants	for emissions of pollutants	for the placement of production and consumption waste	for the placement of sulfur generated during oil operations
<b>Republic of Kazakhstan</b>	1 963 432	1 482 677	2 544 350	939 751	21 497 191	2 473 243	6 032 378	71 330 563	18 773 944	4 011 526
Abai	74 477	78 527	802	22 995	571 506	32 466	49 084	1 868 793	4 010 050	0
Akmola	28 787	291 445	167 385	236 340	1 372 932	916	6 892	3 618 352	203 373	0
Aktobe	8 831	7 273	41 305	146	1 088 966	241 171	10 832	7 654 794	1 236 683	1 24 571
Almaty	163 819	46 760	100 451	210 279	169 050		408 778	953 814	0	0
Atyrau	71 777	2 941	243 853	297	489 809	171 639	33 250	8 797 793	1 101 646	3 468 806
Batys Kazakhstan	11 097	23 496	20 788	0	324 574	21 958	36 636	1 090 226	277 090	0
Zhambyl	73 302	54 335	47 284	0	441 266	5 487	152 618	1 373 563	3 332 659	0
Zhetisu	45 538	27 643	144 390	9 131	155 991	9 781	73 837	418 411	1 345	0
Karagandy	330 546	6 419	315 319	49 562	3 920 466	1 378 350	5 491	16 916 537	137 871	700
Kostanai	13 469	198 521	121 663	288	2 837 167	40 905	1 770 753	7 083 004	590 251	0
Kyzylorda	21 410	15 016	202 175	43	151 966	0	637 452	266 622	304 038	0
Mangystau	123 038	1 313	54 118	857	1 062 583	0	205 944	1 651 142	284	0
Pavlodar	537 004	60 788	116 587	41 214	2 729 754	35 014	81 269	6 826 458	6 566 605	0
Solitustik Kazakhstan	22 980	277 460	35 146	5 402	1 676 650	27 290	66 733	1 332 361	198 658	0
Turkistan	99 948	70 063	104 088	20 995	168 823	66 144	212 915	851 662	0	0
Ulytau	40 024	249	6	0	479 916	1 926	1 651 655	3 853 861	0	0
Shyngys Kazakhstan	269 822	319 766	227 788	25 080	1 149 978	413 249	77 555	1 732 291	403 266	0
Astana city	7 923	0	601 201	0	1 249 303	0	0	3 250 330	0	0
Almaty city	16 754	408	2	316 093	1 057 988	26 947	118 182	1 248 534	121 994	417 449
Shymkent city	2 886	255	0	1 028	398 504	0	432 502	542 015	288 132	0

### 4.33 The number of people working in “green jobs” in 2022\*

	Number of employees, people	Number of employees in «green jobs», people	Percentage of the number of people working in «green jobs», %
<b>Republic of Kazakhstan</b>	2 835 861	48 895	1,7
Abai	83 929	1 392	1,7
Akmola	100 853	2 208	2,2
Aktobe	139 742	2 581	1,8
Almaty	105 744	1 640	1,6
Atyrau	195 301	2 158	1,1
Batys Kazakhstan	94 807	2 334	2,5
Zhambyl	118 040	1 239	1,0
Zhetisu	61 352	1 711	2,8
Karagandy	211 510	4 222	2,0
Kostanai	126 259	2 327	1,8
Kyzylorda	104 282	3 000	2,9
Mangystau	133 529	2 551	1,9
Pavlodar	141 971	3 541	2,5
Soltustik Kazakhstan	69 701	1 786	2,6
Turkistan	147 985	1 639	1,1
Ulytau	48 915	737	1,5
Shygys Kazakhstan	124 736	3 077	2,5
Astana city	248 830	4 808	1,9
Almaty city	439 271	4 664	1,1
Shymkent city	139 107	1 280	0,9
<b>By themain branches of the economy</b>			
Agriculture, forestry and fisheries	66 359	390	0,6
Industry of them	636 790	43 348	6,8
Water supply; sewerage system, control over waste collection and distribution	41 321	41 234	99,8
Other activities	2 132 712	5 157	0,2

\* For medium and large enterprises

### 4.34 The number of employees in green jobs

	2021			2022		
	List number of employees, people	The number of employees in «green workplaces», people	The share of the number of employees in «green jobs», %	List number of employees, people	The number of employees in «green workplaces», people	The share of the number of employees in «green jobs», %
<b>Republic of Kazakhstan</b>	3 803 984	48 065	1.3	3 876 474	48 895	1.3
Abai	-	-	-	117 944	1 392	1.2
Akmola	157 736	2 449	1.6	158 802	2 208	1.4
Aktobe	192 355	2 750	1.4	194 837	2 581	1.3
Almaty	252 727	3 242	1.3	159 669	1 640	1.0
Atyrau	219 743	2 187	1.0	231 714	2 158	0.9
Batys Kazakhstan	141 052	2 421	1.7	143 112	2 334	1.6

Continuation

	2021			2022		
	List number of employees, people	The number of employees in «green workplaces», people	The share of the number of employees in «green jobs», %	List number of employees, people	The number of employees in «green workplaces», people	The share of the number of employees in «green jobs», %
Zhambyl	177 973	1 462	0.8	181 822	1 239	0.7
Zhetisu	-	-	-	101 483	1 711	1.7
Karagandy	331 408	4 624	1.4	273 961	4 222	1.5
Kostanai	181 342	2 294	1.3	180 699	2 327	1.3
Kyzylorda	156 423	2 305	1.5	155 290	3 000	1.9
Mangystau	158 670	2 057	1.3	165 995	2 551	1.5
Pavlodar	194 602	3 325	1.7	193 820	3 541	1.8
Soltustik Kazakhstan	116 604	1 881	1.6	116 421	1 786	1.5
Turkistan	248 631	1 650	0.7	255 028	1 639	0.6
Ulytau	-	-	-	63 764	737	1.2
Shygys Kazakhstan	295 302	4 482	1.5	170 947	3 077	1.8
Astana city	299 861	4 289	1.4	307 694	4 808	1.6
Almaty city	497 937	4 690	0.9	520 493	4 664	0.9
Shymkent city	181 618	1 957	1.1	182 979	1 280	0.7
<b>By the main branches of the economy</b>						
Agriculture, forestry and fisheries	70 596	276	0.4	68 190	390	0.6
Industry of them	635 142	43 538	6.9	643 749	43 348	6.7
Water supply; sewerage system, control over waste collection and distribution	43 201	41 551	96.2	41 877	41 234	98.5
Other activities	3 098 246	4 251	0.1	3 164 535	5 157	0.2

#### 4.35 Key performance indicators of RES, including the number of people employed at renewable energy facilities\*

On of July 1, 2022

	Number of objects	Installed capacity, MW	Production, for 2020, mln.kWh	Number of people employed at renewable energy facilities, pers.	including	
					women	men
<b>On January 1, 2020</b>						
Wind farm	19	283.8	717.4	217	39	178
Hydroelectric	37	222.2	1 105.3	534	82	452
Solar power plant	31	541.7	563.14	188	41	147
Biogas power plants	3	2.42	14.9	16	0	16
Total for all RES facilities	90	1 050.12	2 400.74	955	162	793
<b>On January 1, 2021</b>						
Wind farm	29	486.3	1 076.7	305	52	253
Hydroelectric	38	229.04	812.1	691	95	596
Solar power plant	43	911.6	1 349.7	327	33	294
Biogas power plants	5	7.82	6.6	27	0	27
Total for all RES facilities	115	1 634.7	3 245.1	1 350	180	1 170



Continuation

	Number of objects	Installed capacity, MW	Production, for 2020, mln.kWh	Number of people employed at renewable energy facilities, pers.	including	
					women	men
<b>On January 1,2022</b>						
Wind farm	40	684	1 776.4	425	77	348
Hydroelectric	40	280	799.7	696	108	588
Solar power plant	49	1 038	1 641	354	50	304
Biogas power plants	5	8	3.04	23	-	23
Total for all RES facilities	134	2 010	4 220.3	1 498	235	1 263
<b>On January 1,2023</b>						
Wind farm	46	957.5	2 411	512	84	428
Hydroelectric	37	280	934	696	108	588
Solar power plant	44	1 149	1 763	429	66	363
Biogas power plants	3	1.80	1.98	23	0	23
Total for all RES facilities	130	2 388	5 110	1 660	258	1 402

*\* According to the Ministry of energy of Kazakhstan, according to the power capacity of up to 35 kWh (excluding large hydropower), accounting employed in the renewable energy facilities is since 2019.*

## 5. Land resources

### 5.1 Distribution of land fund by accounting categories\*

on November 1; thousand hectares					
Land categories	2018	2019	2020	2021	2022
Total land in use of the Republic of Kazakhstan	262 508.2	262 860.6	262 918.4	262 930.8	262 930.8
including:					
agricultural land	105 337.4	106 432.6	108 562.7	113 961.4	115 966.2
specific weight, in percent	40.1	40.5	41.3	43.3	44.1
lands of settlements	24 053.2	24 077.2	24 192.2	24 288.7	24 592.8
specific weight, in percent	9.2	9.2	9.2	9.2	9.4
lands of industry, transport, communications, defense and other non-agricultural purposes	2 244.6	2 317.7	2 209.0	2 239.1	2 273.0
specific weight, in percent	0.9	0.9	0.8	0.9	0.9
lands of specially protected natural territories	7 284.3	7 696.7	7 705.7	7 810.7	7 811.3
specific weight, in percent	2.8	2.9	2.9	3.0	2.9
forest land	22 737.6	22 398.2	22 398.3	22 435.3	22 963.5
specific weight, in percent	8.6	8.5	8.5	8.5	8.7
water fund lands	4 144.6	4 222.1	4 208.4	4 206.5	4 209.4
specific weight, in percent	1.6	1.6	1.6	1.6	1.6
reserve lands	96 706.5	95 716.1	93 642.1	87 989.1	85 114.6
specific weight, in percent	36.8	36.4	35.6	33.5	32.4

\* Hereinafter, according to the Land Management Committee of the Ministry of Agriculture of the Republic of Kazakhstan.

### 5.2 Agricultural land

thousand hectares					
	2018	2019	2020	2021	2022
Agricultural land	105 337.4	106 432.6	108 562.7	113 961.4	115 966.2
including:					
lands of citizens for gardening and country building	65.8	66.1	36.4	33.5	33.5
land of citizens for farming	62 619.7	63 676.3	66 207.3	70 184.9	72 792.1
lands of non-state agricultural legal entities	41 162.8	41 379.4	40 282.4	41 605.6	40 945.1
lands of state agricultural legal entities	1 489.1	1 310.8	845.3	882.6	870.1

### 5.3 Lands of settlements (cities, villages and rural settlements)

thousand hectares					
	2018	2019	2020	2021	2022
Lands of settlements (cities, towns, and rural settlements)	24 053.2	24 077.2	23 777.95	24 288.7	24 592.8
including:					
cities and villages	2 372.6	2 437.4	3 655.45	4 190.9	4 106.2
rural settlements	21 680.6	21 639.8	20 122.5	20 097.8	20 486.6

## 5.4 Lands of industry, transport, communications, defense and other non-agricultural purposes

	thousand hectares				
	2018	2019	2020	2021	2022
Lands of industry, transport, communications, defense and other non-agricultural purposes	2 244.6	2 317.7	2 209.0	2 239.1	2 273.0
including:					
Industry	1 127.6	1 200.3	1 403.4	1 294.3	1 302.0
Road transport	309.7	313.9	304.5	310.9	311.1
Railway transport	196.7	197.7	190.8	187.3	191.4
Connections	16.3	17.1	16.9	19.4	18.5
Other non-agricultural enterprises	594.3	588.7	293.4	427.2	450.0

## 5.5 The distribution of the land fund of the composition of land

on November 1, thousand hectares										
	Total area	Including								
		arable land	perennial plantations	deposits	hay-fields	pastures	forest area	swamps	under water	other
2018	272 490.2	25 813.3	147.5	4 067.1	5 134.8	186 156.1	13 736.7	1 142.4	7 644.3	28 648.0
2019	272 490.2	26 011.1	146.9	3 978.2	5 132.6	184 464.0	15 330.9	1 138.3	7 654.7	24 633.8
2020	272 490.2	26 324.5	147.7	3 848	5 117.4	184 318.2	15 340.8	1 137.0	7 654.7	24 686.5
2021	272 491.0	26 660.5	148.0	3 681.7	5 104.6	183 994.2	15 714.6	1 165.4	7 609.4	24 473.6
2022	272 491.0	26 985.9	146.9	3 457.2	5 104.3	183 405.5	16 273.5	1 163.8	7 611.0	24 396.2

## 5.6 Land uptake

1000 km <sup>2</sup>					
	2018	2019	2020	2021	2022
Total area of land withdrawn from productive use	263.0	264.0	264.1	265.3	268.6
Land uptake for mining and quarrying areas	11.3	12.0	14.0	13.0	13.0
Land uptake for productive turnover allocated for technical infrastructure (communications land)	0.20	0.2	0.2	0.2	0.2
Land uptake for productive turnover for transport	5.1	5.1	5.1	5.0	5.0
Land uptake for commercial, financial and public services	5.9	5.9	2.9	4.2	4.5
Land uptake for productive turnover for residential territories, land of localities	240.5	240.8	241.9	242.9	245.9
<b>Land uptake by country area</b>					
Country area	2 724.9	2 724.9	2 724.9	2 724.9	2 724.9
Share of land uptake in the country area, %	9.7	9.7	9.7	9.7	9.8

## 5.7 The distribution of land fund by land composition in terms of land categories

on November 1, 2022, thousand hectares

	Total area	Including								
		arable land	perennial plantations	deposits	hay-fields	pastures	forest area	swamps	under water	other
Total irrigated area	262 930.8	26 971.5	146.9	3 471.7	4 884.6	178 227.9	16 273.2	1 164	7 611.1	20 239.1
including:										
agricultural land	115 966.2	26 452	60.7	1824.5	2 341.2	82 418.5	1.3	125.6	190.3	2 052.7
land of settlements (cities and towns and rural settlements)	24 592.8	378.4	68.1	194.8	218.7	21 176.5	44.2	62.6	258.7	2 556.3
lands of industry, transport and communication, defense and other non-agricultural purposes	22.3	15.1	0.2	6.8	2	741.4	3.7	4.2	70.3	782.8
lands of specially protected natural areas	7 811.3	2.5	0.7	1.4	127.5	3 398.4	2 123.3	220.5	422.7	1 482.8
lands of the forest fund	22 963.5	93.8	0.5	9.9	231.6	6 497.4	14 014.7	31.4	50.2	1 963.8
lands of the water fund reserve	4 209.4	0	0.1	0.3	30.6	111.4	0.1	38.4	3 886.5	77.5
lands	85 114.6	29.7	16.6	1 434	1 933	63 884.3	85.9	681.1	2 732.4	12 865.6

\* On the line "Territory of lands", without lands used by other states.

## 5.8 The distribution of agricultural land on the composition of land

on November 1, 2022, thousand hectares

	Total area of agricultural land	Including								
		arable land	perennial plantations	deposits	hay-fields	pastures	forest area	swamps	under water	other
<b>Republic of Kazakhstan</b>	115 966.2	26 452.0	60.7	1 824.5	2 341	82 418.5	1.3	125.6	190.3	2 052.7
Abai	9 068.6	826.2	0.2	64.9	237.8	7 776.1	0.1	0.4	4.3	139.3
Akmola	10 908.2	6 087.5	1.5	218.2	154.4	4 420.2	0	2.5	6.5	12.8
Aktobe	13 118.3	745.4	0	254.2	128.1	11 829.4	0.1	6.5	17.6	114.9
Almaty	4 310.7	459,8	18.7	54.7	63.1	3 658.2	0	0.4	2.2	48.1

Continuation

	Total area of agricultural land	Including								
		arable land	perennial plantations	deposits	hay-fields	pastures	forest area	swamps	under water	other
Atyrau	3 220.7	7	0.3	6.7	50.5	3 031.3	0	22.2	7.6	82.6
Batys										
Kazakhstan	3 361.6	673.3	0.6	528.1	264.2	2 295.4	0.4	0.3	3.2	64.7
Zhambyl	4 675.8	785.3	3.7	-	131.4	3 620.3	0.1	2.7	7.2	70.7
Zhetisu	4 633.8	532.9	2.3	46.8	126.7	3 846.7	0	3.1	2.2	56.8
Karagandy	7 897.9	620.5	1.9	156.2	510.1	6 180.6	0.2	0.2	2.9	37.1
Kostanai	11 960.1	1 322.10	0.2	42.7	177.1	9938	0	4.3	18.5	306.2
Kyzylorda	2 900.4	171.9	0.6	52.0	36.1	2 089.1	0	2.1	3.6	511.8
Mangystau	11 010.7	6 310.8	1.1	0.1	141.4	4364	0	31.6	23	50.8
Pavlodar	3 030.2	0.6	0	183.3	0	2 677.2	0	0	0	324.7
Soltustik										
Kazakhstan	7 390.7	2 021.9	0.8	57.3	175.4	4 919.3	0	5.1	13	45.7
Turkistan	7 271.2	4 959.5	0.8	96.1	16.5	2 001.4	0.2	42.8	64	47
Ulytau	4 518.5	875.3	27.8	52.7	68.5	3 333.6	0.2	0.1	7.6	80.7
Shygys										
Kazakhstan	6 688	51.8	0	10.5	59.9	6 437.3	0	1.3	6.9	58.8
Astana city	0	0	0	-	0	0	0	0	0	0
Almaty city	0.8	0.2	0.2	-	0	0.4	0	0	0	0
Shymkent city	0	0	0	-	0	0	0	0	0	0

## 5.9 Characteristics of agricultural land on the grounds that affect their fertility

on November 1, 2022, thousand hectares

	Total area of agricultural land	Of them										
		uncomplicated negative symptoms of which certainly fit		crus-hed saline	salty	eroded	deflated	exposed jointly to water and wind erosion	waterlogged	marshy	other	
		total	ft									
<b>Republic of Kazakhstan*</b>	213 702.6	4 151.8	23 556.5	42 156.3	35 449.9	58 164.9	4 950.3	24 168.1	201.7	2 847.6	1 083.4	3 163.6
Abai	16 332.8	1 947.3	1 017.7	8 408.4	1 221.5	3 501.9	193.7	647.8	-	246.6	78.7	86.9
Akmola	13 097.3	4 995.5	4 995.0	2 388.7	1 601.9	3 169.5	562	9.6	-	164.5	111.6	94
Aktobe	26 545.6	7 872.9	1 447.0	2 137.3	1 483.8	11 453.6	473.1	2 101.1	8.3	269	25.9	720.6
Almaty	6 236.2	1 117.8	286.8	234.3	1 634.7	302.8	612.7	2 050.5	-	133.4	149.4	0.6
Atyrau	9 659.5	537.9	0.4	136.9	2 282.6	3 396.0	-	3 133.9	-	45.7	3.1	123.4
Batys												
Kazakhstan	12 758.8	1 528.2	1 073.2	300.4	1 343.2	7 109.5	274.5	1 409.5	191.9	326.4	72.5	202.7
Zhambyl	8 096.3	669.7	333.8	2 800.1	1 358.1	406.3	222.7	2 414.0	-	124	87	14.4
Zhetisu	9 061.4	494.3	2 341.5	2 341.5	1 362	271	202.8	2 901.9	-	66.3	38.2	36.9
Karagandy	19 856.1	1 894.1	1 019.0	8 770.5	1 709.3	6 250.2	198.2	128.7	-	430.6	48.3	426.2
Kostanai	18 012.5	5 898.0	5 403.4	589.8	3 133.1	6 846.5	158.7	611.2	-	294.5	183.6	297.1
Kyzylorda	11 789.0	1 127.2	4.3	263.8	6 609.7	6 411.6	2.9	2 846.7	-	94.5	79.1	123.5
Mangystau	12 634.5	1 600.9	0.2	925.7	687.0	1 635.4	800	656.3	-	-	-	146.2
Pavlodar	11 158.2	1 606.5	1 596.5	2 917.7	775.6	3 943.8	0.9	1 296.3	-	57.9	34.8	524.7
Soltustik												
Kazakhstan	8 399.3	4 180.2	410.2	4 10.2	573.2	2 790.4	56	-	-	144.5	115.6	129.2
Turkistan	10 043.0	1 584.7	1 093.5	1 060.1	2 215.6	1 007.5	933.7	3 112.9	-	112.3	7.7	8.5
Ulytau	13 567.1	1 760.2	1 552.2	4 742.5	895.3	5 193.5	2.2	631.0	-	144	13.5	184.9
Shyngys												
Kazakhstan	6 331.8	1 282.8	406.9	3 721.9	365.7	242.4	232.9	216.7	-	191.1	33	43.8
Astana city	14.4	3	3	0.4	4.6	3	-	-	-	2	1.4	-
Almaty city	27.4	24.1	0.6	2.9	-	-	0.1	-	-	0.3	-	-
Shymkent city	81.4	45	45	3.2	10	-	23.2	-	-	-	-	-

\* On the line "Kazakhstan of the Republic", without land used by other states.

## 5.10 Area of eroded land as a percentage of agricultural land to the total land area\*

1000 ha

	2019		2020		2021		2022	
	area	as a percentage of the total land area	area	as a percentage of the total land area	area	as a percentage of the total land area	area	as a percentage of the total land area
<b>Areas affected by water erosion</b>								
Total agricultural area	214 341.1		214 349.8		214 191.9		213 702.6	
<b>of which</b>								
Low affect	2 848.1	1.33	2 848.1	1.33	2 848.1	1.33	2 848.1	57.6
Average affect	1 893.0	0.88	1 893.0	0.88	1 893.0	0.88	1 893.0	38.2
Strong affect	209.2	0.10	209.2	0.10	209.2	0.1	209.2	4.2
Total affect	4 950.3	2.31	4 950.3	2.31	4 950.3	2.31	4 950.3	2.3
<b>Areas affected by wind erosion</b>								
Total agricultural area	214 341.1		214 349.8		214 191.9			
<b>of which</b>								
Low affect	2 168.1	1.01	2 168.1	1.01	2 168.1	1.01	2 200	9.1
Average affect	4 900	2.29	4 900	2.29	4 900	2.29	4 900	20.2
Strong affect	17 100	7.98	17 100	7.98	17 100	7.98	17 100	70.7
Total affect	24 168.1	11.28	24 168.1	11.28	24 168.1	11.28	24 168.1	11.3
<b>Areas subject to joint water and wind erosion</b>								
Total agricultural area	214 341.1		214 349.8		214 191.9		213 702.6	
<b>of which</b>								
Jointly water and wind erosion	201.7	0.1	201.7	0.1	201.7	0.1	201.7	0.1

\* According to the Committee on Land Management of the Ministry of Agriculture of the Republic of Kazakhstan, the survey is conducted once every 5 years.

## 5.11 Disturbed, worked out and reclaimed lands

ha

	2018	2019	2020	2021	2022
Disturbed lands	248 420.4	248 028.7	243 381.8	245 259.2	245 758.0
Worked out of disturbed lands	51 324.1	50 056.5	55 831.3	55 753.9	55 754
Recultivated	1 897.4	5 911.0		61.1	61
of them under:					
arable land	-	-	-	-	-
other farmland	1 459.0	5 910.0	5 826.9	19.0	19
forest shrubs	-	-	-	-	-
ponds and other purposes	438.4	1.0	-	37.0	37

## 5.12 Distrubed and worked out lands

ha

	At the beginning of 2018		At the beginning of 2019		At the beginning of 2020	
	disturbed lands	disturbed lands	disturbed lands	disturbed lands	disturbed lands	worked out of disturbed lands
<b>Republic of Kazakhstan</b>	248 420	51 324	248 028.7	50 056.5	248 060	50 151.8
Akmola	18 412	7 288	19 586	7 288	19 720	7 288
Aktobe	14 888	2 104	13 475.8	660.7	13 475.8	660.7
Almaty	6 804	995	6 804	995	7 373	971
Atyrau	2 329	59	2 329	59	2 242	59
Batys Kazakhstan	3 334	392	3 334	392	4 424	392
Zhambyl	6 605	1 983	6 605	1 983	6 605	1 983
Karagandy	45 270	10 651	45 149	10 679	45 242	10 679
Kostanai	37 774	13 748	37 792.6	13 748	38 298.6	13 848.5
Kyzylorda	2 700	711	2 700	711	2 700	711
Mangystau	78 574	3 593	78 574	3 592	76 300	3 592
Pavlodar	3 933	3 701	3 933	3 701	3 933	3 701
Soltustik Kazakhstan	12 146	1 232	12 146	1 232	12 146	1 232
Turkistan	2 378	93	2 378	-	2 378	-
Shygys Kazakhstan	12 632	4 868	12 719.1	4 869.4	12 719.1	4 869.4
Astana city	0	-	168.2	146.4	335	-
Almaty city	307	-	-	-	-	-
Shymkent city	335	-	335	-	168.5	147.4

Continuation

	At the beginning of 2021		At the beginning of 2022	
	disturbed lands	disturbed lands	disturbed lands	worked out of disturbed lands
<b>Republic of Kazakhstan</b>	233 257,8	52 130,3	20 927,0	7 288,0
Abai	-	-	-	-
Akmola	20 374,0	7 288,0	13 475,8	660,7
Aktobe	13 475,8	660,7	4 141,0	881,0
Almaty	7 436,0	971,0	2 238,0	63,0
Atyrau	2 242,0	59,0	12 832,4	4 908,7
Batys Kazakhstan	4 424,0	392,0	6 205,0	1 938,0
Zhambyl	6 205,0	1 983,0	2 739,0	90
Zhetisu	-	-	-	-
Karagandy	45 355,0	10 679,0	45 862,0	10 679,0
Kostanai	38 298,6	13 848,5	40 435,6	13 749,5
Kyzylorda	2,7	711,0	3 019,0	711,0
Mangystau	70 477,0	9 415,0	70 477,0	9 415,0
Pavlodar	3 933	3 701	3 933	3 701
Soltustik Kazakhstan	12 146,0	1 232,0	12 146,0	1 232,0
Turkistan	2 378,0	-	2 378,0	-
Ulytau	-	-	-	-
Shygys Kazakhstan	12 821,7	4 891,1	12 832,4	4 908,7
Astana city	168,5	-	168,5	-
Almaty city	-	-	-	-
Shymkent city	357,0	-	357	-



### 5.13 Availability of irrigated land by land

on November 1, in thousand hectares

	2018	2019	2020	2021	2022
Total irrigated area	2 203.1	2 224.6	2 251.1	2 271.9	2 302.7
including:					
agricultural land	1 766.5	1 779.4	1 809.9	1 826.0	1 890.4
land of settlements (cities and towns and rural settlements)	180.1	180.4	200.7	205.1	205.1
lands of industry, transport and communication, defense and other non-agricultural purposes	2.6	3.0	2.5	2.6	2.6
lands of specially protected natural areas	1.3	1.1	0.6	0.6	0.6
lands of the forest fund	7.7	7.4	7.7	7.7	15.5
lands of the water fund	0.2	0.2	0.5	0.6	0.7
reserve lands	244.7	253.1	229.2	229.3	187.8

### 5.14 Availability of irrigated land

thousand ha

	2018		2019		2020	
	total area	of them arable land	total area	total area	total area	of them arable land
<b>Republic of Kazakhstan</b>	2 203.1	1 634.4	2 224.6	16 65	2 251.1	1 714.9
Akmola	31.6	18.3	31.6	16.9	31.6	17
Aktobe	30.3	14.3	30.3	12.3	30.3	12.3
Almaty	583.1	474.5	583.5	481.2	584.3	476.5
Atyrau	21.8	6.2	21.8	6.8	21.8	9.2
Batys Kazakhstan	55.8	16.5	55.8	15.3	55.8	16
Zhambyl	230.8	204.8	230.9	204.9	230.9	205
Karagandy	93.0	57.7	93.1	57.9	93.1	57.6
Kostanai	32.3	5.7	32.3	5.7	32.3	6.3
Kyzylorda	250.0	171.7	251	174.2	252	188
Mangystau	2.3	0.6	2.3	0.6	2.3	1
Pavlodar	86.4	54.1	102.2	76.7	126.8	102.6
Soltustik Kazakhstan	17.0	11.4	17.0	11.4	17	11.4
Turkistan	545.0	446.9	548.5	453.5	548.5	456.9
Shygys Kazakhstan	195.8	129.7	195.8	125.6	195.9	133.1
Astana city	0.3	0.1	0.3	0.1	0.3	0.1
Almaty city	2.3	2.3	2.9	2.3	2.9	2.3
Shymkent city	25.3	19.6	25.3	19.6	25.3	19.6

Continuation

	2021		2022	
	total area	total area	total area	of them arable land
<b>Republic of Kazakhstan</b>	2 271.8	1 736.2	2 302.7	1 778.9
Abai	-	-	112.3	75.5
Akmola	31.9	17.2	31.9	17.2
Aktobe	30.3	12.3	30.3	12.3
Almaty	584.6	478	327.2	263.8
Atyrau	21.8	9.1	21.8	9.1
Batys Kazakhstan	57.2	17.8	58.6	27.4
Zhambyl	230.9	205	232.2	206.3
Zhetisu	-	-	258.4	215.2

Continuation

	2021		2022	
	total area	total area	total area	of them arable land
Karagandy	96.5	63.6	89.7	66.3
Kostanai	32.3	6.3	29.6	9.1
Kyzylorda	254.1	192.2	265.3	187.0
Mangystau	2.3	0.8	2.3	0.8
Pavlodar	137.1	111.4	150.2	130.0
SoltustikKazakhstan	17.2	11.7	19.1	13.6
Turkistan	550.5	456.9	551.1	458.8
Ulytau	-	-	9.7	1.3
Shygys Kazakhstan	196.7	132.6	84.6	64.1
Astana city	0.3	0.1	0.3	0.1
Almaty city	2.9	1.6	2.9	1.6
Shymkent city	25.3	19.6	25.2	19.4

### 5.15 About irrigated lands and irrigation methods

thousand ha

Name	2018	2019	2020	2021	2022
Availability of irrigated land regular irrigation	2 203.1	2 224.6	2 234.2	2 243.4	2 302.7
Irrigated area	1 480.0	1 486.0	1 451.4	1 557.6	1 612.8
Including irrigation methods :					
Furrow irrigation	1 264.4	1 275.4	1 229.9	1 298.8	1 333.2
Drip irrigation	93.6	49.8	60.4	73.0	79.5
sprinkling	122.0	160.8	161.1	185.8	200.1
Land area of estuary irrigation	864.2	864.2	864.2	864.2	864.5

Note: According to the Land Management Committee of the Ministry of Agriculture of the Republic of Kazakhstan. By irrigation methods – data of regional akimats

### 5.16 About irrigated areas where water-saving technologies are used

ha

	2018		2019		2020		2021		2022	
	rain-water	drip irrigation	rain-water	drip irrigation	rain-water	drip irrigation	rain-water	drip irrigation	rain-water	drip irrigation
<b>Republic of Kazakhstan</b>	122.0	93.6	160.8	49.8	161.1	60.4	185.8	73.0	200.1	79.5
Abai	-	-	-	-	-	-	-	-	8.5	1.3
Akmola	21.0	0.1	24.1	0.1	23.9	0.2	29.4	0.1	21.8	0.1
Aktobe	4.8	0.4	5.9	0.6	5.9	0.6	20.9	0.6	20.5	0.6
Almaty	6.0	10.2	6.7	10.3	6.4	10.8	10.1	10.6	10.1	7.6
Atyrau	0.6	2.5	0.6	2.8	0.7	3.0	0.9	3.2	1.3	3.2
Batys Kazakhstan	1.4	0.6	1.5	0.6	2.6	0.9	4.3	0.9	5.3	0.7
Zhambyl	6.3	11.9	6.2	14.2	7.4	22.3	12.3	28.3	16.1	34.8
Zhetisu	-	-	-	-	-	-	-	-	5.9	2.0
Karagandy	19.3	0.2	22.6	0.2	21.9	0	22.9	0.0	26.3	0008
Kostanai	3.7	0.3	3.9	0.3	3.9	0.3	5.8	0.3	6.2	0.3
Kyzylorda	0.0	0.2	0.0	0.1	0	0.6	0.1	0.2	0.5	0.3
Mangystau	0.0	0.8	0.0	0.7	0	0.7	0.1	0.9	0.06	0.9
Pavlodar	46.3	0.5	76.3	0.6	76.3	0.6	63.4	0.7	65.5	1.0
SoltustikKazakhstan	2.6	0.2	2.5	0.2	2.0	0.2	1.6	0.3	2.4	0.2

Continuation

	2018		2019		2020		2021		2022	
	rain-water	drip irrigation	rain-water	drip irrigation	rain-water	drip irrigation	rain-water	drip irrigation	rain-water	drip irrigation
Turkistan	0.5	65.0	0.6	18.1	0.9	19.3	4.2	26.1	4.1	26.1
Ulytau	-	-	-	-	-	-	-	-	-	-
Shygys Kazakhstan	9.4	0.8	9.8	1.0	9.2	0.8	9.9	0.9	5.4	0.02
Astana city	-	-	-	-	-	-	-	-	-	-
Almaty city	-	-	-	-	-	-	-	-	-	-
Shymkent city	-	-	-	-	-	-	-	-	-	-

### 5.17 Application of organic fertilizers by all categories of farms

in terms of 100% nutrients, thousand tons

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	633.0	619.5	1 214.1	995.2	515.4
Abai	-	-	-	-	2.1
Akmola	26.4	55.4	69.3	83.4	13.5
Aktobe	53.0	54.8	54.9	12.3	14
Almaty	26.0	35.0	24.7	32.2	9
Atyrau	-	-	67.0	-	-
Batys Kazakhstan	0.5	3.6	0.4	0.4	0.5
Zhambyl	115.1	117.0	621.4	511.3	170.1
Zhetisu	-	-	-	-	28.7
Karagandy	55.5	48.9	85.3	29.6	55.7
Kostanai	166.7	64.2	58.4	67.2	65.1
Kyzylorda	-	-	0.5	-	0.0
Mangystau	29.5	51.8	2.2	1.7	0.0
Pavlodar	35.7	13.7	51.6	11.9	10.0
Soltustik Kazakhstan	96.4	71.8	66.3	41.1	35.4
Turkistan	7.9	27.5	3.3	41.6	5.2
Ulytau	-	-	-	-	7.0
Shygys Kazakhstan	19.4	75.5	108.7	162.5	99.0
Astana city	-	0.1	-	-	-
Almaty city	0.0	0.0	0.0	0.0	0.0
Shymkent city	0.8	0.4	0.1	0.0	0.0

### 5.18 Application of mineral fertilizers by all categories of farms

in terms of 100% nutrients, thousand tons

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	120.9	86.5	165.5	133.2	115.8
Abai	-	-	-	-	0.3
Akmola	12.0	9.6	71.8	24.8	16.7
Aktobe	1.0	0.3	0.3	0.7	0.7
Almaty	0.4	1.3	1.6	1.8	1.4
Atyrau	0.0	0.0	0.1	0.0	0.0
Batys Kazakhstan	0.2	0.2	0.2	0.2	0.3
Zhambyl	3.9	3.7	3.8	3.7	4.0
Zhetisu	-	-	-	-	0.5
Karagandy	1.3	1.7	3.4	5.3	5.6

	Continuation				
	2018	2019	2020	2021	2022
Kostanai	7.0	9.8	11.3	13.1	9.8
Kyzylorda	12.9	13.1	15.0	14.5	8.6
Mangystau	0.8	0.0	0.0	0.0	0.0
Pavlodar	1.3	1.7	1.7	2.5	3.9
Soltustik Kazakhstan	39.0	30.3	39.5	41.8	37.7
Turkistan	9.1	10.2	10.2	17.9	20.7
Ulytau	-	-	-	-	-
Shygys Kazakhstan	31.9	4.3	6.5	6.9	5.5
Astana city	0.0	0.0	0.0	0.0	-
Almaty city	-	-	-	-	-
Shymkent city	0.1	0.0	0.1	0.1	0.1

### 5.19 The number of mineral and organic fertilizers applied per unit area fertilized with fertilizers

	kg/ ha				
	2018	2019	2020	2021	2022
	<b>Mineral</b>				
<b>Republic of Kazakhstan</b>	51.6	32.5	54.1	35.0	34.8
Abai	-	-	-	-	19.9
Akmola	23.2	19.2	139.4	25.6	22.9
Aktobe	47.9	20.6	12.1	10.8	21.1
Almaty	27.3	47.9	52.4	51.8	71.7
Atyrau	88.5	84.3	189.2	58.3	61.7
Batys Kazakhstan	122.7	87.1	98.0	87.0	23.7
Zhambyl	129.3	129.4	129.6	284.5	271.0
Zhetisu	-	-	-	-	33.6
Karagandy	33.5	39.2	41.5	44.3	39.9
Kostanai	22.3	16.2	16.7	18.4	17.7
Kyzylorda	145.4	169.3	181.1	173.3	146.6
Mangystau	1 016.3	86.9	12.4	13.1	16.7
Pavlodar	3.1	33.7	34.8	63.1	89.6
Soltustik Kazakhstan	43.7	33.1	33.7	30.2	32.1
Turkistan	34.3	38.5	41.9	75.9	59.6
Ulytau	-	-	-	-	-
Shygys Kazakhstan	300.1	33.8	43.7	43.5	33.2
Astana city	254.3	14.5	18.5	3.9	-
Almaty city	-	-	-	-	-
Shymkent city	15.5	37.8	41.8	57.5	-
	<b>Organic</b>				
<b>Republic of Kazakhstan</b>	6 227.1	6 495.1	14 579.1	8 878.2	5 946.9
Abai	-	-	-	-	2 977.7
Akmola	533.0	1 727.7	2 131.0	2 982.9	1 110.5
Aktobe	111 534.0	7 606.8	9 711.3	1 569.5	2 179.1
Almaty	4 081.3	11 747.7	16 247.4	10 703.4	4 068.4
Atyrau	-	-	-	-	-
Batys Kazakhstan	2 615.0	4 002.6	896.4	869.2	920.3
Zhambyl	47 260.0	49 014.2	277 374.5	277 256.7	126 560.8
Zhetisu	-	-	-	-	52 010.9
Karagandy	26 091.9	24 258.4	24 894.1	12 559.0	21 720.7

Continuation

	2018	2019	2020	2021	2022
Kostanai	64 233.7	8 386.6	11 637.9	21 667.5	56 955.0
Kyzylorda	-	-	1 004.2	-	10 000.0
Mangystau	53 162.9	144 384.1	5 715.5	5 007.6	48.9
Pavlodar	4 706.5	1 894.6	66 116.5	35 162.1	2 039.1
Soltustik Kazakhstan	5 703.7	3 998.4	2 916.4	795.3	849.7
Turkistan	1 366.6	3 057.2	1 204.2	6 493.9	12 14.3
Ulytau	-	-	-	-	15 676.2
Shygys Kazakhstan	4 147.4	14 824.9	20 295.1	24 150.1	14 470.4
Astana city	-	56 666.7	-	-	-
Almaty city	33 000.0	33 000.0	-	-	9 800.0
Shymkent city	349.7	682.8	-	-	-

### 5.20 Application of pesticides\*

	2018	2019	2020	2021	2022
Agricultural area, thousand ha	22 011.2	21 539.4	22 656.24	22 925.72	21 658.3
Application of insecticides, tons	528.10	455.84	601.3	1 117.3	738.6
Application of insecticides per unit of agricultural area, kg/ha	0.02	0.02	0.03	0.05	0.15
Application of herbicides and desiccants, tons	11 050.70	11 344.07	12 866.01	15 779.4	7 093.5
Application herbicides and desiccants per unit of agricultural area, kg/ha	0.50	0.53	0.57	0.69	2.66
Application f Fungicides and bactericides, tons	1 073.50	1 269.60	1 021.6	1 325.2	868.5
Application f Fungicides and bactericides per unit of agricultural area, kg/ha	0.05	0.06	0.045	0.058	0.055
Application f Plant regulators, tons	401.70	31.51	3.13	101.7	109.8
Application f Plant regulators per unit of agricultural area, kg/ha	0.02	0.00	0.00014	0.004	0.44
Application of Rodenticides, tons	4.00	1.38	-	-	0.2
Application of Rodenticides per unit of agricultural area, kg/ha	0.00	0.00	-	-	2.0
Application of other pesticides (e.g. mineral oils), tons	0.00	0.00	-	-	-
Application of other pesticides (e.g. mineral oils) per unit of agricultural area, kg/ha	0.00	0.00	-	-	-
Total Application of pesticides, tons	13 058.0	13 102.4	14 492.04	18 323.6	8 810.6
Application of pesticides per unit of agricultural area, kg/ha	0.59	0.61	0.64	0.8	0.4

\* According to the Committee of State inspection in the agro-industrial complex of the Ministry of agriculture of the Republic of Kazakhstan.

### 5.21 Gross output of agricultural products (services) per 100 hectares of agricultural land

тыс. тенге

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	4 384.4	4 990.9	6 048.7	6 772.4	8 383.2
Abai	-	-	-	-	5 487.9

	Continuation				
	2018	2019	2020	2021	2022
Akmola	3 759.5	4 509.7	6 233.0	6 802.2	10 039.0
Aktobe	2 263.3	2 577.9	2 885.5	3 025.0	3 520.2
Almaty	9 002.2	10 697.3	11 756.2	12 790.5	18 113.0
Atyrau	2 711.9	2 746.7	3 168.3	3 856.4	4 354.3
Batys Kazakhstan	2 041.5	2 449.7	2 739.9	3 143.0	3 830.0
Zhambyl	6 013.5	7 259.5	8 560.7	10 490.2	12 751.9
Zhetisu	-	-	-	-	11 018.0
Karagandy	1 918.4	2 264.2	2 396.0	2 805.9	4 143.8
Kostanai	3 681.2	3 820.1	5 743.0	5 656.1	9 393.6
Kyzylorda	4 781.0	5 892.7	6 357.0	7 211.2	7 965.4
Mangystau	372.2	470.7	692.8	744.7	1 071.4
Pavlodar	3 917.0	3 860.9	5 172.6	6 088.5	7 087.9
Soltustik Kazakhstan	7 419.7	8 750.3	10 987.7	12 762.3	16 681.2
Turkistan	13 607.1	14 847.2	17 977.2	21 361.1	23 894.0
Ulytau	-	-	-	-	1 571.1
Shygys Kazakhstan	4 777.1	5 419.6	5 966.2	7 300.1	16 790.3

## 6. Water resources

### 6.1 The main characteristics of large rivers

Name of the largest rivers	Length, km		The total area of the basin (catchment thousand square meters km)	Volume of annual flow, cub. km	
	total length	on the territory of Republic of Kazakhstan		2022	Medium-perennial
Irtys	4 248	1 700	210 (16430)	25.9(Seminary)	27.3
Ishim	2 450	1 400	113 (155)	0.74(Petrovavlovsk)	1.87
Tobol	1 591	800	130 (395)	0.11(Kostanai)	0.27
Nura	978	978	55,1	0.80 (S. R. Koshkarbayeva)	0.92
Ural	2 428	1 082	72.5 (231)	5.34 (Kushum with channel)	9.71
Syr Darya	2 212	1 400	219 (462)	10.9 (n. b. Shardarinsky vdhr)	14.6
Chu	1 186	800	62.5 (148)	1.47(Kainar)	1.73
Talas	661	227	52.7	(total)	-
Ili	1 001	815	68.4 (131)	8.23(164 км)	14.2

### 6.2 Main characteristics of the largest lakes

Name of the lakes	Water surface area (mirrors), sq. km	Water volume, million cubic meters	Depth, m	
			average	deepest
Balkhash	18 200	106.0	5.8	26.5
Alakol	2 650	58.6	22.0	54.0
Markakol	449	6.3	14.0	25.0

### 6.3 The volume of water in the largest reservoirs

Name of reservoirs	The area of the mirror with NPU, square km	Volume of water, billion cubic meters		
		total	useful	
Bukhtarma reservoir	5 500	49.0	30.2	
Sergeev reservoir	117	0.70	0.6	
Vyacheslav reservoir	61	0.41	0.4	
Kapshagai reservoir	1 847	18.5	10.3	
Shardara reservoir	400	5.20	4.2	

### 6.4 The qualitative state of the waters of the main water bodies

	Water pollution index	Comprehensive Water Pollution Index	Comprehensive Water Pollution Index	Comprehensive Water Pollution Index
	2019	2020	2021	2022
	Water quality class	Water quality class	Water quality class	Water quality class
Irtys (EKR)	4-grade	4-grade	1 grade	1 grade
Irtys (Pavlodar)	1 grade**	1 grade	1 grade	1 grade
Ural (Atyrau)	Not rated (>5 grade)	Not rated(>5 grade)	4-grade	3 grade
Ural (WKR)	4-grade	4-grade	Not rated(>3 grade)	3 grade
Syr Darya (SKR)	4-grade	Not rated(>5 grade)	Not rated(>5 grade)	4 grade
Syr Darya (Kyzylorda)	4-grade	4-grade	4-grade	4 grade
Nura(Akmola )	4-grade	4-grade	Not rated(>5 grade)	Not rated(>5 grade)

Continuation

	Water pollution index	Comprehensive Water Pollution Index	Comprehensive Water Pollution Index	Comprehensive Water Pollution Index
	2019	2020	2021	2022
	Water quality class	Water quality class	Water quality class	Water quality class
Nura (Karagand)	4-grade	4-grade	4-grade	Not rated(>5 grade)
Ili	4-grade	1 grade	3-grade	3-grade
Ishim (NKR)	4-grade	Not rated(>3 grade)	4-grade	4-grade
Ishim (Akmola)	4-grade	Not rated(>5 grade)	Not rated(>4grade)	4-grade
Chu	Not rated(>3 grade)	Not rated(>3 grade)	Not rated(>3 grade)	3-grade
Talas	Not rated(>5 grade)	Not rated(>5 grade)	Not rated(>5 grade)	Not rated(>5 grade)
Tobol	Not rated(>5 grade)	Not rated(>5 grade)	Not rated(>5 grade)	Not rated(>5 grade)
Balkhash				
(Karagand)	Not rated(>5 grade)	*	*	*
Balkhash (Almaty)	Not rated(>5 grade)	*	*	*

Note. Since 2019, RSE "Kazhydromet" in its work to assess the water quality of water bodies of the Republic of Kazakhstan applies the normative document "unified classification of water quality of water bodies", approved by the order of the Committee on Water Resources No. 151 of 9.11.2016

## 6.5 The state of the quality of surface waters of Kazakhstan by hydrochemical indicators in 2022

Continuation

Name of the water body	Water quality class	Name of the physical and chemical substance	Unit	Physical and chemical substance content
	2022			
Bukhtarma (Shygys Kazakhstan)	2d grade	Manganese	mg/dm <sup>3</sup>	0.014
Breksa (Shygys Kazakhstan)	3d grade	Ammonium ion	mg/dm <sup>3</sup>	0.57
Tikhaya (Shygys Kazakhstan)	4th grade	Ammonium ion	mg/dm <sup>3</sup>	1.16
Ulba (Shygys Kazakhstan)	3rd grade	Cadmium	mg/dm <sup>3</sup>	0.0027
Glubochanka (Shygys Kazakhstan)	3rd grade	Magnesium	mg/dm <sup>3</sup>	27.1
Krasnoyarka (Shygys Kazakhstan)	3d grade	Cadmium Magnesium	mg/dm <sup>3</sup>	0.0017 23.3
Oba (Shygys Kazakhstan)	2d grade	Manganese	mg/dm <sup>3</sup>	0.012
Emil(Shygys Kazakhstan)	4th grade	Magnesium	mg/dm <sup>3</sup>	44.0
Ayakoz(Shygys Kazakhstan)	5th grade	Suspended substances	mg/dm <sup>3</sup>	14.3
Bukhtarma reservoir (Shygys Kazakhstan)	1th grade	Suspended substances	mg/dm <sup>3</sup>	-
Ural (Atyrau)	3rd grade	Magnesium	mg/dm <sup>3</sup>	26.6
Sharonova(Atyrau)	3rd grade	Magnesium	mg/dm <sup>3</sup>	22.6
Kigash (Atyrau)	2d grade	OHT	mg/dm <sup>3</sup>	17.3
Embi (Atyrau)	3rd grade	Suspended substances	mg/dm <sup>3</sup>	24.9
Ural (Batys Kazakhstan)	3rd grade	Suspended substances	mg/dm <sup>3</sup>	21.283
pr. Pheretaska (Atyrau region)	4th grade	Magnesium	mg/dm <sup>3</sup>	30.4
Yaik oz. (Atyrau region)	3rd grade	Magnesium	mg/dm <sup>3</sup>	29.9
Chagan (BatysKazakhstan)	3rd grade	Phosphates	mg/dm <sup>3</sup>	0.414



Continuation

Name of the water body	Water quality class	Name of the physical and chemical substance	Unit	Physical and chemical substance content
	2022			
Derkol (Batys Kazakhstan)	3rd grade	Phosphates Magnesium	mg/dm <sup>3</sup>	0.45520.983
Karaozen (Batys Kazakhstan)	3rd grade	Phosphates Magnesium	mg/dm <sup>3</sup>	0.43523.2
Saryozen (Batys Kazakhstan)	4th grade	Suspended substances Phosphates	mg/dm <sup>3</sup>	21.2
Kushum channel (Batys Kazakhstan)	4th grade	Suspended substances	mg/dm <sup>3</sup>	21.3
Ilek (Batys Kazakhstan)	3rd grade	MagnesiumPhosphates	mg/dm <sup>3</sup>	250.417
Shyngyrlau (Batys Kazakhstan)	4th grade	Suspended substances Ammonium ion	mg/dm <sup>3</sup>	22.51.252
		Ammonium ion	mg/dm <sup>3</sup>	1.252
		Magnesium	mg/dm <sup>3</sup>	36.614
Ilek (Aktobe)	4th grade	Phenols Suspended substances	mg/dm <sup>3</sup>	0.0015
		Chrom	mg/dm <sup>3</sup>	12.341
		Ammonium ion	mg/dm <sup>3</sup>	0.081
Or(Aktobe)	4th grade	Magnesium	mg/dm <sup>3</sup>	1.268
		Phenols	mg/dm <sup>3</sup>	36.538
			mg/dm <sup>3</sup>	0.0016
Yrgyz (Aktobe)	4th grade	Ammonium ion	mg/dm <sup>3</sup>	1.414
		Magnesium Phenols	mg/dm <sup>3</sup>	33.6
			mg/dm <sup>3</sup>	0.0018
			mg/dm <sup>3</sup>	1.176
Emba (Aktobe)	4th grade	Ammonium ion Phenols	mg/dm <sup>3</sup>	0.0017
		Magnesium	mg/dm <sup>3</sup>	38.923
		Ammonium ion	mg/dm <sup>3</sup>	1.275
Kargaly (Aktobe)	4th grade	Magnesium	mg/dm <sup>3</sup>	41.154
		Phenols	mg/dm <sup>3</sup>	0.0014
			mg/dm <sup>3</sup>	1.29
Koksestek (Aktobe)	4th grade	Ammonium ion	mg/dm <sup>3</sup>	34.6
		Magnesium Phenols	mg/dm <sup>3</sup>	0.0016
		Suspended substances	mg/dm <sup>3</sup>	15.466
		Ammonium ion	mg/dm <sup>3</sup>	1.228
Aktasty (Aktobe)	4th grade		mg/dm <sup>3</sup>	0.0013
		Phenols Magnesium	mg/dm <sup>3</sup>	39
		Ammonium ion	mg/dm <sup>3</sup>	1.338
Oiyl(Aktobe)	4th grade	Magnesium	mg/dm <sup>3</sup>	42.4
		Phenols	mg/dm <sup>3</sup>	0.0014
			mg/dm <sup>3</sup>	1.412
Ulken Kobda (Aktobe)	4th grade	Ammonium ion	mg/dm <sup>3</sup>	39.8
		Magnesium Phenols	mg/dm <sup>3</sup>	0.0016
		Suspended substances	mg/dm <sup>3</sup>	14
		Ammonium ion	mg/dm <sup>3</sup>	1.304
Kara Kobda (Aktobe)	4th grade	Magnesium	mg/dm <sup>3</sup>	38.60
		PhenolsSuspended substances	mg/dm <sup>3</sup>	0.0017
			mg/dm <sup>3</sup>	14.46
			mg/dm <sup>3</sup>	1.208
Temir (Aktobe)	4th grade	Ammonium ion	mg/dm <sup>3</sup>	36.362
		Magnesium Phenols	mg/dm <sup>3</sup>	0.0015
		Suspended substances	mg/dm <sup>3</sup>	14.533

Continuation				
Name of the water body	Water quality class	Name of the physical and chemical substance	Unit	Physical and chemical substance content
	2022			
Tobol (Kostanai)	is not rated (>class 5)	Chlorides	mg/dm <sup>3</sup>	832.28
		Magnesium	mg/dm <sup>3</sup>	123.643
		Mineralization	mg/dm <sup>3</sup>	2 408.947
Ayet (Kostanai)	5th grade	Suspended substances	mg/dm <sup>3</sup>	30.475
Togyzak (Kostanai)	5th grade	Nickel	mg/dm <sup>3</sup>	0.119
		Sulfates	mg/dm <sup>3</sup>	2 268.9
		Magnesium	mg/dm <sup>3</sup>	223.1
Ubagan (Kostanai)	is not rated (>class 5)	Mineralization	mg/dm <sup>3</sup>	7 182.75
		Calcium	mg/dm <sup>3</sup>	234.342
		Chlorides	mg/dm <sup>3</sup>	2 122.7
Ui (Kostanai)	4th grade	Magnesium	mg/dm <sup>3</sup>	50.867
Zhelkuar (Kostanai)	is not rated (>class 5)	Chlorides	mg/dm <sup>3</sup>	422.75
Amangeldi (Kostanai)	is not rated (>class 5)	Suspended substances	mg/dm <sup>3</sup>	35.6
High Tobol (Kostanai)	is not rated (>class 5)	Suspended substances	mg/dm <sup>3</sup>	38.9
Torgai (Kostanai)	5th grade	Nickel	mg/dm <sup>3</sup>	0.121
Karatomareservoir (Kostanay)	is not rated (>class 5)	Nickel	mg/dm <sup>3</sup>	0.156
		Suspended substances	mg/dm <sup>3</sup>	36.483
Shortandy reservoir(Kostanay)	is not rated (>class 5)	Chlorides	mg/dm <sup>3</sup>	503.533
Esil (Soltustik Kazakhstan)	4th grade	Magnesium	mg/dm <sup>3</sup>	33.5
Sergeev reservoir (Soltustik Kazakhstan)	3rd grade	Magnesium	mg/dm <sup>3</sup>	25.5
		Magnesium	mg/dm <sup>3</sup>	37.3
Esil (Akmola)	is not rated (>class 5)	Calcium	mg/dm <sup>3</sup>	225
		Chlorides	mg/dm <sup>3</sup>	470.5
Sarybulak(Astana city)	is not rated (>class 5)	Chlorides	mg/dm <sup>3</sup>	445.6
ZhAbai(Akmola)	4th grade	Magnesium	mg/dm <sup>3</sup>	38.23
Water reserv. Vyacheslavskoe (Akmolaregion)	3rd grade	Magnesium	mg/dm <sup>3</sup>	28.9
Nura-Yesil Channel(Akmolaregion)	4th grade	Magnesium Sulfates	mg/dm <sup>3</sup>	46.9
Nura River(Akmolaregion)	is not rated (>class 5)	Common iron	mg/dm <sup>3</sup>	386
		Manganese	mg/dm <sup>3</sup>	0.6
Nura (Karaganda region.)	is not rated (>class 5)	Common iron	mg/dm <sup>3</sup>	0.15
		Manganese	mg/dm <sup>3</sup>	0.31
Slety (Akmola)	4th grade	Magnesium	mg/dm <sup>3</sup>	0.124
Aksu (Akmola)	is not rated (>class 5)	Mineralization	mg/dm <sup>3</sup>	42.36
		OPK	mg/dm <sup>3</sup>	2 137
		Chlorides	mg/dm <sup>3</sup>	40.4
				774

Continuation

Name of the water body	Water quality class	Name of the physical and chemical substance	Unit	Physical and chemical substance content
	2022			
Kylshyky (Akmola)	is not rated (>class 5)	Magnesium	mg/dm <sup>3</sup>	192.6
		Mineralization	mg/dm <sup>3</sup>	4 380
		OPK Calcium	mg/dm <sup>3</sup>	36
			mg/dm <sup>3</sup>	218.5
Shagalaly (Akmola)	4th grade	Chlorides	mg/dm <sup>3</sup>	1 506
		Magnesium	mg/dm <sup>3</sup>	53.52
		Ammonium ion	mg/dm <sup>3</sup>	6.50
KaraKengir (Karaganda region)	is not rated (>class 5)	Calcium	mg/dm <sup>3</sup>	224
		Magnesium	mg/dm <sup>3</sup>	117
		Chlorides Manganese	mg/dm <sup>3</sup>	4 050.198
		Mineralization	mg/dm <sup>3</sup>	2 427
Sherubainura(Karaganda region)	is not rated (>class 5)	Common iron		0.33
		Manganese	mg/dm <sup>3</sup>	0.186
Kengirskoe (Karaganda region)	4th grade	Magnesium	mg/dm <sup>3</sup>	52.3
		Sulfates	mg/dm <sup>3</sup>	386
Samarkandskoe (Karaganda region)	3rd grade	Magnesium	mg/dm <sup>3</sup>	25.6
K. Satpayev Canal (Karaganda region)	4th grade	Magnesium	mg/dm <sup>3</sup>	30.6
Sokyr (Karaganda region)	is not rated (>class 5)	Common iron	mg/dm <sup>3</sup>	0.35
		Manganese	mg/dm <sup>3</sup>	0.185
Tekes (Almatyregion)	3rd grade	Magnesium	mg/dm <sup>3</sup>	22.356
		Magnesium	mg/dm <sup>3</sup>	
Temirlik (AlmatyRegion)	1st grade			
Turgenev (Almatyregion)	2nd grade	Total phosphorus	mg/dm <sup>3</sup>	0.109
Sharyn(Almatyregion)	3d grade	Magnesium	mg/dm <sup>3</sup>	21.567
Shilik District(Almatyregion)	1st grade			
Korgas (Almatyregion)	2nd grade	Total phosphorus	mg/dm <sup>3</sup>	0.149
Bayancol river(Almatyregion)	2nd grade		mg/dm <sup>3</sup>	0.113
		Total phosphorus OHT	mg/dm <sup>3</sup>	16.333
River Karkara (AlmatyRegion)	3rd grade	Magnesium	mg/dm <sup>3</sup>	21.975
RiverEsik(Almatyregion)	2nd grade		mg/dm <sup>3</sup>	0.14
		Total phosphorus OHT	mg/dm <sup>3</sup>	16.833
Kaskelen River (Almaty)	2nd grade	Ammonium ion	mg/dm <sup>3</sup>	0.667
Kapshagay(AlmatyRegion)	3rd grade	Magnesium	mg/dm <sup>3</sup>	21.367
		Ammonium ion	mg/dm <sup>3</sup>	0.868
River Lepsi (Almatyregion)	2nd grade	Total phosphorus	mg/dm <sup>3</sup>	0.138
River Aksu (Almatyregion)	3rd grade	Magnesium	mg/dm <sup>3</sup>	20.83
River Karatal (Almatyregion)	2nd grade	Total phosphorus	mg/dm <sup>3</sup>	0.119
River UrzhaR(East KazakhstanRegion)	2nd grade	Phosphates	mg/dm <sup>3</sup>	0.234
		Total phosphorus	mg/dm <sup>3</sup>	0.123
River Small Almatinka (Almaty.A)	2nd grade	Nitrite ions	mg/dm <sup>3</sup>	0.161
RiverYessentai (g.Almaty)	3rd grade	Ammonium ion	mg/dm <sup>3</sup>	0.596
Ray big Almatinka (Almaty.A)	2nd grade	Total phosphorus	mg/dm <sup>3</sup>	0.108
		Nitrite ions	mg/dm <sup>3</sup>	0.111
river Talas (Zhambylregion)	is not rated (>class 5)	Suspended substances	mg/dm <sup>3</sup>	51.5

Continuation

Name of the water body	Water quality class	Name of the physical and chemical substance	Unit	Physical and chemical substance content
	2022			
river Shu district (Zhambylregion)	3rd grade	Magnesium	mg/dm <sup>3</sup>	25.0
river Assa (Zhambyl)	is not rated (>class 5)	Suspended substances	mg/dm <sup>3</sup>	56.4
River Aksu (Zhambyl)	4th grade	Magnesium	mg/dm <sup>3</sup>	44.4
river Karabalta (Zhambyl)	5th grade	Sulfates	mg/dm <sup>3</sup>	654.8
River Toktash (Zhambylregion)	is not rated (>class 5)	Suspended substances	mg/dm <sup>3</sup>	100.5
River Sarykau(Zhambyl)		Magnesium	mg/dm <sup>3</sup>	53.1
	4th grade	Sulfates	mg/dm <sup>3</sup>	548.7
Water reserv.Tasotkel (Zhambyl)	is not rated (>class 5)	Suspended substances	mg/dm <sup>3</sup>	72.7
river Keles (Turkestan)	4th grade	Sulfates	mg/dm <sup>3</sup>	389.429
river Badam (Turkestan)	3rd grade	Magnesium	mg/dm <sup>3</sup>	23.7
river Arys (Turkestan region)	3rd grade	Magnesium	mg/dm <sup>3</sup>	21.1
River Katta-Bugun (Turkestan)	is not rated (>class 5)	Suspended substances	mg/dm <sup>3</sup>	32.1
Shardarinskoe (Turkestan)	4th grade	Suspended substances	mg/dm <sup>3</sup>	21.477
River Syrdarya (Turkestan)		Sulfates	mg/dm <sup>3</sup>	414.911
		Phenols	mg/dm <sup>3</sup>	0.0014
	4th grade	Magnesium	mg/dm <sup>3</sup>	36.493
		Magnesium	mg/dm <sup>3</sup>	36.493
River Syrdariya(Kyzylordaregion)	4th grade	Mineralization	mg/dm <sup>3</sup>	1 372.358
		Sulfates	mg/dm <sup>3</sup>	400.667

## 6.6 Biochemical oxygen consumption (BOD) for 5 days and the concentration of ammonium salt in river water

	2018	2019	2020	2021	2022
<b>BPK5, mg O2/l</b>					
r.Irtysh					
1. sample point - Boran	2.23	1.88	1.78	1.73	2.08
2. sample point - Ust-Kamenogorsk	1.31	1.1	1.68	1.35	1.4
3. sample point – Village Prilrtyshskoe	1.87	1.9	1.78	1.69	1.77
<b>Ammonium salt, mg/l</b>					
r.Irtysh					
1. sample point - Boran	0.012	0.06	0.06	0.04	0.012
2. sample point - Ust-Kamenogorsk	0.15	0.31	0.66	0.20	0.391
3. sample point – Village Prilrtyshskoe	0.24	0.24	0.131	0.11	0.255

## 6.7 Nutrients in fresh water

	2018	2019	2020	2021	2022
<b>Phosphates, mg/l</b>					
Irtysh city					
1. sample point - Boran	0.07	0.057	0.053	0.07	0.069
2. sample point - Ust-Kamenogorsk	0.268	0.341	0.987	0.0922	0.59
3. sample point – Village Prilrtyshskoe	0.031	0.022	0.022	0.0137	0.023

Continuation

	2018	2019	2020	2021	2022
<b>Total phosphorus content (P), mg/l</b>					
Balkhash Lake					
1. sample point – Balkhash city, 8 km A175 from the shore	0.017	0.0025	0.0015	0.006	0.015
2. sample point – Balkhash city, 20km A175 from the shore	0.025	0.002	0.0022	0.005	0.012
3. sample point – Balkhash city, 38,5 km A175 from the shore	0.024	0.003	0.0013	*	*
<b>Nitrate nitrogen, mg/l</b>					
Irtysch city					
1. sample point - Boran	0.61	0.828	0.704	0.890	0.995
2. sample point - Ust-Kamenogorsk	2.20	1.267	2.30	1.121	1.176
3. sample point – Village Prilrtyskshoe	0.35	0.302	0.24	0.28	0.089
Balkhash Lake					
1. sample point – Balkhash city, 8 km A175 from the shore	0.027	0.068	0.255	0.50	0.235
2. sample point – Balkhash city, 20km A175 from the shore	0.022	0.085	0.425	0.63	0.207
3. sample point – Balkhash city, 38,5 km A175 from the shore	0.03	0.023	0.167	*	*

### 6.8 Nutrients in coastal waters

	2018	2019	2020	2021	2022
<b>The total phosphorus content (P) - summer mg / l</b>					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0.004	0.003	0.0143	0.0233	0.008
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	0.005	0.004	0.015	0.08	0.007
Shalygi-Kulaly, station 1	-	0.003	0.016	0.07	0.005
<b>Total nitrogen content (N) - summer, mg / l</b>					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	3.16	4.333	4.3	-	-
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	4.01	4.688	4.42	-	-
Shalygi-Kulaly, station 1	-	4.822	4.47	-	-
<b>The total phosphorus content (P) - autumn, mg / l</b>					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0.004	0.006	0.06	0.013	0.006
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	0.005	0.008	0.060	0.007	0.007
Shalygi-Kulaly, station 1	-	0.006	0.075	0.0055	0.005
<b>The total nitrogen content (N) - autumn, mg / l</b>					
Caspian Sea					
Maritime shipping channel					
	4.17	5.566	4.36	-	0.001

	Continuation				
	2018	2019	2020	2021	2022
1 km below the beginning of the navigable canal, station 1	-	-	-	-	-
Caspian (Tengiz), 11th station	4.39	5.766	4.18	-	0.003
Seaside Ural River, station 4	-	5.633	4.3	-	0.008
<b>The phosphorus content (P) - spring mg / l total</b>					
Caspian Sea					
Maritime shipping channel	-	0.002	0.0023	0.009	-
1 km below the beginning of the navigable canal, station 1	-	-	-	-	-
Caspian (Tengiz), 11th station	-	0.003	0.002	0.006	-
Seaside Ural River, station 4	-	0.005	0.003	0.006	-
<b>Total nitrogen content (N) - spring mg / l</b>					
Caspian Sea					
Maritime shipping channel	-	2.1	2.9	-	-
1 km below the beginning of the navigable canal, station 1	-	-	-	-	-
Caspian (Tengiz), 11th station	-	2.9	3.1	-	-
Seaside Ural River, station 4	-	2.9	3.93	-	-

## 6.9 Renewable Freshwater Resources (annual river flow resources)\*

	cubic kilometers				
	2018	2019	2020	2021	2022
Internal flow	54.5	65.1	48.8	43.0	43.8
Inflow of surface and groundwater	56.2	42.5	38.6	33.9	38.9
Renewable freshwater resources	110.7	107.6	87.3	76.8	82.7

\* According to The State water cadastre

\*calculation of 2020 based on operational data

## 6.10 Reserves of underground water resources\*

	At the end of year million cubic meters				
	2018	2019	2020	2021	2022
Reserves of underground water resources	42.9	43.0	43.1	43.1	43.06

\* According to the Committee of Geology of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan.

## 6.11 Underground water resources reserves\*

	thousand cubic meters				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	42 938.425	43 030.893	43 076.865	43 120.557	43 062.46677
Abai	-	-	-	-	-
Akmola	480.564	505.479	497.806	511.644	517.318
Aktobe	1 890.863	1 903.644	1 915.057	1 927.815	1 931.42271
Almaty	16 705.716	16 706.606	16 732.886	16 736.504	1 6743.5631
Atyrau	258.287	262.287	266.286	266.287	266.2867
Batys Kazakhstan	333.726	334.804	335.912	336.404	336.83784
Zhambyl	4 706.660	4 727.88	4 729.65	4 707.593	4 707.5934
Zhetisu	-	-	-	-	-
Karagandy	2 950.989	2 961.141	2 971.389	2 982.876	2 887.5343

Continuation

	2018	2019	2020	2021	2022
Kostanay	1 069.655	1 073.661	1 065.624	1 478.059	1 065.95975
Kyzylorda	1 475.176	1 476.699	1 477.193	1 068.142	1 478.8333
Mangystau	398.598	398.598	398.598	395.038	401,06894
Pavlodar	3896.699	3901.907	3 901.907	3 901.907	3 904.0907
Soltustik Kazakhstan	204.263	208.973	209.257	209.727	209.72673
Turkistan	2070.030	2088.1	2 091.91	2 112.917	2 122.9725
Ulytau	-	-	-	-	-
Shygys Kazakhstan	6497.199	6481.115	6 483.39	6 485.644	6 489.2586

\* According to the Committee of Geology of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

### 6.12 Level of pressure on water resources

	2018	2019	2020**	2021**	2022**
Renewable freshwater resources (river flow resources)*, m <sup>3</sup>	110 700	107 600	87 300	76 800	82 700
Freshwater abstraction*, million m <sup>3</sup>	23 542	23 516	24 585	24 518	24 966.7
Level of pressure on water resources, %	21.3	21.9	28.2	34.9	30.2
Freshwater abstraction per capita, m <sup>3</sup>	1 288.1	1 270.2	1 307.8	1 290.4	1 271.5

\* Data of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

\*\* calculation of 2020 based on operational data.

### 6.13 The main indicators characterizing the protection and use of water resources\*

	million cubic meters				
	2018	2019	2020	2021	2022
Water intake from natural water sources - total	25 096	25 366	24585	24517	24 966.7
from him :					
from underground horizons	1 020	1 071	999	1064	1 050.9
Water loss during transportation	3 719	3 295	3 769	3670	3 409.1
Water consumption (water use) - total	20 511	20 955	20307	19999	20 443
from him :					
for production needs	5 351	5 600	5685	5752	5 806.3
The volume of the explosive and consistent use of water	9 540	9690	9789	9891	9 348.4
The share of recycled and about Borum waste water in the total volume of water used, as a percentage	46.5	38.2	48	49,4	45.7
Volume of discharge of treated water	309	319	316	333	327.5
The volume of discharge of polluted wastewater (without treatment and insufficiently treated)	...	0.05	0	0,02	0.04
of them :					
without cleaning	0.9	0.05	0	0,02	0.04

\* Hereinafter, according to the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan.

## 6.14 Water intake from natural sources

million cubic meters

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	25 096	25 366	24 585	24 517	24 966.7
Abai	-	-	-	-	154.7
Akmola	58	55	52	64.6	54.7
Aktobe	270	223	181	194.2	369.3
Almaty	3 656	3 343	3 387	3 460.3	1 862.1
Atyrau	272	288	288	275.5	298.9
Batys Kazakhstan	633	287	436	449.5	636.9
Zhambyl	1 587	1 603	1 644	1 504.2	1 558.5
Zhetisu	-	-	-	-	1 694.2
Karagandy	1 477	1 626	1 605	1 616.1	1 547.1
Kostanai	119	120	123	127.5	131.6
Kyzylorda	5 062	5 305	5 331	4 840.4	4 701
Mangystau	1 357	1 475	1 476	1 471.9	1 414.2
Pavlodar	3 273	3 045	3 199	3 395.4	3 163.7
Soltustik Kazakhstan	181	258	260	246.2	226.6
Turkistan	5 883	6 448	5 373	5 698.6	5 709.8
Ulytau	-	-	-	-	226.5
Shygys Kazakhstan	678	665	538	535.7	370.9
Astana city	104	108	122	115.9	108.2
Almaty city	248	258	263	272.0	272.5
Shymkent city	238	259	306	249	462.6

## 6.15 Water intake from natural sources per capita

thousand cubic meters per capita

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	1.4	1.4	1.3	1.3	1.3
Abai	-	-	-	-	0.3
Akmola	0.1	0.1	0.1	0.1	0.1
Aktobe	0.3	0.3	0.2	0.2	0.4
Almaty	1.8	1.6	1.6	1.7	1.2
Atyrau	0.4	0.5	0.4	0.4	0.4
Batys	1.0	0.4	0.7	0.7	0.9
Zhambyl	1.4	1.4	1.4	1.3	1.3
Zhetisu	-	-	-	-	2.4
Karagandy	1.1	1.2	1.2	1.2	1.4
Kostanai	0.1	0.1	0.1	0.1	0.2
Kyzylorda	6.4	6.6	6.6	5.9	5.7
Mangystau	2.0	2.1	2.1	2.0	1.9
Pavlodar	4.3	4.0	4.3	4.5	4.2
SoltustikKazakhstan	0.3	0.5	0.5	0.1	0.4
Turkistan	3.0	3.1	2.6	2.9	2.7
Ulytau	-	-	-	-	1.0
Shygys Kazakhstan	0.5	0.5	0.4	0.4	0.5
Astana city	0.1	0.1	0.1	0.1	0.1
Almaty city	0.1	0.1	0.1	0.2	0.1
Shymkent city	0.2	0.2	0.3	0.2	0.3



## 6.16 Household water use per capita

	million cubic meters/year				
	2018	2019	2020	2021	2022
<b>Communal water supply</b>					
Municipal water consumption in the country	516.9	536.1	573.7	609.1	635.6
Population connected to public water supply	17	17.3	17.8	18.6	18.8
Per capita water consumption per year	30.4	31.0	32.2	30.6	33.8
<b>Self sufficiency</b>					
Population not connected to municipal water supply (self-sustainment)	1.3	1.2	1.0	0.4	0.8
Estimated water consumption per capita	28.2	29.0	30.5	32	32.4
Water consumption in the communal sector in the country - self-sufficiency	36.7	34.8	30.5	12.8	25.9
<b>Total water consumption (public water supply and self-sufficiency)</b>					
Total water consumption	553.6	570.9	604.2	621.9	661.5
Total population	18.3	18.5	18.8	19	19.6
Per capita water consumption per year	30.3	30.9	32.1	32.7	33.8

## 6.17 The loss of water

	million cubic meters/year				
	2018	2019	2020	2021	2022
<b>Communal water supply</b>					
Collected water	25 096	25366	24585	24 517	24 966.7
Water delivered to end users	20 511	20 955	20307	19 999	20 443
Water loss	3 719	3 295	3769	3 670	3 409.1
<b>Loss of water during transport Percentage</b>					
Water loss	14.8	13.1	15.3	14.9	13.7

## 6.18 The loss of water during transport by region

	million cubic meters				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	3 719	3 295	3769	3 670	3 409.1
Abai	-	-	-	-	76.3
Akmola	7	7	6	6.0	69.3
Aktobe	8	21	19	7.1	51.6
Almaty	651	579	601	617.7	422.9
Atyrau	41	38	63	56.5	111.4
Batys Kazakhstan	103	55	73	75.5	128.9
Zhambyl	484	452	565	560.2	635.3
Zhetisu	-	-	-	-	312.9
Karagandy	35	25	21	21.4	75.7
Kostanai	8	8	8	7.3	67.0
Kyzylorda	933	958	931	840.7	882.6
Mangystau	1	1	1	0.6	0.6
Pavlodar	23	24	25	23.8	8.6
Soltustik Kazakhstan	3	2	3	2.7	2.3
Turkistan	1 284	1 004	1 332	1 323.4	286.3
Ulytau	-	-	-	-	46.7
Shygys Kazakhstan	75	80	56	52.2	50.2
Astana city	16	17	17	18.6	44.9
Almaty city	12	12	12	12.6	38.2
Shymkent city	35	13	38	43	97.3

\* Hereinafter, according to the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan.

## 6.19 The use of water

	million cubic meters				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	20 511	20 955	20307	19 999	20 443
Abai	-	-	-	-	145.9
Akmola	51	65	49	58.6	55.8
Aktobe	257	197	159	183.2	362.6
Almaty	3 004	2 918	2945	2 842.6	1 630
Atyrau	231	230	205	218.9	226.4
Batys Kazakhstan	530	233	363	373.9	531.9
Zhambyl	1 100	1 148	1078	942.4	990.8
Zhetisu	-	-	-	-	1 440
Karagandy	1 410	1 599	1662	1 572.9	1 551.8
Kostanai	81	79	87	87.9	92.3
Kyzylorda	4 128	4 346	4400	3 998.7	3 885.9
Mangystau	1 356	1 515	1512	1 471.3	1 450.1
Pavlodar	3 189	3 006	3099	3 224.6	3 004.4
Soltustik Kazakhstan	178	250	251	243.4	217.3
Turkistan	3 903	4 300	3 495	3 802.6	3 798.4
Ulytau	-	-	-	-	217.8
Shygys Kazakhstan	576	554	455	456.9	320.3
Astana city	88	93	105	97.3	91.1
Almaty city	237	246	251	259.4	259.4
Shymkent city	192	176	189	164	170.6

\* Here the date in are included in the Turkistan region.

## 6.20 Volume of circulating and sequential water supply

	million cubic meters				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	9 540	9 690	9 789	9 891	9 348.4
Abai	-	-	-	-	13.7
Akmola	182	163	347	145.4	113.2
Aktobe	178	178	151	152.7	115.3
Almaty	164	159	155	146.5	140.3
Atyrau	248	258	299	291.9	298.0
Batys Kazakhstan	4	4	0	-	-
Zhambyl	191	192	189	254.4	260.6
Zhetisu	-	-	-	-	0.5
Karagandy	2 554	2 534	2 535	2 267.8	1 927.1
Kostanai	443	456	152	547.7	390.0
Kyzylorda	-	-	0.001	0.11	0.1
Mangystau	1	1	1.1	1.1	-
Pavlodar	4 105	4 051	3 959	4 370.8	4 360.5
Soltustik Kazakhstan	161	232	232	204.4	226
Turkistan	181	5	2.4	249.4	2.6
Ulytau	-	-	-	-	243.6
Shygys Kazakhstan	442	510	501	497.0	426.2
Astana city	405	411	406	467.6	484.2
Almaty city	281	284	296	293.7	275.4
Shymkent city	-	252	261	**	274.8

\* Here the date in are included in the Turkistan region.

## 6.21 Use of fresh water for industrial needs

million cubic meters

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	5 351	5 600	5 685	5 752.6	5 806.3
Abai	-	-	-	-	16.3
Akmola	24	28	24	29.4	17.6
Aktobe	12	12	18	17.0	17.6
Almaty	74	67	62	54.5	20.7
Atyrau	96	96	86	89.0	89.6
Batys Kazakhstan	9	11	9	12.5	11.9
Zhambyl	30	28	29	32.1	29.2
Zhetisu	-	-	-	-	33.8
Karagandy	1 188	1 363	1 411	1 310.4	1 320.8
Kostanai	30	30	38	32.3	34.8
Kyzylorda	12	12	12	12.7	12.5
Mangystau	1 281	1 437	1 445	1 398.0	1 376.9
Pavlodar	2 142	1 970	2 020	2 205.7	2 135.1
Soltustik Kazakhstan	157	228	229	216.9	191.3
Turkistan	13	12	6	14.7	5.0
Ulytau	-	-	-	-	191
Batys Kazakhstan	181	189	201	208.9	179.9
Astana city	13	14	12	22.8	19.4
Almaty city	68	81	76	75.0	74.3
Shymkent city	21	22	9	20	28.3

## 6.22 Use of fresh water for drinking needs

million cubic meters

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	741	792	800	868	1 125.6
Abai	-	-	-	-	16.1
Akmola	17	25	15	17	33.1
Aktobe	35	36	39	36	38
Almaty	42	61	42	57	45.8
Atyrau	24	34	25	28	27
Batys Kazakhstan	21	23	23	23	22.4
Zhambyl	27	28	31	32	37.6
Zhetisu	-	-	-	-	220.5
Karagandy	81	89	90	142	87.8
Kostanai	35	33	34	37	36.4
Kyzylorda	20	22	22	23	26.7
Mangystau	34	36	37	35	36.3
Pavlodar	40	40	44	43	55.1
Soltustik Kazakhstan	16	18	18	21	20.4
Turkistan	20	24	11	47	44.1
Ulytau	-	-	-	-	24.3
Shygys Kazakhstan	67	59	60	64	60.2
Astana city	69	73	88	69	70.7
Almaty city	161	159	175	175	176.6
Shymkent city	32	32	49	19	46.4

### 6.23 Use of water for household needs per capita

	thousand cubic meters per capita					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	0.04	0.04	0.04	0.05	0.06	
Abai	-	-	-	-	0.03	
Akmola	0.02	0.03	0.02	0.02	0.04	
Aktobe	0.04	0.04	0.04	0.04	0.04	
Almaty	0.02	0.03	0.02	0.03	0.03	
Atyrau	0.04	0.05	0.04	0.04	0.04	
Batys Kazakhstan	0.03	0.04	0.03	0.03	0.03	
Zhambyl	0.02	0.02	0.03	0.03	0.03	
Zhetisu	-	-	-	-	0.32	
Karagandy	0.06	0.06	0.07	0.10	0.08	
Kostanai	0.04	0.04	0.04	0.04	0.04	
Kyzylorda	0.03	0.03	0.03	0.03	0.03	
Mangystau	0.05	0.05	0.05	0.05	0.05	
Pavlodar	0.05	0.05	0.06	0.06	0.07	
Soltustik Kazakhstan	0.03	0.03	0.03	0.04	0.04	
Turkistan	0.01	0.01	0.01	0.02	0.02	
Ulytau	-	-	-	-	0.11	
Shygys Kazakhstan	0.05	0.04	0.04	0.05	0.08	
Astana city	0.07	0.07	0.08	0.06	0.05	
Almaty city	0.09	0.08	0.09	0.09	0.08	
Shymkent city	0.03	0.03	0.05	0.02	0.04	

### 6.24 Used water for irrigation (regular and estuary)

	million cubic meters					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	9 782	10 300	9684	9 119	9 312.1	
Abai	-	-	-	-	61	
Akmola	4	7	7	6	2.4	
Aktobe	18	18	17	18	26.7	
Almaty	2 839	2 751	2817	2 705	1 551	
Atyrau	69	55	40	50	56.5	
Batys Kazakhstan	17	19	20	21	27.2	
Zhambyl	587	685	592	582	627.8	
Zhetisu	-	-	-	-	1 185.6	
Karagandy	61	73	68	38	69.7	
Kostanai	13	14	13	17	20.3	
Kyzylorda	3 106	3 314	3359	2 956	2 839.4	
Pavlodar	261	266	286	270	274	
Soltustik Kazakhstan	2	2	2	2	1.4	
Turkistan	2 490	2 815	2253	2 245	2 455.4	
Ulytau	-	-	-	-	1.9	
Shygys Kazakhstan	226	212	134	128	76.7	
Astana city	6	5	6	5	1	
Almaty city	-	1	-	1	0.6	
Shymkent city	83	63	72	66	33.3	

\* Here the data in are included in the Turkistan region.

## 6.25 The use of fresh water for irrigation, irrigation and agricultural water supply

million cubic meters

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	12 760	13 178	12361	11 742	11 546.3
Abai	-	-	-	-	113.5
Akmola	8	11	10	12	5.1
Aktobe	18	18	17	18	26.7
Almaty	2 876	2 778	2824	2 706	1 551
Atyrau	71	64	54	64	71.5
Batys Kazakhstan	17	20	22	21	28.4
Zhambyl	1 044	1 092	1018	878	923.9
Zhetisu	-	-	-	-	1 185.6
Karagandy	63	76	70	40	71.4
Kostanai	15	16	15	17	20.9
Kyzylorda	4 089	4 305	4358	3 958	3 841.5
Mangystau	-	-	0,1	0,1	0.1
Pavlodar	1 008	996	1019	941	814.1
Soltustik Kazakhstan	5	4	5	5	5.4
Turkistan	3 130	3 425	2676	2 824	2 770.1
Ulytau	-	-	-	-	2.6
Shygys Kazakhstan	327	305	194	183	79.3
Astana city	6	5	6	5	1
Almaty city	-	-	0	1	0.6
Shymkent city	83	63	72	66	33.3

## 6.26 Used water on irrigation of pastures

million cubic meters

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	94	105	102	97	103.7
Abai	-	-	-	-	7.9
Akmola	-	1	0,5	0,4	0.6
Aktobe	-	-	-	-	-
Almaty	2	1	-	-	-
Atyrau	2	10	15	14	15.0
Batys Kazakhstan	-	2	2	0,2	1.1
Zhambyl	-	-	-	-	-
Zhetisu	-	-	-	-	-
Karagandy	-	-	-	-	-
Kostanai	-	-	-	-	-
Kyzylorda	7	7	7	7	6.8
Mangystau	-	-	-	-	-
Pavlodar	11	11	15	13	13.6
Soltustik Kazakhstan	-	-	-	-	-
Turkistan	56	56	56	56	56.3
Ulytau	-	-	-	-	-
Shygys Kazakhstan	16	18	7	7	2.4
Astana city	-	-	-	-	-
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	-

## 6.27 Water use prices

	at the end of the period				
	2018	2019	2020	2021	2022
<b>Average prices and tariffs for paid services for the population, tenge / cubic meter</b>					
Hot water	240	232	234	263	260
Cold water	73	69	69	71	71
Sewerage	48	48	47	50	50
<b>Acquisition prices for certain types of products for industrial purposes by industrial enterprises</b>					
Steam and hot water (thermal energy), tenge / Gcal	6410	5600	6 039	6 128	6 636

## 6.28 Profitability (loss-making) of production of enterprises that collect, process and distribute water, as well as water disposal

	%				
	2018	2019	2020	2021	2022
Collection, treatment and distribution of water	-4.9	-6.7	-8.9	-11.9	-27.3
Wastewater collection and treatment	-1.7	2.6	3.1	-6.0	7.3

## 6.29 Polluted wastewater

	2018	2019	2020	2021	2022
Total volume of wastewater, million cubic meters	5 408	5 383	5426	5483.0	5 862.8
total amount of wastewater discharged into water bodies that has not been treated, million cubic meters	-	0.05	-	-	0,0
proportion of untreated wastewater discharged into water bodies in the total volume of wastewater, in percent	-	0.001	0	0	0,0

## 6.30 The proportion of normally treated wastewater in the total volume of wastewater (SDG 6.3.1)

	2018	2019	2020	2021	2022
The proportion of standard-treated wastewater (with after-treatment) in the total volume of wastewater in the whole country, percent	71.5	70.6	65.8	65.2	50.7
of which in urban areas, percent	72.2	72.0	67.2	66.4	51.5

## 6.31 The number and area of the open part of the glaciers of Kazakhstan as of 1955 and 2018

	1955 year		2018 year	
	number	square,km <sup>2</sup>	number	square,km <sup>2</sup>
Total in Kazakhstan:	2 750	1 768	2 480	1 014
Ile Balkhash basin				
Northern slope of the Trans-Ili Alatau	307	271	470	148

Continuation

	1955 year		2018 year	
	number	square,км <sup>2</sup>	number	square,км <sup>2</sup>
Chilik river	257	286	216	190
Basins of Charyn river	184	144	153	99
Basin of Horgos river	460	221	494	107
Basin of Karatala river	358	278	278	116
Basins of Bien,Aksu river	343	295	306	187
Leps of Tentek river,	208	88	138	50
Total along the Ile-Balkash basin	2 117	1 583	2 055	897
Irtys river basin				
Basins of the left tributaries of the river Irtys	18	15	31	12
River basin Kaba	82	11	30	4
Basins Kurchum,Bukhtyrma,Ulba,Uba	241	60	88	34
Total for the Ertis river basin:	341	86	149	50
Syrdarya river basin				
Basin river (Maydantal)	87	50	81	33
Arys river	156	35	131	21
Total by pool r.Syrdarya:	243	85	212	54
Shu and Talas river basin				
Basins of the Assa, Talas rivers	29	5	22	2
Basins of the left tributaries of the Chu river	20	9	42	11
Talas rivers Basins of the left tributaries of the Chu river:	49	14	64	13

*\*According to the data of the Central Asian Regional Glaciological Center of category 2 under the auspices of UNESCO, according to the basins of the glaciers of the USSR.*

## 7. Atmospheric air

### 7.1 Air quality in urban areas\*

	Atmospheric pollution index (API5)				
	2018	2019	2020	2021	2022
Aktau	7.0	5.0	4.0	6.0	9
Aktobe	7.0	7.0	7.0	7.0	2
Almaty	7.0	8.0	7.0	7.0	5
Astana city	7.0	7.0	7.0	7.0	9
Atyrau	8.0	7.0	7.0	7.0	1
Balkhash	7.0	7.0	7.0	7.0	2
Glubokoe village	5.0	4.0	5.0	4.0	3
Zhezkazgan	7.0	8.0	7.0	6.0	5
Karagandy	10.0	8.0	7.0	11.0	13
Kostanai	5.0	3.0	3.0	4.0	8
Kyzylorda	5.0	3.0	2.0	3.0	5
Pavlodar	5.0	5.0	3.0	3.0	3
Petropavlovsk	7.0	3.0	4.0	3.0	4
Rydder	5.0	4.0	5.0	3.0	2
Semei	5.0	5.0	5.0	2.0	5
Taraz	6.0	6.0	4.0	5.0	3
Temirtau	8.0	9.0	8.0	8.0	8
Ust-Kamenogorsk	9.0	7.0	7.0	7.0	7
Shymkent	5.0	7.0	7.0	7.0	5
Ekibastuz	7.0	3.0	2.0	1.0	2

\* Hereinafter, according to RGP "Kazhydromet" of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

### 7.2 Air quality in urban areas

	mg / m <sup>3</sup>				
	2018	2019	2020	2021	2022
<b>Karagandy city</b>					
Dust - Average Daily MPC	0.15	0.15	0.15	0.058	0.13
Dust - the average annual value of the MPC, the MPC multiplicity	0.90	0.9	0.33	0.386	0.85
Dust - Annual Average Concentration	0.14	0.135	0.05	1.0	2.00
Dust - Maximum Daily Average Concentration	3.0	0.8	0.7	2.0	4.0
Dust - the number of cases exceeding more than 1 MPC	90	52	27	21	106
<b>SO<sub>2</sub> - sulfur dioxide</b>					
Average daily MPC	0.05	0.05	0.05	0.024	0.02
Average annual value of the MPC, the rate of excess MPC	0.60	0.5	0.47	0.488	0.46
Annual concentration	0.03	0.026	0.02	0.42	1.25
Maximum daily average concentration	0.30	0.14	0.26	0.84	2.5
<b>NO<sub>2</sub> - nitrogen dioxide</b>					
Average daily MPC	0.04	0.04	0.04	0.036	0.05
Average annual value of the MPC, the rate of excess MPC	1.26	1.0	0.8	0.898	1.3
Annual concentration	0.05	0.04	0.03	0.375	1.51



	Continuation				
	2018	2019	2020	2021	2022
Maximum daily average concentration	0.30	0.313	0.19	1.873	7.5
The number of cases with excess of more than 1 MPC	11	14	-	13	4012
<b>NOx - nitrogen oxides</b>					
Average daily MPC	0.06	0.06	0.06	0.009	0.03
Average annual value of the MPC, the rate of excess MPC	0.14	0.1	0.08	0.149	0.42
Annual concentration	0.009	0.011	0.01	0.430	2.22
Maximum daily average concentration	0.31	0.289	0.67	1.075	5.6
<b>CO - carbon monoxide</b>					
Average daily MPC	3.0	3.0	3.0	0.978	1.01
Average annual value of the MPC, the rate of excess MPC	0.7	0.4	0.4	0.326	0.34
Annual concentration	1.9	1.467	1.27	16.6	16.90
Maximum daily average concentration	27.2	19.0	45.19	2.72	3.4
The number of cases with excess of more than 1 MPC	4 179	352	837	477	767

### 7.3 The concentration of ground-level ozone in cities

	mg/m <sup>3</sup>				
	2018	2019	2020	2021	2022
Astana city	-	-	-	0.053	0.09
Almaty	-	-	-	0.024	0.01
Shymkent	0.075	0.03	0.014	0.017	0.007
Kokshetau	-	-	-	-	-
Aktobe	0.061	0.0517	0.0450	-	-
Taldykorgan	-	-	-	-	-
Atyrau	0.028	0.0289	0.043	0.0273	0.0202
Oral	0.016	0.02	0.03	0.017	0.021
Taraz	0.38	0.04	0.02	0.04	0.001
Karagandy	0.015	0.04	0.03	0.03	0.04
Balkhash	0.037	0.052	0.06	-	-
Zheskazgan	0.037	0.043	0.01	-	-
Temertau	-	-	-	-	-
Kostanai	-	-	-	-	0.0292
Arkalyk	-	-	-	0.0214	0.0048
Rudnyi	-	-	-	-	-
Kyzylorda	-	-	-	0.0325	0.0537
Aktau	0.035	0.020	0.030	0.07	0,09
Pavlodar	0.022	0.0305	0.0277	0.02	0.02
Aksu	-	-	-	-	-
Ekibastuz	-	-	-	-	-
Petropavl	0.027	0.033	0.037	0.032	0.045
Ust-Kamenogorsk	0.038	0.029	0.0411	0.06	0.07
Rydder	0.039	0.042	0.0398	-	-
Semey	0.031	0.033	0.0346	-	-
Glubokoe village	0.046	0.038	0.0524	-	-

#### 7.4 The concentration of suspended particles (PM-10) in cities (average concentration)

	mg / m <sup>3</sup>				
	2018	2019	2020	2021	2022
Astana city	0.02	0.03	0.0599	0.047	0.06
Almaty	0.031	0.050	0.042	0.047	0.04
Shymkent	0.053	0.04	0.076	0.036	0.007
Kokshetau	-	0.003	0.003	0.047	0.03
Aktobe	0.0288	0.0390	0.0208	0.098	0.0006
Taldykorgan	-	0.045	0.057	0.041	0.08
Atyrau	0.022	0.0236	0.056	0.0083	0.005
Uralsk	0.01	0.01	0.02	0.010	-
Taraz	0.028	0.03	0.022	0.035	0.005
Karagandy	0.112	0.059	0.04	0.16	0.18
Balkhash	-	0.049	0.03	0.16	0.00
Zhezkazgan	-	0.018	-	0.09	0.008
Temirtau	-	0.044	0.02	0.063	0.04
Kostanai	-	0.02	0.03	0.05	0.0682
Arkalyk	-	-	-	0.0146	0.0108
Rudny	-	0.00	0.00	0.0	0.00
Kyzylorda	-	0.001	0.001	0.0142	0.0696
Aktau	-	0.110	0.105	0.10	0.11
Pavlodar	0.0066	0.0411	0.0171	0.04	0.04
Aksu	-	-	-	0.02	0.00
Ekibastuz	-	0.0782	0.00	0.02	0.03
Petropavlovsk	-	0.009	0.007	0.006	0.003
Ust-Kamenogorsk	0.040	0.050	0.0476	0.028	0.038
Ridder	-	0.040	0.0498	0.019	0.008
Semey	0.033	0.016	0.0214	0.016	0.04
Glubokoe kenti	-	0.001	0.0183	0.028	0.03

#### 7.5 The concentration of suspended particles (PM-2.5) in cities (average concentration)

	mg / m <sup>3</sup>				
	2018	2019	2020	2021	2022
Astana city	0.020	0.03	0.05	0.036	0.05
Almaty	0.015	0.030	0.034	0.036	0.03
Shymkent	0.040	0.02	0.048	0.023	0.004
Kokshetau	-	0.002	0.003	0.038	0.02
Aktobe	0.017	0.0168	0.0136	0.1257	0.0016
Taldykorgan	-	-	-	0.06	0.10
Atyrau	0.010	0.0129	0.035	0.088	0.0051
Uralsk	0.023	0.01	0.003	0.004	-
Taraz	-	-	-	0.030	0.002
Karagandy	0.110	0.056	0.04	0.152	0.18
Balkhash	-	0.048	0.03	0.06	0.00
Zhezkazgan	-	0.011	-	-	0.003
Temirtau	-	0.044	0.02	0.036	0.04
Kostanai	-	0.03	0.00	0.1	0.0682
Arkalyk	-	-	-	0.0105	0.0057
Rudny	-	-	-	-	-

	Continuation				
	2018	2019	2020	2021	2022
Kyzylorda	-	0.005	0.001	0.0013	0,0084
Aktau	-	0.055	0.013	0.01	0,006
Pavlodar	0.005	0.0072	0.0072	0.01	0,01
Aksu	-	-	-	-	-
Ekibastuz	-	-	-	-	-
Petropavlovsk	-	0.012	0.004	0.002	0,002
Ust-Kamenogorsk	-	-	-	0.025	0,029
Ridder	-	-	-	-	-
Semey	0.025	0.014	0.0169	-	-
Glubokoe kenti	-	0.001	0.0149	0.019	0,018

## 7.6 The quality of atmospheric air of cities depending on the influence of industries

	air pollution index (API)				
City/ Industries that have an impact on air pollution	2018	2019	2020	2021	2022
	<b>Aktau</b>				
chemical	7.0	5.0	4.0	6.0	9.0
	<b>Aktobe</b>				
ferrous metallurgy, chemical	7.0	7.0	7.0	7.0	2.0
	<b>Almaty</b>				
energy, automotive industry	7.0	8.0	7.0	7.0	5.0
	<b>Astana</b>				
energy, automotive industry	7.0	7.0	7.0	7.0	9.0
	<b>Atyrau</b>				
oil refining	8.0	7.0	7.0	7.0	1.0
	<b>Balkhash</b>				
non-ferrous metallurgy, energy	8.0	7.0	7.0	7.0	2.0
	<b>Zhezkazgan</b>				
non-ferrous metallurgy, energy	7.0	8.0	7.0	6.0	5.0
	<b>Karagandy</b>				
energy, coal mining, automotive industry	10.0	8.0	7.0	11.0	13.0
	<b>Kostanai</b>				
energy	5.0	3.0	3.0	4.0	8.0
	<b>Ridder</b>				
non-ferrous metallurgy, energy	5.0	4.0	5.0	3.0	2.0
	<b>Pavlodar</b>				
oil refining, energy	5.0	5.0	3.0	3.0	3.0
	<b>Petropavl</b>				
energy, instrumentation	7.0	3.0	4.0	3.0	4.0
	<b>Semey</b>				
energy, construction materials	5.0	5.0	5.0	2.0	5.0
	<b>Taraz</b>				
chemical	5.0	6.0	4.0	5.0	3.0
	<b>Temirtau</b>				
ferrous metallurgy, chemical	8.0	9.0	8.0	8.0	8.0
	<b>Uralsk</b>				
energy	5.0	2.0	2.0	2.0	2.0
	<b>Ust-Kamenogorsk</b>				
non-ferrous metallurgy, energy	9.0	7.0	7.0	7.0	7.0

Continuation

City/ Industries that have an impact on air pollution	2018	2019	2020	2021	2022
<b>Shymkent</b>					
non-ferrous metallurgy, chemical, oil refining	5.0	7.0	7.0	7.0	5.0
<b>Ekibastuz</b>					
energy, coal mining	7.0	3.0	2.0	1.0	2.0

### 7.7 Pollution of the air basin of cities of Kazakhstan in 2022

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration	
			mg / m <sup>3</sup>	frequency ratio exceeding the maximum permissible concentration	mg / m <sup>3</sup>	frequency ratio exceeding the maximum permissible concentration
Aktau	6 Increased level of pollution	Weighted	0.05	0.36	0.40	0.8
		Hydrocarbon	1.87		2.70	
		Formaldehyde	0.0034	0.3388	0.02	0.4
Aktobe	7 High level of pollution	Nitrogen dioxide	0.0271	0.6765	0.6475	3.2375
		Hydrogen sulphide	0.0008		0.1127	14.0875
		Carbon monoxide	0.482	0.1607	13.5007	2.7001
Almaty	7 High level of pollution	Weighted	0.09	0.62	0.93	1.9
		Carbon monoxide	0.79	0.26	17.06	3.4
		Nitrogen dioxide	0.06	1.5	1.05	5.2
		Formaldehyde	0.01	1.0	0.04	0.82
Astana city	7 High level of pollution	Weighted	0.18	1.2	0.60	1.2
		Carbon monoxide	0.37	0.12	16.97	3.4
		Nitrogen dioxide	0.04	0.95	1.00	5.0
		Hydrogen fluoride	0.00	0.00	0.00	0.00
Atyrau	7 High level of pollution	Weighted	0.04	0.27	0.9	1.8
		Nitrogen dioxide	0.00	0.04	0.62	3.1
		Weighted	0.12	0.79	3.60	7.2
Balkhash	7 High level of pollution	Carbon monoxide	0.23	0.08	4.00	0.8
		Sulphur dioxide	0.03	0.58	2.60	5.2
		Nitrogen dioxide	0.01	0.36	0.18	0.92
Villfage Glubokoe	3.6 Low level of pollution	Weighted	0.07	0.5	0.3	0.6
		Nitrogen dioxide	0.03	0.7	0.19	0.9
		Phenol	0.002	0.7	0.005	0.5
		Weighted	0.285	1.901	0.6	1.2
Zhezkazgan	6 Increased level of pollution	Sulphur dioxide	0.017	0.342	1.383	2.766
		Nitrogen dioxide	0.027	0.679	0.08	0.4
		Phenol	0.005	1.606	0.016	1.6
		Weighted	0.13	0.85	2.00	4.0
Karagandy	11 High level of pollution	Sulphur dioxide	0.02	0.46	1.25	2.5
		Carbon monoxide	1.01	0.34	16.90	3.4
		Nitrogen dioxide	0.05	1.3	1.51	7.5
		Phenol	0.004	1.5	0.02	2.1
Kostanai	4 Low level of pollution	Formaldehyde	0.01	1.0	0.04	0.72
		Carbon monoxide	0.7316	0.2	7.10	1.4
		Nitrogen dioxide	0.0587	1.47	0.6203	3.1

Continuation

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration	
			mg / m <sup>3</sup>	frequency ratio exceeding the maximum permissible concentration	mg / m <sup>3</sup>	frequency ratio exceeding the maximum permissible concentration
Kyzylorda	3 Low level of pollution	Sulfur dioxide	0.059	1.17	0.164	0.33
		Nitrogen dioxide	0.0389	0.97	0.1434	0.72
		Weighted	0.13	0.88	0.90	1.80
		Carbon monoxide	0.32	0.11	19.59	3.92
Pavlodar	3 Low level of pollution	Nitrogen dioxide	0.02	0.62	0.43	2.15
		Phenol	0.0005	0.16	0.01	0.60
		Hydrogen sulphide	0.001		0.02	208
		Hydrogen chloride	0.06	0.60	0.27	1.35
Petropavlovsk	3 Low level of pollution	Nitrogen dioxide	0.018	0.5	0.534	2.7
		Carbon monoxide	0.464	0.2	7.182	1.4
		Formaldehyde	0.005	0.5	0.106	2.1
		Carbon monoxide	0.9	0.3	6.9	1.4
Ridder	2.5 Low level of pollution	Sulphur dioxide	0.039	0.8	2.485	5.0
		Nitrogen dioxide	0.03	0.8	0.19	1.0
		Phenol	0.002	0.5	0.005	0.5
		Formaldehyde	0.003	0.3	0.01	0.2
Semey	2.4 Low level of pollution	Weighted	0.025	0.7	0.62	3.9
		Carbon monoxide	0.6	0.2	17.2	3.4
		Nitrogen dioxide	0.10	2.4	1.30	6.5
		Sulphur dioxide	0.02	0.4	2.2	4.4
Taraz	5 Increased level of pollution	Weighted	0.12	0.78	0.3	0.60
		Carbon monoxide	1.1	0.36	17.2	3.45
		Nitrogen dioxide	0.05	1.22	0.21	1.05
		Hydrogen fluoride	0.002	0.34	0.016	0.80
Temirtau	8 High level of pollution	Formaldehyde	0.006	0.64	0.052	1.04
		Weighted	0.23	1.5	0.50	1.0
		Carbon monoxide	0.27	0.09	14.68	2.9
		Nitrogen dioxide	0.03	0.74	0.44	2.2
Ust-Kamenogorsk	6.6 High level of pollution	Hydrogen sulphide	0.002		0.04	5.5
		Phenol	0.01	2.6	0.04	4.0
		Ammonia	0.04	0.97	0.19	0.95
		Weighted	0.045	0.3	0.3	0.6
Shymkent	7 High level of pollution	Sulphur dioxide	0.035	0.7	4.37	8.7
		Carbon monoxide	0.8	0.3	21.4	4.3
		Nitrogen dioxide	0.06	1.5	1.94	9.7
		Phenol	0.002	0.7	0.009	0.9
Ekibastuz	1 Low level of pollution	Chlorine	0.01	0.2	0.06	0.6
		Formaldehyde	0.002	0.2	0.009	0.2
		Weighted	0.126	0.84	0.4	0.8
		Carbon monoxide	1.198	0.399	16.731	3.35
Shymkent	7 High level of pollution	Nitrogen dioxide	0.046	1.138	0.12	0.6
		Formaldehyde	0.017	1.693	0.036	0.72
		Nitrogen dioxide	0.02	0.41	0.32	1.61

## 7.8 Atmospheric precipitation

	mm				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>					
Average long - term annual precipitation for the period 1961-1990 .			317.7		
Annual precipitation	323.2	297.4	270.7	271.5	311.2
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990,, as a percentage	1.7	-6.4	-14.8	-14.5	-2.0
Largest monthly amount of precipitation	44.4	38.1	34.2	44.3	51.2
Smallest monthly amount of precipitation	10.6	18.1	10.2	12.9	102
<b>Capital: Astana</b>					
Average long - term annual precipitation for the period 1961-1990 .			318.7		
Annual precipitation	429.3	331.9	460.6	332.3	268.5
<b>Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990,, as a percentage</b>	34.7	4.1	44.5	4.3	-15.8
Largest monthly amount of precipitation	73.6	63.7	96.3	52.6	47.0
Smallest monthly amount of precipitation	7.8	10.4	7.3	4.3	7.1
<b>Second largest city: Almaty</b>					
Average long - term annual precipitation for the period 1961-1990 .			661.6		
Annual precipitation	620.8	660.1	510.0	488.0	640.3
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990,, as a percentage	-6.2	-0.2	-22.9	-26.2	-3.2
Largest monthly amount of precipitation	119.2	167.3	138.8	111.6	165.7
Smallest monthly amount of precipitation	17.4	21.6	8.7	1.6	2.8
<b>Terrain (region) with the largest long-term average amount of precipitation for the period 1961 - 1990:</b>					
<b>Southern region, Almaty region, Mynzhilki station (3017 m above sea level)</b>					
Average long - term annual precipitation for the period 1961-1990 .			874.4		
Annual precipitation	1 023.5	827.8	671.7	722.0	853.5
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990,, as a percentage	17.1	-5.3	-23.2	-17.4	-2.4
Largest monthly amount of precipitation	184.7	207.1	134.2	125.5	163.9
Smallest monthly amount of precipitation	16.6	15.6	1.8	6.5	8.2
<b>Terrain (region) with the lowest long-term average amount of precipitation for the period 1961 - 1990:</b>					
<b>Southern region, Kyzylorda region, Ciric-Rabat station (88 m above sea level)</b>					
Average long - term annual precipitation for the period 1961-1990 .			118.6		
Annual precipitation	60.9	83.6	66.4	59.4	72.2
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990,, as a percentage	-48.7	-29.5	-44.0	-49.9	-39.1
Largest monthly amount of precipitation	20.9	23.4	20.0	22.3	15.0
Smallest monthly amount of precipitation	0	0.6	0	0	0

## 7.9 Annual precipitation in % of the norm for the period 1961-1990 by region

in percentage

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	101.7	93.6	85.2	85.5	98.0
Abai	-	-	-	-	83.6
Akmola	133.9	116.4	103.5	88.0	106.0
Aktobe	62.8	73.0	81.0	86.1	111.2
Almaty	109.5	99.0	72.3	80.0	102.8
Atyrau	57.5	130.2	64.0	71.1	114.9
Batys Kazakhstan	81.9	81.4	73.3	101.2	122.3
Zhambyl	80.4	82.0	66.4	80.0	111.4
Zhetisu	-	-	-	-	103.1
Karagandy	110.6	96.4	91.8	84.6	78.0
Kostanai	89.6	86.6	107.1	70.6	87.3
Kyzylorda	78.2	102.0	86.3	64.1	77.7
Mangystau	59.8	56.8	64.5	29.9	108.3
Pavlodar	134.9	91.0	104.2	105.2	78.7
Soltustik Kazakhstan	130.2	101.7	93.2	84.5	87.3
Turkistan	92.8	86.9	84.0	77.4	111.6
Ulytau	-	-	-	-	86.5
Shygys Kazakhstan	106.4	104.8	90.4	92.0	80.6
Astana city	134.7	104.1	144.5	104.3	84.2
Almaty city	93.8	99.8	77.1	73.8	96.8
Shymkent city	86.1	86.6	93.1	83.8	129.5

## 7.10 Monthly precipitation in 2022

mm

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Aktau	6.4	6.3	27.6	0	52.8	0	61.5	0.9	13.9	32.1	21.3	8.1
Aktobe	45.1	38.4	21.3	18.3	93.9	36.7	77	5.8	25.7	19	53.5	20.4
Almaty	25	19.1	31.3	7.1	9.9	18.4	33	26.1	15.2	17.1	47	19.3
Atyrau	15.8	32.3	165.7	44.8	142.4	35.7	13.1	8.6	2.8	41.8	125.2	12.1
Astana city	24.2	17.8	29.0	11.0	47.8	8.9	18.6	1.2	8.0	10.9	13.2	3.1
Zhambyl	24.5	6.8	130.1	27	54.9	16.1	0	1	0	33.8	45.9	18.8
Karagandy	12.2	18.6	53.1	11.4	22.5	15	32.2	4.4	5.5	32.3	43.5	15.8
Kokshetau	8.1	13	9.8	96	16.8	68.7	120.1	21.5	35	38.8	32.1	11.0
Kostanai	22.8	15.6	13.6	5.8	53.4	21.1	81.2	15	8.3	48.3	40.2	11.6
Kyzylorda	18.4	5.9	6.4	12.4	4.3	0	2.3	0.5	0	5.3	25.5	7.8
Uralsk	30.8	9.8	59.6	21.8	38.9	5.4	14.8	1	31.7	26.1	53.4	17.6
Ust-												
Kamenogorsk	32.3	12.1	57.8	16.9	14.7	57.2	30.1	36.2	5.9	31.1	73.5	44.3
Pavlodar	18.9	11.9	20.3	3.9	9.9	16.1	49	10.8	36	10.2	28.7	27.6
Petropavlovsk	25.1	7.9	12.1	13.1	24.2	38.1	55.6	23.3	40.8	11.1	48.2	12.5
Taldykorgan	12.3	20.6	106.7	17.3	40.2	17.7	21	8.9	5.2	29.3	89.8	31.1
Shymkent	107.9	65.4	231.2	12.9	67.4	10.9	0.6	4.5	0	64.7	126.9	44.5

### 7.11 Annual precipitation per year by region

	mm					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	323	297	271	272	311	
Abai	-	-	-	-	240	
Akmola	435	378	337	286	345	
Aktobe	165	192	214	227	293	
Almaty	527	476	348	385	494	
Atyrau	86	196	96	107	173	
Batys Kazakhstan	230	229	206	285	344	
Zhambyl	245	250	202	244	339	
Zhetisu	-	-	-	-	396	
Karagandy	282	245	234	215	199	
Kostanai	260	251	310	205	253	
Kyzylorda	111	144	122	91	110	
Mangystau	85	81	92	43	155	
Pavlodar	395	266	305	308	230	
Soltustik Kazakhstan	459	358	328	298	308	
Turkistan	405	379	366	338	487	
Ulytau	-	-	-	-	187	
Shygys Kazakhstan	419	413	356	363	318	
Astana city	429	332	461	332	269	
Almaty city	621	660	510	488	640	
Shymkent city	490	493	530	477	737	

### 7.12 Snow cover height by region

	cm					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	16	20	24	30	23	
Abai	-	-	-	-	23	
Akmola	19	25	55	52	53	
Aktobe	17	17	24	32	32	
Almaty	22	29	24	38	26	
Atyrau	4	3	4	11	7	
Batys Kazakhstan	21	33	17	31	27	
Zhambyl	14	10	12	24	8	
Zhetisu	-	-	-	-	19	
Karagandy	24	28	34	33	23	
Kostanai	20	27	38	38	38	
Kyzylorda	9	7	7	10	6	
Mangystau	1	2	1	2	2	
Pavlodar	20	26	28	36	26	
Soltustik Kazakhstan	19	32	29	48	36	
Turkistan	8	9	15	22	14	
Ulytau	-	-	-	-	15	
Shygys Kazakhstan	19	32	43	42	43	
Astana city	18	31	33	46	44	
Almaty city	16	13	21	21	14	
Shymkent city	12	11	13	22	12	



## 7.13 Air temperature

°C

	2018	2018	2020	2021	2022
<b>Republic of Kazakhstan</b>					
Average long-term annual temperature for the period 1961-1990.			5.4		
Average annual temperature	5.5	6.9	7.4	7.0	7.2
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	0.04	1.5	1.9	1.6	1.8
Highest average monthly temperature	23.7	24.2	23.8	24.2	23.4
Lowest monthly average temperature	-15.8	-10.1	-12.7	-12.9	-11.9
<b>Capital: Astana</b>					
Average long-term annual temperature for the period 1961-1990.			2.7		
Average annual temperature	2.5	4.9	5.6	4.3	5.0
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	-0.2	2.2	2.9	1.6	2.3
Highest average monthly temperature	21.4	23.3	22.1	21.7	21.9
Lowest monthly average temperature	-19.1	-13.0	-15.7	-16.0	-15.3
<b>Second largest city: Almaty</b>					
Average long-term annual temperature for the period 1961-1990.			9.1		
Average annual temperature	10.2	11.6	10.7	11.5	12.0
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	1.1	2.5	1.6	2.4	2.9
Highest average monthly temperature	25.2	27.2	24.3	27.2	26.4
Lowest monthly average temperature	-10.4	-1.9	-6.3	-5.7	-4.5
<b>Terrain (region) with the highest long-term average temperature of 1961 - 1990: Southern region, South Kazakhstan region, Shardara station (271m above sea level)</b>					
Average long-term annual temperature for the period 1961-1990.			13.6		
Average annual temperature	14.5	15.7	14.5	15.5	15.2
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	0.9	2.1	0.9	1.9	1.6
Highest average monthly temperature	30.7	31.3	29.4	30.8	30.4
Lowest monthly average temperature	-0.9	3.6	-2.3	-0.4	-8.0
<b>Terrain (region) with the lowest long-term average temperature of 1961 - 1990: Southern region, Almaty region, Mynzhilki station (3017m above sea level)</b>					
Average long-term annual temperature for the period 1961-1990.			-1.8		
Average annual temperature	-1.0	-0.7	-1.0	-0.5	-0.3
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	0.8	1.1	0.8	1.3	1.5
Highest average monthly temperature	8.8	10.7	8.1	10.3	9.6
Lowest monthly average temperature	-12.1	-10.3	-11.1	-9.5	-10.9

### 7.14 Average annual air temperature (average by region)

	2018	2019	2020	2021	2022	°C
<b>Republic of Kazakhstan</b>	6.2	7.6	7.4	7.0	7.2	
Abai	-	-	-	-	5.4	
Akmola	1.1	2.9	4.5	3.1	3.3	
Aktobe	5.5	6.9	7.5	7.4	6.9	
Almaty	6.8	8.1	7.7	8.2	8.8	
Atyrau	10.0	10.9	11.4	11.7	11.4	
Batys Kazakhstan	7.0	7.9	8.9	8.9	8.5	
Zhambyl	9.3	11.4	10.6	11.2	12.0	
Zhetisu	-	-	-	-	8.5	
Karagandy	2.9	4.9	5.1	5.0	5.0	
Kostanai	2.3	4.0	5.5	4.6	4.2	
Kyzylorda	10.2	11.9	11.0	11.6	11.7	
Mangystau	13.3	13.5	13.6	13.8	14.0	
Pavlodar	1.6	3.5	5.4	3.3	3.6	
Soltustik Kazakhstan	1.1	2.9	5.0	2.8	3.2	
Turkistan	12.6	13.4	12.3	13.6	13.7	
Ulytau	-	-	-	-	6.5	
Shygys Kazakhstan	3.2	4.7	5.2	4.4	4.5	
Astana city	2.5	4.9	5.6	4.3	5.0	
Almaty city	10.2	11.6	10.7	11.5	12.0	
Shymkent city	13.6	14.2	13.1	14.6	14.5	

### 7.15 Deviation of the average annual air temperature from the average long-term value for the period 1961 - 1990, (on average by regions)

	2018	2019	2020	2021	2022	°C
<b>Republic of Kazakhstan</b>	-0.1	1.3	1.1	1.6	1.8	
Abai	-	-	-	-	1.8	
Akmola	-0.9	0.9	2.5	1.0	1.3	
Aktobe	0.1	1.5	2.1	2.1	1.6	
Almaty	0.0	1.3	0.9	1.5	2.0	
Atyrau	0.7	1.6	2.1	2.6	2.3	
Batys Kazakhstan	0.4	1.3	2.3	2.5	2.1	
Zhambyl	-0.3	1.8	1.0	1.6	2.3	
Zhetisu	-	-	-	-	1.9	
Karagandy	-1.1	0.9	1.1	1.2	1.5	
Kostanai	-0.6	1.1	2.6	1.6	1.3	
Kyzylorda	0.3	2.0	1.1	2.3	2.4	
Mangystau	1.4	1.6	1.7	2.0	2.2	
Pavlodar	-1.1	0.8	2.7	0.9	1.2	
Soltustik Kazakhstan	-0.9	0.9	3.0	1.0	1.3	
Turkistan	0.8	1.6	0.5	1.9	2.0	
Ulytau	-	-	-	-	2.1	
Shygys Kazakhstan	-0.3	1.2	1.7	1.2	1.8	
Astana city	-0.4	2.0	2.7	1.6	2.3	
Almaty city	0.8	2.2	1.3	2.4	2.9	
Shymkent city	1.0	1.6	0.5	2.1	2.0	

## 7.16 Average monthly air temperature by city in 2022

°C

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Aktau	2.2	4.9	4.5	15.0	17.0	26.3	26.0	27.9	21.8	15.0	7.3	-1.5
Aktobe	-10.0	-5.9	-6.8	10.9	13.2	20.3	22.9	23.3	15.7	6.5	-2.3	-11.7
Almaty	-0.1	-1.1	5.6	16.7	19.0	24.3	26.4	22.6	21.1	11.1	3.0	-4.5
Atyrau	-3.2	1.6	1.4	15.6	16.7	25.9	26.9	28.8	20.8	11.2	2.7	-5.8
Astana	-11.3	-9.1	-7.2	9.8	16.5	20.4	21.9	18.3	15.5	6.1	-6.0	-15.3
Zhambyl	1.5	1.5	5.7	17.1	19.1	25.2	26.7	22.9	19.9	10.9	5.0	-5.2
Karagandy	-10.2	-9.5	-6.1	9.5	15.8	20.4	20.3	17.2	13.9	5.0	-6.0	-14.1
Kokshetau	-13.0	-11.0	-9.1	8.3	15.8	19.3	21.3	17.2	14.5	4.7	-7.8	-14.2
Kostanai	-14.0	-9.3	-9.2	9.8	13.7	18.6	21.6	20.1	14.4	4.6	-7.7	-14.7
Kyzylorda	-2.1	-0.1	4.5	18.3	22.6	29.4	29.3	26.2	21.4	10.7	3.0	-8.3
Uralsk	-8.8	-4.2	-5.0	11.6	12.4	21.1	23.2	24.2	15.6	8.1	0.0	-7.8
Ust-Kamenogorsk	-10.7	-10.9	-3.7	8.9	18.0	20.3	21.2	17.6	14.6	6.3	-4.8	-15.8
Pavlodar	-14.8	-12.8	-7.3	8.3	17.3	20.4	22.0	17.4	13.6	5.3	-7.6	-17.7
Petropavlovsk	-14.5	-11.5	-9.2	8.1	14.5	18.1	20.6	18.1	12.5	4.7	-8.0	-15.1
Taldykorgan	-3.0	-4.7	4.4	13.8	19.0	23.5	24.4	20.5	17.4	8.1	0.6	-11.2
Shymkent	2.8	3.9	6.7	18.3	20.2	26.0	28.6	25.4	23.3	13.4	6.7	-1.9

## 7.17 Average annual wind speed (average by region)

m/s

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	3.0	3.0	3.2	3.1	2.7
Abai	-	-	-	-	2.2
Akmola	3.3	3.2	3.8	3.5	3.8
Aktobe	3.2	3.3	3.3	3.4	3.2
Almaty	1.8	1.7	1.7	1.7	1.9
Atyrau	3.6	3.6	3.9	4.2	3.9
Batys Kazakhstan	2.9	3.0	3.2	3.2	3.1
Zhambyl	2.1	2.0	2.2	2.2	2.0
Zhetisu	-	-	-	-	1.9
Karagandy	2.8	2.7	2.9	3.1	3.1
Kostanai	3.7	4.0	3.7	3.7	3.7
Kyzylorda	3.1	2.8	3.5	2.7	3.1
Mangystau	4.3	4.2	4.6	4.8	4.3
Pavlodar	3.2	2.9	3.3	3.3	3.2
Soltustik Kazakhstan	3.5	3.5	3.9	3.7	3.9
Turkistan	2.1	2.0	2	2.1	2.1
Ulytau	-	-	-	-	3.4
Shygys Kazakhstan	2.5	2.4	2.5	2.6	2.3
Astana city	2.2	1.8	1.9	1.8	1.6
Almaty city	0.3	0.4	0.4	0.6	0.6
Shymkent city	1.4	1.3	1.5	1.8	1.6

## 7.18 Average annual air humidity (average by region)

In percentage

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	63	63	61	60	62
Abai	-	-	-	-	62

	Continuation				
	2018	2019	2020	2021	2022
Akmola	72	70	68	66	66
Aktobe	60	61	61	59	64
Almaty	61	61	60	57	61
Atyrau	61	63	59	62	62
Batys Kazakhstan	62	63	61	62	67
Zhambyl	58	57	54	54	59
Zhetisu	-	-	-	-	59
Karagandy	65	63	63	61	61
Kostanai	68	66	67	63	65
Kyzylorda	52	53	52	50	53
Mangystau	61	66	58	62	60
Pavlodar	70	66	66	66	65
Soltustik Kazakhstan	72	71	71	68	68
Turkistan	54	57	55	52	57
Ulytau	-	-	-	-	60
Shygys Kazakhstan	65	65	64	63	62
Astana city	68	65	64	63	64
Almaty city	60	61	58	55	59
Shymkent city	54	56	56	51	57

### 7.19 Average annual atmospheric pressure (average by region)

	gPa				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	982	981	983	982	972
Abai	-	-	-	-	966
Akmola	979	978	981	979	977
Aktobe	996	992	995	993	993
Almaty	913	913	911	911	882
Atyrau	1022	1021	1022	1 020	1018
Batys Kazakhstan	1016	1014	1015	1 014	1013
Zhambyl	937	941	948	947	951
Zhetisu	-	-	-	-	939
Karagandy	951	953	954	954	952
Kostanai	996	994	996	997	994
Kyzylorda	1006	1004	1007	1 006	1006
Mangystau	1021	1020	1021	1 020	1013
Pavlodar	997	997	997	997	1001
Soltustik Kazakhstan	999	997	997	998	998
Turkistan	951	951	951	951	963
Ulytau	-	-	-	-	968
Shygys Kazakhstan	961	961	962	962	958
Astana city	978	977	978	978	977
Almaty city	921	920	921	921	920
Shymkent city	946	946	947	946	946

## 7.20 Average annual total solar radiation (average by region)

	kcal / cm <sup>2</sup>				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	106.650	152.349	211.68	271.208	269.749
Abai	-	-	-	-	-
Akmola	103.996	132.058	117.483	178.102	279.344
Aktobe	83.080	130.553	156.382	149.980	109.546
Almaty	124.720	155.441	141.033	278.486	218.502
Atyrau	-	-	-	-	-
Batys Kazakhstan	103.040	134.112	12.981	131.284	209.504
Zhambyl	140.030	102.489	119.468	113.780	98.435
Zhetisu	-	-	-	-	161.805
Karagandy	123.420	197.727	171.133	249.375	225.879
Kostanai	-	-	-	171.843	97.030
Kyzylorda	134.420	224.826	236.259	208.863	185.847
Mangystau	117.760	129.382	164.870	163.986	236.631
Pavlodar	92.170	126.636	147.465	139.699	92.404
Soltustik Kazakhstan	113.770	142.018	77.940	121.359	97.979
Turkistan	148.880	155.202	-	147.824	113.819
Ulytau	-	-	-	-	-
Shygys Kazakhstan	185.850	197.741	225.787	229.837	300.987
Astana city	125.710	129.192	125.421	125.067	81.833
Almaty city	109.530	222.604	227.269	175.870	80.505
Shymkent city	124.470	124.654	126.043	126.741	102.699

## 7.21 Greenhouse gas emissions\*

	2017	2018	2019	2020	2021
Carbon monoxide, million tons/year	318.2	327.7	289.5	263.5	257.7
Nitrous oxide (N <sub>2</sub> O), MMT/year	18.4	18.9	19.2	20.1	20.4
Methane (CH <sub>4</sub> ), mln.t / year	53.1	55.6	56.1	56.0	60.0
HFC (specify in the note), 1000t / year	1 968.39	2 119.50	2 258.36	2 529.75	2 706.49
PFC (specify in the note), 1000t / year	84.06	127.78	12.67	10.75	9.65
Sulfur hexafluoride (SF <sub>6</sub> ), 1000 tons / year	2.10	2.15	2.32	2.31	2.37
Cumulative emissions (in CO <sub>2</sub> equivalent), mln.t / year	391.9	404.5	367.1	342.1	340.8
GHG absorption trends in land use, land use change and forestry (LULUCF)	25.21	20.67	14.37	8.13	2.71
Sum of cumulative GHG emissions minus LULUCF (in CO <sub>2</sub> equivalent), mln.t / year	366.7	383.8	352.7	334.0	338.1
Energy (total), million tons / year	299.7	316.2	282.4	259.5	261.9
of them:					
combustion in stationary sources	236.33	249.84	218.05	205.35	196.28
combustion in mobile sources	24.62	26.43	26.90	19.34	25.17
non-combustion emissions	38.75	39.89	37.43	34.81	40.48
Industrial processes and use of products, mln.t / year	25.56	24.54	25.79	27.03	27.08
Agriculture, mln.t / year	36.23	37.86	39.10	41.42	42.85
Land use and forestry, mln.t / year	25.21	20.67	14.37	8.13	2.71
Waste, mln.t / year	5.17	5.28	5.42	6.02	6.26

Continuation

	2017	2018	2019	2020	2021
The population of the country, mln man	18.0	18.3	18.5	18.8	19.0
Total greenhouse gas emissions per capita, t CO <sub>2</sub> - eq / per capita	21.8	22.1	19.8	18.2	17.9
Area of the country, 1000 km <sup>2</sup>	2 725	2 725	2 725	2 725	2 725
Cumulative greenhouse gas emissions per country area, 1000 tons of CO <sub>2</sub> - eq / km <sup>2</sup>	0.14	0.15	0.13	0.13	0.13
GDP at constant prices in 2017 (PPP), billion dollars	448.5	466.7	487.9	475.6	496.1
Cumulative greenhouse gas emissions per unit of GDP, t CO <sub>2</sub> - eq / 1000 dollars	0.87	0.87	0.75	0.72	0.69

\* According of Zhasyl Damu JSC under the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

## 7.22 Greenhouse gas emissions from all types of transport\*

million tons of CO<sub>2</sub> per year equivalent

	2017	2018	2019	2020	2021
From road transport	20.75	21.88	22.37	16.12	21.36
From off-road transport	2.92	2.98	3.19	2.0	0.66
From railway transport	1.68	1.61	1.60	1.12	1.19
From water transport	0.01	0.01	0.01	0.01	0.00
From pipeline transport	0.75	1.38	1.25	1.23	1.76
From air transport	0.99	1.08	1.19	0.11	0.19

\* According to the data of Zhasyl Damu JSC under the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

## 7.23 Trading of quotas for greenhouse gas emissions in the Republic of Kazakhstan\*

National plan for allocation of quotas for greenhouse gas emissions	2018-2020	2020	2021	2022
The bidding period, year	2019	2020	2021	2022
Number of transactions, units	3	6	39	46
Volume of transactions, tons of CO <sub>2</sub>	1 202 209	1 591 000	4 560 397	2 500 559
Volume of transactions, tenge	519 104 500	810 920 000	2 281 191 800	1 347 948 489
Average price per 1 ton of CO <sub>2</sub> , tenge	431.79	510	500.2	539

\* Data of Zhasyl Damu JSC» under the Ministry of ecology, Geology and natural resources of the Republic of Kazakhstan. There was no trading in the 2013 pilot year.

## 7.24 Consumption of ozone-depleting substances

tonn ODP

substances	2018		2019		2020		2021		2022	
	production volume	import of ODS	production volume	import of ODS	production volume	import of ODS	production volume	import of ODS	production volume	import of ODS
CFC	-	0	-	0	-	0	-	0	-	-
Halons	-	0	-	0	-	0	-	0	-	-

Continuation

substances	2018		2019		2020		2021		2022	
	pro- duc- tion volume	import of ODS	pro- duc- tion volume	import of ODS	pro- duc- tion volume	import of ODS	pro- duc- tion volume	import of ODS	pro- duc- tion volume	import of ODS
Other fully halogenated CFCs	-	0	-	0	-	0	-	0	-	-
Carbon tetrachloride	-	0	-	0	-	0	-	0	-	-
Methyl chloroform	-	0	-	0	-	0	-	0	-	-
HCFCs	-	7,15	-	5	-	0,67	-	0,23	-	-
HBFCs	-	0	-	0	-	0	-	0	-	-
Bromochloromethane	-	0	-	0	-	0	-	0	-	-
Methyl bromide	-	0	-	0	-	0	-	0	-	-
Total	-	7,15	-	5	-	0,67	-	0,023	-	-

\*According to the Ministry of Ecology of geology and natural resources of the Republic of Kazakhstan.

## 7.25 Emissions and capture of air polluting substances from stationary sources

	Amount of pollutants from all stationary sources of pollution, thousand tons	Pollutants released to the atmosphere during the reporting period, th. tonnes	Contaminated and neutralized pollutants	
			thousand tons	as a percentage of total waste pollutants from stationary sources
2018	34 819.1	2 446.7	32 372.3	93.0
2019	36 250.9	2 483.1	33 767.8	93.2
2020	35 445.9	2 441.0	33 004.8	93.1
2021	34 293.5	2 407.5	31 886.0	93.0
2022	33 440.6	2 314.8	31 244.2	93.4

## 7.26 Emissions of air pollutants from stationary sources

	thousand tons				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	2 446.7	2 483.1	2 441.0	2 407.5	2 314.8
Abai	41.5	40.2	40.7	40.9	39.0
Akmola	84.5	76.7	77.2	77.3	69.5
Aktobe	158.1	136.6	135.1	137.4	136.5
Almaty	31.6	29.1	26.3	30.3	28.8
Atyrau	172.3	164.5	153.9	160.3	132.1
Batys Kazakhstan	48.2	41.2	30.7	26.0	25.8
Zhambyl	52.0	55.8	55.0	55.8	52.9
Zhetisu	18.6	19.1	20.0	17.7	13.1
Karagandy	510.5	522.9	519.0	488.0	469.0
Kostanai	124.0	130.5	123.4	137.9	121.4
Kyzylorda	26.0	24.4	28.3	29.2	23.4
Mangystau	65.5	64.5	72.4	75.2	78.7
Pavlodar	709.2	721.5	723.0	736.2	724.2
Soltustik Kazakhstan	75.5	74.7	76.0	61.2	52.6
Turkistan	30.0	33.5	28.2	29.0	25.2
Ulytau	77.0	118.3	108.7	81.7	105.1
Shygys Kazakhstan	89.2	88.5	86.5	87.2	83.3
Astana city	56.4	65.1	62.4	62.2	57.7
Almaty city	43.0	46.1	44.5	40.8	41.4
Shymkent city	33.4	29.8	29.5	33.2	35.0

## 7.27 Atmospheric pollutants emissions from stationary sources, per capita

	kg					
	2018	2019	2020	2021	2022	
<b>Republic of Kazakhstan</b>	134	134	130	127	118	
Abai	-	-	-	-	64	
Akmola	114	104	105	105	88	
Aktobe	183	156	152	153	148	
Almaty	25	23	22	22	19	
Atyrau	275	257	236	242	192	
Batys Kazakhstan	74	63	47	39	38	
Zhambyl	46	49	48	49	44	
Zhetisu	-	-	-	-	19	
Karagandy	426	465	456	415	413	
Kostanai	142	150	142	160	146	
Kyzylorda	33	31	35	35	28	
Mangystau	98	94	102	103	104	
Pavlodar	940	958	962	983	958	
Soltustik Kazakhstan	136	135	139	113	98	
Turkistan	15	17	14	14	12	
Ulytau	-	-	-	-	475	
Shygys Kazakhstan	95	94	93	94	114	
Astana city	54	59	54	51	44	
Almaty city	24	24	23	20	19	
Shymkent city	34	29	28	30	30	

## 7.28 Emissions of air pollutants emitted from stationary sources of individual cities

	thousand tons					
	2018	2019	2020	2021	2022	
Kokshetau	9.3	8.8	8.5	7.9	11.5	
Aktobe	27.2	30.3	31.3	31.5	30.7	
Taldykorgan	7.5	7.2	7.1	6.7	4.2	
Atyrau	62.7	66.0	56.8	30.5	26.1	
Uralsk	17.7	9.9	7.6	7.8	8.4	
Taraz	26.4	28.3	30.4	29.2	28.5	
Karagandy	53.5	56.1	57.2	49.8	46.0	
Balkhash	89.3	86.7	91.5	75.4	76.3	
Zhezkazgan	53.7	90.5	83.7	58.2	79.1	
Temirtau	233.7	239.0	232.8	227.7	221.1	
Kostanai	17.4	17.0	15.2	15.9	15.3	
Arkalyk	2.0	1.7	1.9	1.1	1.7	
Rudnyi	44.7	57.3	54.4	67.9	67.0	
Kyzylorda	4.6	4.8	5.1	7.8	5.5	
Aktau	2.9	3.0	2.5	2.6	3.0	
Pavlodar	203.1	198.5	197.7	188.1	189.4	
Aksu	190.3	200.5	201.4	194.5	188.4	
Ekibastuz	223.1	233.8	237.9	256.8	259.5	
Petropavlovsk	42.7	44.8	44.7	30.3	23.0	
Turkistan	2.5	2.3	1.7	1.6	1.3	
Kentau	0.1	0.1	0.1	0.1	0.1	



Continuation

	2018	2019	2020	2021	2022
Ust-Kamenogorsk	54.4	54.2	53.9	53.1	50.3
Ridder	7.3	7.2	6.9	6.1	6.8
Semey	22.1	20.9	21.9	22.1	22.0
Glubokoe village	0.8	0.6	0.7	0.7	0.2

### 7.29 Emissions of the most common air pollutants from stationary sources

thousand tons

	2018	2019	2020	2021	2022
Total, thousand tons	2 446.7	2 483.1	2 441.0	2 407.5	2 314.8
including:					
solids	508.0	507.7	500.3	491.7	446.3
gaseous and liquid substances of them:	1 938.7	1 975.4	1 940.7	1 915.8	1 868.5
sulfurous anhydride	838.3	885.7	868.1	835.4	821.6
carbon monoxide	476.9	487.9	486.5	473.2	447.9
nitrogen oxides	272.2	313.9	311.4	322.0	311.6
Hydrocarbons (without volatile compound forms)	35.3	128.5	123.7	133.2	134.0
	91.7	158.7	146.2	146.5	156.8

### 7.30 Emissions of main pollutants per capita

kg/per

	2018	2019	2020	2021	2022
Population, million people	18.3	18.5	18.8	19.0	19.6
Sulfur dioxide	45.8	47.9	46.3	43.9	41.8
Nitrogen oxides	14.9	17.0	16.6	16.9	15.9
NMVOG	5	8.6	7.8	7.7	6.8
Ammonia	0.1	0.1	0.1	0.1	0.1
Carbon monoxide	26.1	26.4	25.9	24.9	22.8
Hydrocarbons	1.9	6.9	6.6	7.0	6.8

### 7.31 Emissions of main pollutants per unit area of the country

t/km<sup>2</sup>

	2018	2019	2020	2021	2022
The area of the country, 1000km <sup>2</sup>	2 724.9	2 724.9	2 724.9	2 724.9	2 724.9
Sulfur dioxide	0.3	0.3	0.3	0.3	0.3
Nitrogen oxides	0.1	0.1	0.1	0.1	0.1
NMVOG	0.03	0.01	0.05	0.05	0.005
Ammonia	0.001	0.001	0.001	0.001	0.0005
Carbon monoxide	0.2	0.2	0.2	0.2	0.2
Hydrocarbony	0.013	0.047	0.045	0.045	0.0049

### 7.32 Emissions of main pollutants per unit of GDP

kg / 1000 dollars USA

	2018	2019	2020	2021	2022
GDP at constant prices in 2017 (PPP), billion. Intern. dollars	466.9	487.9	475.2	494.6	512.0
Sulfur dioxide	1.80	1.82	1.83	1.69	1.6

Continuation

	2018	2019	2020	2021	2022
Nitrogen oxides	0.58	0.64	0.66	0.65	0.61
Ammonia	0.01	0.01	0.31	0.1	0.01
Carbon monoxide	1.02	1.00	0.01	1.0	0.8
Hydrocarbons	0.08	0.26	1.02	0.3	0.3

### 7.33 Emissions of pollutants and established standards for pollutant emissions in 2022

tons

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year, tons / year
<b>Total</b>	2 314 772.281	3 768 148.530
Sulfur dioxide (SO <sub>2</sub> )	821 640.780	1 205 027.298
Hydrogen sulfide (H <sub>2</sub> S)	1 707.467	2 635.811
Carbon monoxide (CO)	447 878.123	694 976.552
Nitrogen dioxide (NO <sub>2</sub> )	261 509.322	414 966.513
Ammonia (NH <sub>3</sub> )	2 526.840	4 322.262
Barium carbonate (in terms of barium)	1.731	1.731
Beryllium and its compounds (in terms of beryllium)	0.003	0.029
Divanadium pentoxide (dust) (Vanadium pentoxide)	4.539	6.951
Cadmium and its compounds (in terms of cadmium)	1.445	2.252
magnesium oxide	10.853	19.611
Manganese and its compounds (in terms of manganese dioxide)	73.879	174.899
Copper oxide (in terms of copper)	103.067	135.603
sodium chloride	63.287	88.374
Nickel metal	0.320	0.791
Mercury and its compounds (in terms of mercury)	0.194	0.264
Lead and its inorganic compounds (in terms of lead)	213.438	297.366
Chromium hexavalent (in terms of chromium trioxide)	7.335	17.018
Zinc diacetate (calculated as zinc) (Zinc acetate)	0.047	0.107
Barium and its salts (acetate, nitrate, nitrite, chloride) in terms of barium	10.508	49.437
Nitric acid	9.020	19.327
Ammonium nitrate	138.601	346.472
Bromine (Br)	0.004	0.004
Arsine (Hydrogen arsenic)	36.999	37.010
Hydrochloride (Hydrochloric acid, Hydrogen chloride)	160.675	216.364
Hydrocyanide (Prussic Acid, Formic Acid Nitrile, Hydrogen Cyanide)	170.793	260.266
Sulfuric acid (per H <sub>2</sub> SO <sub>4</sub> molecule)	382.240	513.119
Arsenic, inorganic compounds (in terms of arsenic)	54.190	72.432
Ozone	0.754	0.926
Carbon (Soot, carbon black)	4 352.817	10 227.284

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year, tons / year
Selenium dioxide (in terms of selenium)		
(Selenium (IV) oxide)	0.845	0.846
carbon disulfide	166.554	211.458
Fluorine gaseous compounds (in terms of fluorine)	241.495	438.258
Inorganic poorly soluble fluorides (aluminum fluoride, calcium fluoride, sodium hexafluoroaluminate)	185.839	249.087
Chlorine (Cl)	53.811	88.769
Butane (C <sub>4</sub> H <sub>10</sub> )	1 699.666	3 093.113
Polyethylene (polyethylene)	21.183	43.023
Cyclohexane (C <sub>6</sub> H <sub>12</sub> )	0.165	0.165
Benzene (C <sub>6</sub> H <sub>6</sub> )	909.585	1 512.342
Xylene (a mixture of o-, m-, p- isomers)		
(Dimethylbenzene (a mixture of o-, m-p-isomers)	4 985.742	9 215.787
Vinylbenzene (Styrene, Ethinylbenzene)	21.540	26.614
Toluene (C <sub>7</sub> H <sub>8</sub> )	2 247.638	4 425.166
1,2,4-Trimethylbenzene (pseudocumene)	164.412	179.896
Ethylbenzene (C <sub>8</sub> H <sub>10</sub> )	118.484	182.298
Benz/a/pyrene (3,4-Benzopyrene)	12.012	21.485
Naphthalene (Platidium, Cisplatin)	39.459	49.555
1,2-Dichloroethane (Dichloroethane)	0.707	0.707
1,2-Dichloropropane	12.434	14.318
Trichlorethylene (C <sub>2</sub> HCl <sub>3</sub> )	10.673	11.043
Tetrachloromethane (Carbon tetrachloride, Carbon tetrachloride)	4.669	4.685
Propan-2-ol (Isopropyl alcohol)	166.723	466.600
Methanol (Methyl alcohol) (CH <sub>3</sub> O)	462.384	590.874
Hydroxymethylbenzene (a mixture of o-, m-, p- isomers) (Tricresol)	5.702	12.553
Phenol	39.967	71.360
Butyl acetate (Acetic acid butyl ester)	334.243	813.813
Methyl acetate (Acetic acid methyl ester)	0.030	0.030
Propyl acetate (acetic acid propyl ester)	3.091	6.950
Ethyl acetate (C <sub>4</sub> H <sub>8</sub> O <sub>2</sub> )	132.266	242.822
Ethylprop-2-enoate (Acrylic acid ethyl ester, Ethyl acrylate)	1.071	2.979
Ethyl pentanoate (Ethyl valerate, Pentanoic acid ethyl ester)	0.037	0.037
Prop-2-en-1-al (Acrolein, Acrylaldehyde)	48.707	142.062
Benzaldehyde (benzoic aldehyde)	0.163	0.478
Formaldehyde (Metanal)	225.607	1 037.316
Propan-2-one (Acetone)	276.228	1 107.912
1-Phenylethanol	2.710	3.252
Pentan-3-one (Diethylketone)	2.400	2.400
4-Methylpentan-2-one (Methylisobutylketone) (C <sub>6</sub> H <sub>12</sub> O)	7.530	8.714
Cyclohexanone	17.078	22.500
1,3-Isobenzofurandione (Phthalic anhydride)	0.175	0.647
1,4-Benzenedicarboxylic acid (terephthalic acid)	0.063	0.471

Continuation

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year, tons / year
Acetic acid (Ethanoic acid)	217.092	396.781
Methanthiol (methyl mercaptan)	253.993	254.438
Ethanthiol	2.360	10.014
Ammophos (a mixture of mono- and di-ammonium phosphate with an admixture of ammonium sulfate)	220.287	592.579
Gasoline (petroleum, low sulfur) in terms of carbon	833.620	1 177.124
Gasoline fraction of light tar from high-speed pyrolysis of brown coal (in terms of carbon)	9.833	9.833
Epoxy powder paint	0.137	0.137
Mineral petroleum oil (spindle, machine, etc.)	333.548	586.761
Phenolic fraction of light resin of high-speed pyrolysis of brown coal	0.263	0.263
suspended solids	8 963.151	15 771.443
Fuel oil ash (in terms of vanadium)	111.368	379.482
Inorganic dust containing silicon dioxide in % > 70	13 184.781	22 627.063
Inorganic dust containing silicon dioxide in%: 70-20 (fireclay, cement, dust, cement production - clay, clay shale, blast-furnace slag, sand, clinker, silica ash, coal ash from Kazakhstan deposits)	299 330.420	471 947.320
Dry carbide glue dust	0.111	0.467
Feed dust (in terms of protein)	308.283	393.788
Dust (inorganic) of gypsum binder from phosphogypsum with cement	538.716	1 530.198
fiberglass dust	5.992	6.893
Cotton dust (Linen dust)	122.174	335.673
Cement production dust (calcium oxide content 60%)	21.602	31.239
Coal ash from thermal power plants (with a calcium oxide content of 35-40%, dispersion up to 3 microns and below at least 97%)	7 464.452	11 603.760
Aluminosilicates (zeolites, zeolite tuffs)	52.708	79.140
wood dust	1 427.848	2 665.963
Calcium oxide (quicklime)	2 483.924	3 329.314
Cobalt (Cobalt metal)	0.000	0.000
Ferrite manganese zinc (in terms of manganese)	0.805	0.805
Zinc carbonate (in terms of zinc)	9.672	14.203
But-1-en (Butylene)	16.381	16.383
Benzoyl chloride (benzene chloride)	x	x
Propan-1-ol (Propyl alcohol)	43.588	89.933
Solvent of wood-alcohol brand A (acetonsoether) / for acetone /	0.418	4.427
Acrylic (propenoic) acid	0.789	4.862
Dimethylamine	4.966	6.031
Prop-2-ennitrile	7.923	8.727
Formamide (Formic acid amide)	0.068	0.100
0,0-Dimethyl-0-(3-methyl-4-nitrophenyl) phosphate(Methylnitrophos)	4.065	4.431
pyridine	x	x

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year, tons / year
Furan-2-aldehyde (Furfural, 2-Furaldehyde, Furfural, 2-Furfuraldehyde)	0.725	0.725
2-(2-1 Hydroxy-5-methylphenyl)-benzotriazole (Hydroxymethylbenzene (a mixture of isomers o-,m-,p-) Tricresol)	0.674	0.711
Solvent butylformant (according to the amount of acetates) (BEF)	0.064	0.124
Turpentine (calculated as carbon)	3.186	3.839
Ameliorant (mixture: calcium carbonate, chloride, sulfate-79%, silicon dioxide -10-13%, magnesium oxide-3.5%, iron oxide-1.6%, etc.)	25.319	46.049
Bone meal dust (in terms of protein)	16.878	23.727
fiberglass dust	2.039	3.562
Grain dust/for fungus storage/	5 944.656	10 051.648
Hexane	144.512	677.973
Inorganic dust containing silicon dioxide in%: less than 20	93 867.007	155 727.865
Dust abrasive	282.357	619.773
Alkanes C12-19 / in terms of C / (Ultimate hydrocarbons C12-C19 (in terms of C); Solvent RPK-265P)	25 589.508	46 533.231
Iron (P, III) oxides (in terms of iron) (dilron trioxide, Iron oxide)	1 731.345	3 048.075
Propanal (propionaldehyde, propionaldehyde, methylacetic aldehyde) (C <sub>3</sub> H <sub>6</sub> O)	27.701	37.778
Nitric oxide (NO)	49 313.491	84 102.084
A mixture of saturated hydrocarbons C <sub>4</sub> H <sub>4</sub> -C <sub>5</sub> H <sub>12</sub>	70 458.859	147 626.281
A mixture of saturated hydrocarbons C <sub>6</sub> H <sub>14</sub> -C <sub>10</sub> H <sub>22</sub>	20 493.800	33 384.090
Pentane	131.153	235.136
Pentylenes (amylenes - mixture of isomers)	586.127	782.331
1,3-butadiene (divinyl)	25.673	78.016
Heptene	0.009	0.009
2-methylbuta-1,3-diene	3.496	3.666
Propylene	26.274	31.706
Ethylene_	2.174	2.214
Ethine (Acetylene)	3.341	3.344
Divinylbenzene technical (mixture of divinylbenzene with ethylstyrene) (by ethylstyrene)	0.024	0.101
Isopropylbenzene (cumene)	5.487	5.487
2-Methylpropylbenzene (Isobutylbenzene)	14.830	19.616
Furniture solvent (AMP-3) (toluene control)	0.199	0.223
alpha-methylstyrene	0.022	0.023
1,2,4,5-Tetramethylbenzene	0.190	0.207
1,3,5 - Trimethylbenzene (mesitylene) 2,6 - Dimethylphenol (2,6 - xylenol)	92.814	93.213
Methane	122 324.288	342 712.570
Chloromethylbenzene (Benzyl chloride)	0.774	0.774
Benzosulfonyl chloride	0.003	0.003
Hexafluorobenzene	x	x

Continuation

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year, tons / year
Dibromobenzene	3.464	3.464
Dichlorodifluoromethane (freon 12)	0.764	0.964
Dichlorofluoromethane (freon 21)	0.067	0.073
Difluorochloromethane (freon 22)	4.048	4.398
Methylene iodide (methylene iodide)	x	x
methylene chloride	5.740	5.806
Tetrachlorethylene (perchlorethylene)_	348.766	542.682
Tetrafluoroethylene	0.010	0.014
Trichloromethane (chloroform)	0.033	0.062
Trichlorofluoromethane (freon 11)	0.999	1.110
Chloroprene	0.042	0.050
epichlorohydrin	0.493	1.148
Chloroethane (ethyl chloride, ethyl chloride)	0.259	1.103
2,6 - Dimethylphenol (2.6 xylenol)	0.010	0.010
flour dust	598.056	1 000.403
Amyl alcohol	20.187	20.193
Benzylcarbinol (benzyl alcohol)	0.190	0.283
Butyl alcohol	205.694	511.089
Isobutyl alcohol	6.133	12.757
Isooctyl alcohol	0.020	0.093
Ethanol	605.792	1 160.451
Dioxolane -1.3 (formal glycol)	x	x
Cyclohexanol	0.147	0.729
2-Chloroethanol	0.675	3.096
2,2-Oxybis(propane), diisopropyl ether	x	x
diethyl ether	1.676	2.907
Ethylene glycol monoisobutyl ether (butyl cellosol)	2.149	3.694
Ethylene glycol monoisopropyl ether (propyl cellosolz)	0.039	0.040
2-Ethoxyethanol (ethylene glycol ethyl ether, ethyl cellosolve)	140.556	418.305
Vinyl acetate (Ethenyl acetate)	4.167	8.561
Dibutyl phthalate (phthalic acid dibutyl ester)	0.488	1.526
methyl acrylate	0.002	0.093
Methyl methacrylate	3.398	9.074
2-ethoxyethyl acetate (acetic acid 2-ethoxyethyl ester, cellosolve acetate)	1.564	2.377
Acetaldehyde_	7.545	9.606
Methyl ethyl ketone	0.835	1.138
Maleic anhydride (vapor, aerosol)	x	x
Acetic anhydride	0.009	0.351
Valeric acid	1.952	3.151
Dimethylformamide	0.163	0.180
caproic acid	16.495	23.397
Formic acid_	2.323	2.735
propionic acid	0.054	0.054
4-Methylpentanoic acid (isocaproic acid)	0.001	0.001
L-2-Hydroxypropanoic acid (lactic acid)	0.118	0.241

Continuation

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year, tons / year
Isopropylbenzene hydroperoxide (cumene hydroperoxide)	0.048	0.096
propylene oxide	2.441	2.454
Ethylene oxide	2.379	3.093
A mixture of natural mercaptans (in terms of ethyl mercaptan)	160.703	1 044.701
Aliphatic amines C <sub>15</sub> -C <sub>20</sub>	0.059	0.076
Dimethylaniline	0.006	0.006
Cyclohexylamine	0.393	0.410
diethylamine	0.001	0.001
beta-diethylaminoethylmercaptan	0.028	0.037
Monomethylaniline	0.011	0.036
Monomethylamine	6.503	9.303
Monoethylamine	0.083	0.849
Di(2-hydroxyethyl)amine (diethanolamine)	49.233	50.335
Diphenylmethandinezodiate	x	x
Toluene diisocyanate	0.036	0.056
Tetrahydrofuran_	0.008	0.008
Thiophene (thiofuran)	x	x
Shale gasoline (in terms of carbon)	2.418	2.463
Solvent_	120.143	322.763
White Spirit_	2 019.615	4 096.637
Other substances	29 645.203	40 397.922

### 7.34 Emissions of the most common air pollutants from stationary sources in 2022

thousand tons

	Total	Including						
		solids	gaseous and liquid - total	of them				volatile organic compounds (VOC)
				sulfurous anhydride	carbon monoxide	nitrogen oxides	hydrocarbons (without VOC)	
<b>Republic of Kazakhstan</b>	2 314.8	446.3	1 868.5	821.6	447.9	311.6	134.0	156.8
Abai	39.0	14.0	25.0	5.7	13.3	4.4	0.8	1.0
Akmola	69.5	25.0	44.5	19.2	16.6	4.5	2.4	1.1
Aktobe	136.5	18.9	117.6	23.6	37.5	17.8	6.7	31.6
Almaty	28.8	4.3	24.5	6.9	6.6	5.7	1.6	3.4
Atyrau	132.1	2.3	129.9	37.3	36.0	18.5	16.6	21.2
Batys Kazakhstan	25.8	2.1	23.7	2.4	5.7	4.5	6.0	5.8
Zhambyl	52.9	12.4	40.5	2.8	4.9	7.4	22.7	2.3
Zhetisu	13.1	4.5	8.6	2.0	3.4	2.2	0.4	0.6
Karagandy	469.0	95.9	373.1	177.3	143.3	41.6	6.3	2.5
Kostanai	121.4	38.0	83.4	38.3	9.8	6.7	26.5	1.6
Kyzylorda	23.4	1.5	21.8	1.2	7.7	5.4	5.3	2.7
Mangystau	78.7	2.4	76.3	1.9	11.2	13.4	12.6	37.1

Continuation

	Total	Including						
		solids	gaseous and liquid - total	of them				
				sulfurous anhydride	carbon monoxide	nitrogen oxides	hydrocarbons (without VOC)	volatile organic compounds (VOC)
Pavlodar	724.2	151.6	572.6	329.6	93.1	130.5	1.7	20.7
Soltustik								
Kazakhstan	52.6	19.4	33.2	15.1	9.7	4.5	2.4	1.1
Turkistan	25.2	6.7	18.5	1.9	6.5	2.6	6.8	0.8
Ulytau	105.1	14.3	90.7	74.2	3.1	3.0	6.2	10.3
Shygys Kazakhstan	83.3	14.3	69.0	33.6	17.0	12.6	3.5	2.1
Astana city	57.7	10.0	47.6	27.0	3.6	13.0	1.2	2.7
Almaty city	41.4	6.4	35.0	19.3	5.3	8.2	0.1	1.0
Shymkent city	35.0	2.0	33.0	2.2	13.5	5.0	4.2	7.0

### 7.35 Capturing and recycling of air pollutants emitted from stationary sources in 2022

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percentage of total waste pollutants from stationary sources	actually, thousand tons	as a percentage of the total captured and neutralized pollutants
<b>Republic of Kazakhstan</b>	31 244.2	93.4	7 882.9	25.2
Abai	144.7	82.1	18.6	12.8
Akmola	444.1	89.8	1.2	0.3
Aktobe	213.0	61.7	210.9	99.0
Almaty	367.5	93.4	14.0	3.8
Atyrau	0.0	0.0	-	-
BatysKazakhstan	5.3	17.6	0.3	5.4
Zhambyl	159.5	75.7	15.9	9.9
Zhetisu	262.3	95.8	241.9	92.3
Karagandy	6 217.0	93.2	1 356.7	21.8
Kostanai	365.4	76.1	3.7	1.0
Kyzylorda	0.1	0.3	-	-
Mangystau	13.2	14.7	0.0	0.0
Pavlodar	17 394.7	96.1	4 500.4	25.9
Soltustik Kazakhstan	626.9	95.9	4.2	0.7
Turkistan	31.5	56.4	25.0	79.4
Ulytau	744.6	87.7	61.5	8.3
Shygys Kazakhstan	1 650.6	95.5	1 311.8	79.5
Astana city	1 634.8	96.9	-	-
Almaty city	860.6	95.5	9.7	1.1
Shymkent city	108.4	76.1	106.9	98.7



### 7.36 Capturing and recycling of air pollutants emitted from stationary sources in the individual cities in 2022

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percentage of total waste pollutants from stationary sources	actually, thousand tons	as a percentage of the total captured and neutralized pollutants
Kokshetau	138.4	92.7	-	-
Aktobe	199.8	87.5	199.8	99.9
Taldykorgan	0.1	3.7	0.1	100.0
Atyrau	-	-	-	-
Uralsk	2.1	21.1	0.0	0.1
Taraz	154.8	84.8	11.6	7.5
Karagandy	1 327.1	97.1	5.7	0.4
Balkhash	1 211.6	94.1	794.8	65.6
Zhezkazgan	596.5	88.4	60.6	10.2
Temirtau	1 586.7	87.8	107.9	6.8
Kostanai	8.4	37.3	0.1	1.7
Arkalyk	0.1	5.4	-	-
Rudnyi	346.7	83.9	0.8	0.2
Kyzylorda	0.0	0.9	-	-
Aktau	0.1	3.0	0.0	4.2
Pavlodar	6 803.4	97.3	4 143.6	60.9
Aksu	3 814.5	95.3	351.8	9.2
Ekibastuz	5 304.1	95.3	2.1	0.1
Petropavlovsk	620.9	96.7	0.1	0.0
Turkistan	8.2	87.0	8.2	100.0
Kentau	0.0	41.0	0.0	100.0
Ust-Kamenogorsk	774.4	94.2	453.2	58.5
Ridder	175.8	96.3	175.8	99.9
Semey	124.2	86.2	0.5	0.4
Glubokoe village	0.3	61.3	-	-

### 7.37 Capturing and recycling of air pollutants emitted from stationary sources, by type of activity in 2022

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percentage of total waste pollutants from stationary sources	actually, thousand tons	as a percentage of total waste pollutants from stationary sources
Agriculture and Fisheries	6.7	27.9	1.7	25.9
Industry	31 198.0	93.9	7 876.6	25.2
Mining and quarrying	423.6	54.8	46.9	11.1
Manufacturing industry	11 420.9	94.0	7 791.4	68.2
Electricity, gas, steam and air conditioning	19347.7	95.6	35.8	0.2
Water supply; sewage system, control over the collection and distribution of waste	5.8	12.1	2.4	41.5
Building	18.0	60.0	1.8	9.9

Continuation

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percentage of total waste pollutants from stationary sources	actually, thousand tons	as a percentage of total waste pollutants from stationary sources
Wholesale and retail trade; car and motorcycle repair	1.4	26.2	0.5	37.2
Transportation and warehousing	6.2	5.9	1.0	16.7
Accommodation and Food Services	0.0	1.7	0.0	0.0
Information and communication	-	-	-	-
Financial and insurance activities	-	-	-	-
Real estate transaction	10.6	76.7	0.2	2.2
Professional, scientific and technical activities	0.1	1.2	0.0	44.9
Administrative and support services	0.0	0.4	-	-
Public administration and Boromona; compulsory social security	0.7	5.5	0.3	48.4
Education	0.2	1.3	-	-
Health and social services	2.2	32.9	0.6	28.9
Arts, entertainment and recreation	0.0	0.2	0.0	100.0
Provision of other services	0.0	1.6	0.0	0.0

### 7.38 Number of permits for emissions into the environment\*

	units				
	2018	2019	2020	2021	2022
Number of permits for emissions into the environment	2 900	1 997	1 289	577	46

\* According to the Ministry of Ecology of geology and natural resources of the Republic of Kazakhstan

## 8. Wastes

### 8.1 Industrial waste generation and level of processing\*

	thousands tons				
	2018	2019	2020	2021	2022
Industrial waste generation	830 271	839 646	759 905	871 147	888 131
Processing and recycling of industrial waste	267 029	266 309	273 718	333 080	360 720
Share recycling of industrial waste, %	32.2	34.0	36.02	38.23	40.03
Industrial waste per GDP unit, kg/international dollars at comparable prices in 2017 year	1.8	1.7	1.6	1.8	1,7
1Industrial waste generation per capita, ton	45.4	45.3	40.5	45.8	45.3

\* Data from the Ministry of ecology and geology and natural resources of the Republic of Kazakhstan based on information provided by local Executive bodies.

### 8.2 Solid waste generation and recycling rate\*

	thousands tons				
	2018	2019	2020	2021	2022
Generation of solid waste	4 319.2	4 736.6	4 551.7	4 214.1	4 340.6
Processing and recycling of solid waste	497.1	705.2	868.9	985.3	1 103.1
Share recycling of solid waste, %	11.5	14.9	18.6	21.1	25.4
Solid waste generation per capita, kg/ per capita	236.3	255.8	242.7	221.8	222.1

\*Data from the Ministry of ecology and geology and natural resources of the Republic of Kazakhstan based on information provided by local Executive bodies.

### 8.3 Formation of MSW and the level of their processing

	thousand tons							
	2019		2020		2021		2022	
	MSW formation	recycling, secondary use of solid waste	MSW formation	recycling, secondary use of solid waste	MSW formation	recycling, secondary use of solid waste	MSW formation	recycling, secondary use of solid waste
<b>Republic of Kazakhstan</b>	4736.6	705.2	4 551.755	868.983	4 214.1	985.247	4 340.6	1103.1
Abai	-	-	-	-	-	-	89.2	1.4
Akmola	245.0	7.4	243.000	37.555	124.0	10.800	155.5	12.3
Aktobe	295.6	29.6	305.700	30.591	299.764	32.117	300.9	45.2
Almaty	624.3	145.4	600.000	102.000	694.8	122.300	429.2	73.5
Atyrau	191.7	20.0	233.642	45.680	190.74	40.190	232.6	63.8
Batys								
Kazakhstan	107.0	9.2	107.000	12.031	80.4	9.341	114.2	17.3
Zhambyl	80.9	6.9	76.550	9.688	65.323	8.325	47.2	7.6
Zhetisu	-	-	-	-	-	-	220.0	39.1
Karagandy	660.0	115.0	655.000	190.000	465.3	134.910	328.2	179.2
Kostanai	216.7	22.3	229.802	27.410	190.682	33.828	210.8	38.4
Kyzylorda	12.0	13.1	117.000	21.000	116.0	22.800	164.0	40.2
Mangystau	188.3	63.6	110.520	39.013	102.102	28.938	207.8	66.7
Pavlodar	648.0	97.2	647.000	142.340	648.0	154.224	292.8	79.9

Continuation

	2019		2020		2021		2022	
	MSW formation	recycling, secondary use of solid waste	MSW formation	recycling, secondary use of solid waste	MSW formation	recycling, secondary use of solid waste	MSW formation	recycling, secondary use of solid waste
Soltustik Kazakhstan	74.7	7.6	86.539	11.290	76,4	11.480	82.8	15.2
Turkistan	128.1	12.9	122.771	15.962	110.01	17.600	92.7	17.6
Ulytau Shygys Kazakhstan	-	-	-	-	-	-	268.4	0.2
Astana city	164.7	5.4	171.576	30.873	180.628	20.407	110.8	17.7
Almaty city	318.6	50.7	198.601	59.085	335.0	47.000	316.8	238.2
Shymkent city	456,0	50.0	438.000	42.000	304.389	228292	451.8	81.3
	215.1	49.0	209.054	52.465	230.497	62.695	225.0	68.1

### 8.4 Municipal waste generation

thousands tons

	2018	2019	2020	2021	2022
Total amount of municipal waste	2 821.5	2 913.8	2 812.2	3 188.9	3 071.9
of which household waste	2 091.0	2 060.5	2 009.3	2 091.7	2 035.9
Volume of buried waste	2374.6	2 521.1	2 523.2	2 586.5	2 597.5

### 8.5 Municipal waste generation

thousands tons

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	2 821.5	2 913.8	2 812.2	3 188.9	3 071.9
Abai	75.7	67.2	64.2	65.4	59.5
Akmola	95.1	89.0	96.6	118.7	134.9
Aktobe	164.1	145.1	163.0	165.4	154.2
Almaty	120.7	131.9	114.0	126.7	123.8
Atyrau	72.3	85.0	62.6	61.0	79.7
Batys Kazakhstan	57.0	71.4	107.5	118.9	127.4
Zhambyl	73.7	55.7	62.0	62.1	65.3
Zhetisu	38.2	44.2	43.9	30.1	25.5
Karagandy	265.7	309.3	307.6	330.5	336.8
Kostanai	181.9	160.8	153.6	144.2	171.2
Kyzylorda	68.6	60.4	58.8	66.0	87.3
Mangystau	132.5	132.6	135.8	143.0	176.0
Pavlodar	141.7	185.4	164.2	380.8	217.7
Soltustik Kazakhstan	76.0	74.2	75.7	78.2	69.3
Turkistan	125.3	151.8	157.6	161.2	156.8
Ulytau	47.2	56.0	56.5	53.3	82.7
Shygys Kazakhstan	104.3	103.1	104.0	107.2	107.6
Astana city	315.2	308.9	298.8	296.5	210.4
Almaty city	477.4	489.8	414.4	480.4	480.2

## 8.6 Generation of hazardous wastes and their level of processing

	thousands tons				
	2018	2019	2020	2021	2022
Hazardous waste generation, thousand tons	149 962.4	180 506.7	137 828.0	42 090.0	46 487
Processing, recycling of hazardous waste (including incineration), thousand tons	29 992.8	36 645.3	30 711.8	4 924.0	3 388.7
The share of processing, recycling of hazardous waste, percent	20.0	20.3	22.3	11.7	7.3
Hazardous waste generation per unit of GDP, kg / thousand Int. dollars in 2011 prices	321.2	370.0	290.1	85.1	90.8
Hazardous waste generation (all hazard levels) per capita (SDG 12.4.2), kg / per capita of us.	8 205	9 750	7 349	2 215.3	2 367.6
Hazardous waste generation ("red", "amber" levels) per capita (SDG 12.4.2), kg / per capita of us.	226.0	225.1	181.5	-	-

## 8.7 Formation of hazardous waste and the level of its processing

	2018		2019		2020		2021		2022	
	MSW formation	Recycling, secondary use of solid waste	MSW formation	Recycling, secondary use of solid waste	MSW formation	Recycling, secondary use of solid waste	MSW formation	Recycling, secondary use of solid waste	MSW formation	Recycling, secondary use of solid waste
	<b>Republic of Kazakhstan</b>	149 96.24	29 625.6	180 506.7	36 087.4	137 828.0	30 269.0	42 090.2	4 411.6	46 487.8
Abai	-	-	-	-	-	-	-	-	3 727.8	104.8
Akmola	8 016.8	332.7	9 433.2	858.1	9 595.3	1 369.4	5 192.1	121.7	15 261.2	52.9
Aktobe	2 034.4	2 209.1	1 916.4	3 309.2	1 434.6	1 217.4	5 423.4	391.1	5 262.2	325.1
Alматы	633.7	56.8	629.6	41.6	657.2	43.2	37.3	33.6	9.1	0.06
Atyrau	640.7	270.0	469.1	299.1	296.3	157.4	274.5	65.1	212.8	18.6
Batys Kazakhstan	202.7	89.3	173.8	90.2	129.2	2 187.3	94.6	18.2	73.8	22.8
Zhambyl	2 075.5	163.8	582.3	185.4	325.6	235.1	143.3	132.0	155.8	144.6
Zhetisu	-	-	-	-	-	-	-	-	0.9	0.02
Karagandy	11 665.1	5 694.7	13 885.0	4 129.1	11 836.5	3 963.5	11 498.5	639.4	1 133.3	15.8
Kostanai	75 383.5	10 224.5	111 311.2	16 393.2	76 415.0	13 250.6	4 043.0	288.2	8 722.6	292.0
Kyzylorda	438.0	22.6	249.4	25.1	161.4	18.4	54.4	19.0	40.9	8.3
Mangystau	320.9	482.1	368.0	442.0	405.8	627.7	217.9	88.0	331.1	125.2
Pavlodar	40 830.2	5 383.7	32 724.2	8154.8	29 102.8	4 661.3	4 122.2	1 879.2	209.7	79.8
Soltustik Kazakhstan	2 114.1	538.4	2 465.6	746.5	2 108.4	513.7	949.4	1.1	9.9	3.7
Turkistan	234.0	69.1	124.4	53.2	127.4	36.8	10.1	0.004	8.8	30.6
Ulytau	-	-	-	-	-	-	-	-	0.7	0.03
Shygyz Kazakhstan	2 262.9	854.0	3 178.0	724.7	2 399.0	622.4	7 738.4	365.9	11 167.8	1 500.6
Astana city	1 621.0	2 784.4	1 706.3	147.1	1 698.5	826.8	1 818.8	0.3	15.7	0.3
Almaty city	1 297.2	259.7	1 163.1	310.9	1 095.6	290.0	453.9	331.6	123.4	0.1
Shymkent city	1917	190.7	127.1	177.2	39.4	248.2	18.4	37.2	20.3	10.7

## 8.8 Education, the use and disposal of hazardous waste products

million tons / year

	Generation of hazardous waste	Use of hazardous waste in enterprises	Hazardous waste disposal
2018	150.0	30.0	0.5
2019	180.5	36.6	0.3
2020	137.8	30.7	0.3
2021	42.1	4.9	0.4
2022	46.5	3.4	0.2

\* Hereinafter according to the Ministry of Ecology of Geology and Natural Resources of the Republic of Kazakhstan

## 8.9 Presence of hazardous waste products in enterprises

at the end of the year, thousand tons

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	2 518 278.5	2 658 354.9	2 757 951.9	480 234.6	840 851.2
Abai	-	-	-	-	10 940.0
Akmola	17 710.4	25 998.8	33 867.1	26 054.7	131 974.2
Aktobe	6 496.8	6 230.0	6 212.9	59 930.7	65 803.2
Almaty	5 027.4	5 573.7	6 001.2	38.6	2.3
Atyrau	425.8	658.8	826.8	22.5	16.2
Batys Kazakhstan	358.0	375.5	408.9	87.1	78.6
Zhambyl	12 429.9	12 673.7	12 773.5	5 224.5	4 677.4
Zhetisu	-	-	-	-	8.7
Karagandy	731 615.2	739 539.3	745 730.3	54 894.2	23 649.4
Kostanai	1 063 531.1	1 156 195.5	1 219 162.0	191 106.5	257 345.4
Kyzylorda	205.8	942.7	107.6	3.5	11.2
Mangystau	216.0	203.8	228.2	23.4	260.5
Pavlodar	585 630.4	608 570.9	632 762.8	75 450.2	2 828.3
Soltustik Kazakhstan	36 988.2	38 397.6	39 586.0	2 188.1	5.7
Turkistan	784.0	1 341.3	1 340.6	644.1	648.4
Ulytau	-	-	-	-	0.1
Shygys Kazakhstan	22 824.9	25 024.7	19 535.2	32 155.3	342 585.6
Astana city	27 503.2	29 092.2	30 719.9	32 363.1	1.2
Almaty city	6 082.6	7 086.1	8 057.5	25.0	4.1
Shymkent city	448.8	450.3	631.4	23.1	10.7

## 8.10 Volume of hazardous waste

thousand tons

	2018	2019	2020	2021	2022
Generated hazardous waste during the year	149 96.4	180 506.7	137 82.0	42 090.2	46 487.8
Incoming hazardous waste of these: imported hazardous waste	11 698.7	8 700.7	16 063.9	1 006.3	1 568.9
Used (disposed) waste	0.3	0	0	0	0.3
Neutralized waste	29 993.2	36 645.3	30 711.8	512.4	3 388.7
Transferred to the industrial recycling	451.4	305.0	299.0	393.0	212.3
	11 113.4	13 374.8	15 143.1	2 051.2	2 221.9

	Continuation				
	2018	2019	2020	2021	2022
Including: exported hazardous waste	0.3	0.3	1.7	0	1.0
directed:					
to places organized warehousing and burials	120 783.1	332 459.1	115 443.6	35 185.9	6 028.8
on authorized landfills and landfills solid household waste	775.8	1 478.4	834.2	-	-
Volume of hazardous waste on end of the year	2 518 278.5	2 658 354.9	2 757 951.9	480 234.6	840 851.2

### 8.11 Generation of hazardous waste by type of economic activity

	thousand tons/year				
	2018	2019	2020	2021	2022
Hazardous waste including:	149 962.4	180 506.7	137 828.0	42 090.2	46 487.8
Agriculture, forestry and fishing	2 077.2	2 420.0	2 144.4	1 052.7	766.8
Miningindustry andquarry development	102 389.5	131 203.7	91 189.6	25 501.2	31 820.1
Manufacturing industry	19 358.0	21 619.9	20 979.1	6 121.0	8 396.6
Supply of electricity, gas, steam	20 720.5	20 501.2	19 784.5	4 606.1	554.3
Construction	82.2	363.7	220.6	30.7	152.3
Other types of economicactivities	5 335.0	4 398.2	3 509.8	4 778.5	4 797.7

### 8.12 E-waste generation in 2022

	tons
	2022
16 02 Electrical and electronic equipment parts, of which:	56.797
16 02 09 Transformers and capacitors containing polychlorinated onphenyls	9.988
16 02 10 Decommissioned equipment containing or contaminated wich polychlorinated biphenyls, except as mentioned16 02 09	-
16 02 13 Decommissioned equipment containing hazardous components of components 2, with the exception of those mentioned 16 02 09-16 02 12	10.852
16 02 14 Decommissioned equipment, except as mentioned in 16 02 09-16 02 13	8.414
Hazardous components recovered from decommissioned equipment	3.124
16 02 15 Components extracted from decommissioned equipment	24.419

### 8.13 Production and consumption waste generation\*

	mln tons / year				
	2018	2019	2020	2021	2022
Total waste generated	445 417.2	515 958.1	457 931.1	777 764.9	1 052 134.9
Including:					
Agriculture, forestry and fishing	2 130.0	2 450.5	2 168.7	3 132.9	3 039.6
Miningindustry andquarrying	384 375.5	449 887.2	392 534.4	495 400.1	744 017.6
Manufacturing industry	28 154.6	31 583.1	33 262.5	129 091.7	180 735.3
Electricity, gas, steam	20 811.4	20 527.3	19 806.8	21 143.6	17 881.7
Construction	478.4	477.1	358.8	498.4	634.6
Other types of economicactivities	9 467.3	11 032.9	9 799.9	128 498.2	105 826.1



\* According to the RSE "Information and analytical center for environmental protection" of the Ministry of ecology, Geology and natural resources of the Republic of Kazakhstan based on the State cadastre of production and consumption waste. The data are given without taking into account technogenic mineral formations and surface effusive and Intrusive sedimentary rocks of different ages (overburden rocks).

#### 8.14 Final waste disposal: non-hazardous industrial waste management\*

	thousand tons / year				
	2018	2019	2020	2021	2022
Total amount of waste managed	295 45,80	335 451.40	320 103.1	735 674.6	1 005 647.1
Recycled, reused, incinerated during the reporting year	72 97.20	89 944.60	94 027.4	108 679.8	149 420.1
Neutralized during the accounting year	20.5	0.2	0.3	-	-
Placed on its own waste disposal facilities	189 786.80	200 210.70	175 477.0	439 185.1	827 298.7
Transferred to third-party organizations and businesses	3 056.50	2 782.90	3 191.5	5 452.2	6 293.8

#### 8.15 Medical waste

	ton				
	2018	2019	2020	2021	2022
Formed by medical organizations from them:					
Waste of class «A» m3	30 920.233	121 799.607	21 827 557.00	344 957 067.0	159 290 910.8
Waste of class «B»	15 779.128	112 282.231	39 820 555	15 995 684.7	58 991 247.06
Waste of class «B»	558.896	11 292.802	13 363 611.2	1 575 257 521.4	4 988 414.71
Waste of class «G»					
Pcs	114 465	24 085	70 933	101 789	39 267.8
Kg	10 480.466	5774.3	349 834.6	11 68.5	715 178.97
l	2 606.1	9.2	2 899.5	296,5	1 583.61
Waste of class «D»	57.000	0.376	3 229.6	1 628.4	223.04
Neutralized (taking into account the neutralized ones themselves)	-	-	-	-	-
Waste of class «A»	-	-	-	-	-
Waste of class «B»	-	7 852.5	23 573 287.98	312 631.3	569 132.85
Waste of class «B»	-	1 252.6	6 524 847.3	83 970.6	22 710.3
Waste of class «G», liter	-	5.0	206.16	1 989.6	4 039.85
Waste of class «D»	-	-	-	-	-
Buried	-	-	-	-	-
Waste of class «A»	-	-	-	-	-
Waste of class «B»	-	387.788	389.05	88.7	803.5
Waste of class «B» «	-	0.000	42.52	4.0	251,5
Waste of class» G «	-	-	-	-	-
Waste of class «D»	-	0.000	0.000	0.000	0

### 8.16 Generated (taking into account received from other persons), processed and reused production and consumption waste by type of economic activity

million tons

	2018		2019		2020		2021		2022	
	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused
Total waste generated	459.0	102.5	526.7	126.0	475.3	124.2	782.3	97.3	1 057.4	114.1
including:										
Agriculture, forestry and fishing	2.2	1.3	2.5	1.6	2.2	1.4	3.2	1.2	3.1	1.2
Mining and quarrying	384.4	82.3	449.9	106.7	392.5	106.2	495.4	70.8	744	92.6
Manufacturing industry	30.1	11.7	33.1	10.1	34.5	9.3	129.8	15.9	182.1	14.5
Supply of electricity, gas, steam	20.8	0.2	20.5	0.02	19.8	0.02	21.2	0.08	17.9	0.1
Construction	2.1	1.6	2.3	1.8	1.8	1.4	0.5	0.09	0.6	0.1
Transport and warehousing	0.3	0.01	0.3	0.01	0.2	0.00	0.2	0.003	0.2	0.01
Other types of economic activity	19.1	5.4	18.1	5.8	24.3	5.8	132.0	9.2	109.5	5.6

## 8.17 Generated (taking into account received from other persons), processed and reused production and consumption waste for certain types of waste

	thousand tons														
	2018			2019			2020			2021			2022		
	Educated (including those received from other persons)	Recycled and reused		Educated (including those received from other persons)	Recycled and reused		Educated (including those received from other persons)	Recycled and reused		Educated (including those received from other persons)	Recycled and reused		Educated (including those received from other persons)	Recycled and reused	
Total waste generated and received from them:	458 950.5	102 544.1		526 714.9	126 009.8		475 330.3	124 215.6		782 285.6	97 272.2		1 057 410.1	1 14 124.2	
packaging materials waste	195.7	4.5		450.4	98.9		326.6	5.6		79.4	1.2		62.5	1.4	
paper	354.8	78.5		390.9	75.4		264.7	74.9		97.9	73.2		35.1	1.2	
plastic	67.0	33.7		166.8	8.8		115.7	3.2							
waste plastic															
waste, polyethylene waste	98.7	0.4		28.3	0.7		30.9	2.0		37.0	3.2		22.9	1.5	
the waste of abrasive material	18.1	0.1		16.1	0.6		4.3	0.0		0.8	0.05		1	0.1	
construction waste	1 197.9	68.4		631.2	203.2		521.3	249.0		598.8	256.3		588.8	85.1	
vehicles, end-of-life (PCs).	5 987	8		35 876	5		17 703	3		60 454	60 412		-	-	
ash and ash-slag waste	24 530.1	275.8		24 272.0	136.0		23 338.6	155.1		23 141.1	189.0		21 090.5	18.2	
pig manure	63.7	45.4		220.6	42.3		143.6	15.5							
poultry manure (manure)	1 473.9	851.0		1 589.1	1 042.6		1 361.1	828.2		2 222.2	1 188.9		2 384.2	1 152.9	
waste drill cuttings	795.3	353.4		770.9	325.4		496.8	259.8		1 021.8	166.8		521.7	155.8	
sludge	313.9	118.6		527.8	292.2		286.1	323.7		7.9	0.2		24.8	8.6	
soils impregnated with oil, fuel oil, chemicals	413.9	251.0		245.5	104.2		209.0	74.4		146.8	5.8		153.5	7.8	

Continuation

	2018		2019		2020		2021		2022	
	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused	Educated (including those received from other persons)	Recycled and reused
waste oil	2 652.7	2 585.3	160.0	33.7	68.9	8.0	62.9	42.0	39.2	14.8
wastes containing arsenic	25.9	0	11.4	0	11.3	0	17.3	0	-	-
wastes containing mercury	56.7	3.0	51.4	68.2	14.8	14.0	1.3	0.09	2.7	0.1
waste and scrap of ferrous and non-ferrous metals	44.7	38.5	14.3	6.0	11.4	5.5	5 337.7	3 298.0	4 405.5	2 821.6
used tires and other rubber waste	1 609.2	1 527.8	2 324.6	2 349.7	3 017.2	3 357.4	43.1	10.3	44.4	8.05
sludge of industrial enterprises	38.5	8.6	41.9	23.3	60.9	30.6	11.0	10.5	10.07	6.2
slag phosphate	275.2	276.3	250.1	244.7	230.1	239.1	1 104.4	0	871.3	30.5
used batteries, whole or broken	35.3	24.7	43.2	34.6	32.4	25.6	36.5	32.8	29.9	0.5

## 9. Forest resources

### 9.1 Main indicators of the forest fund\*

	at the end of the year				
	2018	2019	2020	2021	2022
Forest area (including forests transferred for temporary use), million hectares	30.1	30.0	30.0	30.6	30.9
Forest land, million hectares	12.9	13.1	13.3	13.6	13.7
Total stock of standing timber, million cubic meters	421.9	443.0	446.3	455.1	453.9
Forest cover of the territory, as a percentage of the total area of the country	4.7	4.8	4.9	5.0	5.0

\* Hereinafter, according to the Forestry and wildlife Committee of the Ministry of ecology, Geology and natural resources of the Republic of Kazakhstan.

### 9.2 Forest Fund

	on January 1, 2023			
	Total forest area, thousand hectares	Forest land, thousand hectares	Total standing timber, million cubic meters	Percentage of forest land
<b>Republic of Kazakhstan</b>	30 941.7	13 673.5	453.98	5.0
Abai	852.8	425.3	45.3	2.3
Akmola	1 058.7	437.2	49.7	3
Aktobe	1 400.2	58.6	1.3	0.2
Almaty	3 233.9	1 568.8	39.2	14.9
Atyrau	169.2	18.8	0.4	0.2
Batys Kazakhstan	563	89.6	8.3	0.6
Zhambyl	4 441.3	2 314.1	4.3	16.0
Zhetisu	2 197.3	445.5	15.9	3.7
Karagandy	536.1	137.1	5.5	0.6
Kostanai	1 146.9	236.5	16.7	1.2
Kyzylorda	717.3	3 824.2	10.0	16.9
Mangystau	476.6	125.7	0.08	0.8
Pavlodar	478.7	274.5	29.7	2.2
Soltustik Kazakhstan	688.4	518.2	48.3	5.3
Turkistan	3 452.8	1 575	3.3	13.4
Ulytau	82.3	14.2	0.4	0.1
Shygys Kazakhstan	2 990.5	1 610.2	175.6	16.5

### 9.3 Forests and other wooded land

	1000 ha				
	2018	2019	2020	2021	2022
Country area	272 490.2	272 490.2	272 490.2	272 490.2	272 490.2
Total forest area	30 056.7	30 058.1	30 047.7	30 552.5	30 941.7
Share of forests in country area, %	11.0	11.0	11.0	11.2	11.4
Total area of other wooded land	12 933.1	13 121.8	13 316.9	13 635.3	13 673.5
Share of other wooded land in country area, %	4.7	4.8	4.9	5.0	5.0
<b>Primary and planted forest</b>					
Total forest area	30 056.7	30 058.1	30 047.7	30 552.5	30 941.7

Continuation

	2018	2019	2020	2021	2022
Primary forests,	1 611.4	1 611.4	1 613.7	1 613.7	1 613.7
Primary forests, %	5.4	5.4	5.4	5.3	5.2
Other naturally regenerated forest	27 546.1	27 507.9	27 670.0	28 179.5	30 140.2
Other naturally regenerated forest, %	91.6	91.5	92.1	92.2	97.4
Planted forest	899.2	938.8	764.0	759.3	812.2
Planted forest, %	3.0	3.1	2.5	2.5	2.6
<b>Forest area designated for production</b>					
Total forest area	30 056.7	30 058.1	30 047.7	30 552.5	30 941.7
of which					
Production forest	443.0	449.9	446.3	455.1	453.9
Production forest, %	1.5	1.5	1.5	1.5	1.5
<b>Forest area designated for protection of protected areas and places for biodiversity conservation</b>					
Total forest area	30 056.7	30 058.1	30 047.7	30 552.5	30 941.7
of which					
Forest area within protected areas (SPNT)	8270	8 328.2	10 891.8	10 950.7	11 294.7
Forest area within protected areas, %	27.5	27.7	36.2	35.8	36
Forest reserves and composition:					
coniferous, thousand cubic meters	266 060.0	274 501.1	281 591.4	285 537.7	286 819.6
deciduous, thousand cubic meters	137 510.0	140 961.3	146 962.8	145 191.8	140 998
standing forest stocks of 10 most common species:					
417 960.0	431 710.9	441 460.1	450 035.5	453 927	
pine, thousand cubic meters	110 080.0	113 264.4	118 140.9	119 967.3	119 437.4
the fir, thousand cubic m	43 480.0	46 162.8	47 072.7	47 973.5	48 832.4
fir, thousand cubic meters	64 160.0	65 972.8	66 805.9	67 639.0	68 211.5
larch, thousand cubic meters	35 140.0	35 719.5	36 045.8	36 345.2	36 631.4
cedar, thousand cubic meters	12 970.0	13 140.5	13 233.5	13 326.0	13 417.5
birch, thousand cubic meters	86 670.0	89 444.1	91 102.2	92 519.9	89 300.1
aspens, thousand cubic meters	34 250.0	36 079.2	35 951.4	36 818.4	35 424.4
poplar, thousand cubic meters	10 480.0	10 843.6	10 926.6	11 142.7	11 442.6
willow, thousand cubic meters	5 870.0	4 335.4	4 360.6	4 442.3	4 557.7
saxaul, thousand cubic meters	14 860.0	16 748.6	17 790.5	19 861.2	20 952.2
other, thousand cubic meters	3 910.0	110 958.0	4 884.6	5 045.9	5 719.8
Reforestation area, thousand hectares	44.9	46.1	74.8	50.2	66.9
Forest plantations, thousand hectares	2.0	2.0	1.9	1.8	1.9

*Committee of forestry and wildlife of the Ministry of ecology, Geology and natural resources of the Republic of Kazakhstan (MEG NR)*

#### 9.4 Distribution of areas of the main forest-forming species of the state forest fund in 2023

thousand hectares

	Area, thousand hectares	Of these, the main prevailing breeds			
		coniferous	hardwood	softwood	saxaul
<b>Republic of Kazakhstan</b>	10 556.53	1 801.43	140.95	1 534.74	7 079.41
Abai	373.71	326.02	5.8	41.89	0
Akmola	410.83	197.89	37.21	175.73	0
Aktobe	34.79	1.37	21.94	5.21	6.27
Almaty	1 253.82	151.74	4.18	11.31	1 086.59
Atyrau	5.53	0	0.4	4.94	0.19
Batys Kazakhstan	73.93	0.7	21.37	51.86	0

Continuation

	Area, thousand hectares	Of these, the main prevailing breeds			
		coniferous	hardwood	softwood	saxaul
Zhambyl	1 201.76	3.64	7.07	0.49	1 190.56
Zhetisu	258.57	65.74	3.07	33.6	156.16
Karagandy	59.23	30.63	5.94	22.54	0.12
Kostanai	187.6	54.4	5.2	128	0
Kyzylorda	3 470.01	0	0.04	0.15	3 469.82
Mangystau	19	0	0	0	19
Pavlodar	256.9	164.1	12	80.8	0
Soltustik Kazakhstan	500.6	38.5	5.1	457	0
Turkistan	1 169.2	11.3	6.2	1.3	1 150.7
Ulytau	6.5	0.2	1.6	4.7	0
Shygys Kazakhstan	1 274.25	755.2	3.83	515.22	0

### 9.5 Reforestation

thousand hectares

	Reforestation		Share of sowing and planting forests in the total area on which reforestation was carried out, in percent
	Total	including planting and planting forests	
2018	52.70	42.9	81.4
2019	63.90	57.1	89.3
2020	51.29	45.75	89.2
2021	53.8	45.5	84.6
2022	135.8	135.8	100

### 9.6 Reforestation in state forests

thousand hectares

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	52.7	63.9	51.3	53.8	138.5
Abai	-	-	-	-	4.1
Akmola	7.7	6.5	3.6	5.1	5.9
Aktobe	0.9	0.9	1.0	1.0	3.2
Almaty	0.5	0.5	0.7	0.6	1.3
Atyrau	0.2	0.2	0.3	0.3	0.5
Batys Kazakhstan	0.5	0.8	0.8	0.8	1.2
Zhambyl	4.8	5.1	5.2	5.6	9.2
Zhetisu	-	-	-	-	0.3
Karagandy	0.5	0.5	0.5	0.6	0.4
Kostanai	1.5	1.6	1.2	0.8	2.5
Kyzylorda	12.9	20.1	13.4	12.9	84.6
Mangystau	0.3	0.3	0.3	0.3	0.3
Pavlodar	2.7	3.0	3.3	3.1	3.1
Soltustik Kazakhstan	1.4	1.2	1.2	1.9	1.2
Turkistan	14.2	18.2	14.6	15.5	20
Ulytau	-	-	-	-	-
Shygys Kazakhstan	4.6	5.0	5.0	5.1	0.7

### 9.7 Forest fires

	Number of forest fires, cases	Forest area covered by fires, hectares	Damage caused by fires, at current prices, million tenge	Average area of one fire, hectares
2018	358	120 991	209.8	338.0
2019	628	73 516	563.5	117.0
2020	701	41 866	2 115.5	59.7
2021	751	14 794	6 278.4	19.7
2022	801	56 251	20 593.7	70.2

### 9.8 Creating plantings on ravines, beams, sand and other uncomfortable lands

	thousand hectares				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	0.7	1.0	1.0	-	-
Akmola	-	-	-	-	-
Atyrau	0.2	0.2	0.2	-	-
Batys Kazakhstan	0.5	0.8	0.8	-	-
Kyzylorda	-	-	-	-	-

### 9.9 Entering young plantations in the category of valuable (highly productive) forest plantations

	thousand hectares				
	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	34.1	36.1	62.2	50.2	66.9
Abai	-	-	-	-	2.7
Akmola	2.4	1.3	1.8	1.7	1.8
Aktobe	1.1	0.8	0.8	0.7	0.6
Almaty	6.0	4.6	1.3	0.5	10.1
Atyrau	-	-	-	-	-
Batys Kazakhstan	0.8	0.3	0.2	0.3	0.2
Zhambyl	2.6	3.0	2.8	18.8	13.3
Zhetisu	-	-	-	-	0.1
Karagandy	-	-	0.3	0.2	0.1
Kostanai	3.3	3.4	2.9	1.2	1.9
Kyzylorda	5.2	5.6	16.3	3.1	9.4
Mangystau	-	-	0.1	0.1	0.1
Pavlodar	-	6.2	3.4	2.4	1.8
Soltustik Kazakhstan	5.7	7.7	6.8	7.2	5.2
Turkistan	6.2	3.2	17.6	6.6	18.1
Ulytau	-	-	-	-	0.2
Shygys Kazakhstan	0.8	-	7.8	7.5	1.2

### 9.10 Thinning and selective-sanitary felling

	The area of felling, total, hectares	Felled timber, th. solid cubic meters		
		Total	of them liquid	of them business
2018	5 905.3	108.9	104.1	11.7
2019	50 161.4	130.4	124.1	11.9
2020	18 018.24	401.213	392.462	3.85
2021	47 82.1	203.1	196.7	36.6
2022	14 293.04	325.5	319.2	36.5



### 9.11 Thinning and selective-sanitary felling in 2022

	Felling area - total, hectares	Felled timber, th. Solid cubic meters		
		Total	of them liquid	of them business
<b>Republic of Kazakhstan</b>	14 293.04	325.5	319.2	36.5
Abai	4 900.8	51.0	51.0	12.1
Akmola	442.2	4.6	3.8	0.1
Aktobe	169.1	2.0	2	0.1
Almaty	45.76	1.3	1.1	0.3
Atyrau	33.9	0.7	0.7	0
Batys Kazakhstan	247.6	8.3	7.5	0.8
Zhambyl	0	0	0	0.95
Zhetisu	23.96	0.66	0.6	0.2
Karagandy	257.5	3.4	2.2	9.6
Kostanai	5 326	200.5	200.5	0
Kyzylorda	0	0	0	4.84
Mangystau	1 246.1	26.776	24.0	0
Pavlodar	422.9	4.6	4.6	0
Soltustik Kazakhstan	88	0.13	0.13	0
Turkistan	67.2	0.759	0.3	7.5
Ulytau	1 022	20.7	20.7	0

## 10. Specially Protected Natural Areas

### 10.1 Protected areas\*

	hectares				
	2018	2019	2020	2021	2022
Country area, thousand ha	272 490	272 490	272 490	272 490	272 490
Total areas under protection	26 249 343.8	26 249 343.8	26 249 343.8	26 251 643.8	27 239 458.35
State nature reserve	1 611 419	1 611 419	1 611 419	1 613 719.01	1 613 719.01
state national natural parks	2 667 370.0	2 667 370.0	2 667 370.0	2 667 370.0	2 727 823
state nature reserve	3 122 082	3 122 082	3 122 082	3 122 082	3 467 337
state natural monuments of national significance	272.7	272.7	272.7	272.7	6 484.4
state natural monuments of local significance	1 767.63	1 767.63	1 767.63	1 767.63	1 767.63
state nature reserves of republican significance	5 838 343.30	5 838 343.30	5 838 343.30	5 838 343.30	5 737 337.80
state nature reserves of local importance	1 505 624.80	1 505 624.80	1 505 624.80	1 505 624.80	1 505 624.81
state protected areas	11 312 420.0	11 312 420.0	11 312 420.0	11 312 420.0	12 057 626
state botanical gardens of republican significance	470.3	470.3	470.3	470.3	470.3
state arboretum of republican significance	365.4	365.4	365.4	365.4	365.4
local arboretum of local importance		-	-		0
state (regional) natural parks	189 131.6	189 131.6	189 131.6	189 131.6	120 826
state Zoological parks of local significance	77	77	77	77	77
Share of total protected areas in the country area, %	9.6	9.6	9.6	9.6	10.0

\* Date of the Forestry and Wildlife Committee of the Ministry of Ecology and Natural Resources.

# 11. Protection of animal world

## 11.1 Aquaculture stocks\*

	2018	2019	2020	2021	2022
Aquaculture stocks (by species):					
in natural expression	5 652.6	6 933.1	9 020.5	14 993.9	19 243.0
carp	3 527.2	4 062.6	3 354.8	6 447.6	6 703.0
whitefish	254.2	220.9	507.4	589.2	1 236.8
salmon	568.5	785.7	1 513.5	1 434.6	3 259.4
sturgeon	650.5	179.3	278.1	324.0	395.6
catfish	-	-	3 234.5	5 050.0	4 816.5
other types	652.4	1 684.5	132.2	1 148.5	2 831.7

## 11.2 Reserves of fish resources in individual water bodies\*

Name of reservoirs	thousand tons				
	2018	2019	2020	2021	2022
Caspian Sea (KCHKM)	...	21.258	49.730	49.730	92.73
Kigach River	13.604	14.319	16.396	14.110	17.747
The Zhayyk River in the previous. Atyr. Areas	21.843	19.315	20.342	17.684	16.665
The Zhayyk River in the previous. WKO	0.200	0.188	0.140	0.126	0.098
Buktyrma Reservoir	15.146	10.580	13.466	13.053	14.235
Jaisan Lake	41.884	29.180	42.653	39.953	26.943
Shulba reservoir	4.115	2.340	3.678	2.542	3.519
Yertis River	0.111	0.159	0.153	0.188	0.127
Ust-Kamenogorsk water	0.451	0.093	0.270	0.214	0.126
Channel them. K. Satpayev	0.547	0.490	0.801	0.793	1.680
Lake Balkash	24.385	25.003	24.995	31.475	29.701
Alakol Lake	1.273	1.694	1.867	0.993	4.368
Sasykkol Lake	1.834	1.949	2.218	1.795	3.755
Lake Koshkarkol	0.243	0.349	0.335	0.243	0.584
Kapshagai water	4.100	4.264	4.333	4.379	5.116
Ile River	0.101	0.111	0.120	0.090	0.145
Ile River Delta	0.544	0.569	0.459	0.413	0.513
Aral Sea	24.196	22.484	24.256	25.734	26.272
Syr Darya River in the past. Kyzylorda. Region	0.500	0.283	0.313	0.345	0.464
Syr Darya River in the past. SKO	0.708	0.649	0.700	0.752	0.744
Shardara water	15.723	8.502	7.902	8.711	7.922
Tobyl River	0.167	0.063	0.089	0.029	0.051
Yesil River	0.067	0.063	0.149	0.100	0.085
Nura River	0.154	0.194	0.294	0.221	0.162

\* Data of the Fisheries Committee of the Ministry of Ecolog, and Natural Resources of the Republic of Kazakhstan.

### 11.3 Threatened and protected species

	units				
	2018	2019	2020	2021	2022
<b>Mammals</b>					
Total number of species, number of	178	178	178	178	178
Of which endangered species, the number of species, including	31	31	31	31	31
critically endangered species, number of species	5	5	5	5	5
endangered species (threatened with extinction), number of species	22	22	22	22	22
vulnerable species, number of species	4	4	4	4	4
Of which the protected species, the number of species	40	40	40	40	40
<b>Birds</b>					
Total number of species, number of	489	489	489	489	489
Of which endangered species, the number of species, including	49	49	49	49	49
critically endangered species, number of species	16	16	16	16	16
endangered species (threatened with extinction), number of species	18	18	18	18	18
vulnerable species, number of species	15	15	15	15	15
Of which the protected species, the number of species	57	57	57	57	57
<b>Fishes</b>					
Total number of species, number of	156	156	156	156	156
Of which endangered species, the number of species, including	16	16	16	16	16
critically endangered species, number of species	9	9	9	9	9
endangered species (threatened with extinction), number of species	6	6	6	6	6
vulnerable species, number of species	1	1	1	1	1
Of which the protected species, the number of species	18	18	18	18	18
<b>Vascular plants</b>					
Total number of views	6 000	6 000	6 000	6 000	6 000
Number of threatened species, including	370	370	370	370	370
critically endangered species	327	327	327	327	327
endangered species	41	41	41	41	41
vulnerable species	2	2	2	2	2
Number of protected species	370	370	370	370	370
<b>Mosses</b>					
Total number of views	500	500	500	500	500
Number of threatened species, including	3	3	3	3	3
critically endangered species	3	3	3	3	3
Number of protected species	3	3	3	3	3
<b>Lichens</b>					
Total number of views	500	500	500	500	500
Number of threatened species, including	1	1	1	1	1
critically endangered species	1	1	1	1	1
Number of protected species	1	1	1	1	1
<b>Fungi</b>					
Total number of views	5 000	5 000	5 000	5 000	5 000

	Continuation				
	2018	2019	2020	2021	2022
Number of threatened species, including	5	5	5	5	5
critically endangered species	1	1	1	1	1
endangered species	2	2	2	2	2
vulnerable species	2	2	2	2	2
Number of protected species	10	10	10	10	10
	<b>Algae</b>				
Total number of views	2 000	2 000	2 000	2 000	2 000
Number of protected species	0	0	0	0	0

#### 11.4 Types of endangered and protected species\*

	heads				
	2018	2019	2020	2021	2022
<b>Class mammals</b>					
Little shrew baby	...	...	...	...	...
Muskrat	...	...	...	...	...
Asian wide	...	...	...	...	...
Kozhanok Bobrinsky	...	...	...	...	...
Tien Shan Brown Bear	516	544	3 007	599	489
Stone marten	392	918	...	...	910
Pine marten	...	4 622	...	...	...
European mink	...	...	9 134	...	...
Dressing	32	76	...	77	32
Central Asian River Otter	...	...	351	355	...
Dune cat	3	40	...	...	...
Manul	38	94	...	...	30
Caracal	...	84	...	...	...
Central Asian or Turkistan region lynx	175	...	...	177	359
Snow Leopard	223	130	150	170	180
Turkmen Kulan	4 103	4 197	4 255	4 337	4 413
Tugai Deer	856	878	914	976	1 052
Jeyran	14 055	14 391	14 656	14 894	15 089
Ustyurk mountain sheep	1 523	2 100	2 374	2 412	3 301
Kazakhstan mountain sheep	12 410	12 632	12 818	13 083	13 259
Tien Shan mountain sheep	2 472	2 574	2 611	2 657	2 705
Karatau mountain sheep:	565	643	657	711	747
The Menzbier Marmot	14 113	14 699	...	14 703	12 268
Indian Porcupine	97	112	...	113	247
Lick	...	...	...	...	...
Five-toed dwarf jerboa	...	...	...	...	...
Pale dwarf jerboa	...	...	...	...	...
Fatty dwarf jerboa	...	...	...	...	...
Giant mole rat	975	...	...	975	975
	<b>Bird class</b>				
Pink Pelican	4 352	4 341	...	4 353	4 380
Curly pelican	3 033	4 384	...	3 042	3 079
Little Egret	...	120	...	123	130
Spoonbill	192	269	...	240	246
Loaf	530	560	...	570	275
Turkistan White Stork	...	...	...	...	...

	Continuation				
	2018	2019	2020	2021	2022
Black stork	161	269	...	269	273
Flamingo	3 947	4 958	...	4 965	4 984
Goose squirrel	...	32 121	...	...	...
Red-breasted Goose	...	8 980	...	...	...
Whooper swan	2 154	3 269	...	3 274	3 281
Marbled Teal	...	78	...	90	92
White-eyed blacken	1 424	693	...	780	784
Savka	8 240	8 527	...	8 532	8 541
Osprey	28	57	...	52	56
Snake eater	65	64	...	71	72
Eagle dwarf	50	44	...	51	56
Steppe eagle	146	504	...	148	151
Burial ground	227	680	...	260	270
Golden eagle	368	377	...	383	387
Long-tailed eagle	...	37	...	38	41
White-tailed eagle	111	119	...	131	138
Borumodach	77	...	...	78	82
Vulture	87	60	...	88	92
Kumai	109	...	...	111	113
Krechet	...	...	...	...	...
Saker	137	317	...	150	160
Shahin	2	...	...	...	...
Sapsan	3	114	...	...	...
Altai Ular	17 174	721	9 458	9 458	9 462
Sterh	...	...	...	...	...
Gray Crane	887	899	...	907	910
Crane belle	6 076	6 399	...	6 412	6 418
Sultanka	...	...	...	...	...
Bustard	139	435	...	430	445
Strepeta	873	956	...	1 050	1 090
Jack	14	1 564	...	2 030	2 044
Krechatka	96	502	...	506	508
Serpoklyuv	14	...	...	16	19
Curlew-baby	...	...	...	...	...
Curly Curlew	...	...	...	...	...
Asian Snipe Spin	...	...	...	...	...
Black-headed Laugh	14 664	14 715	...	15 100	15 123
Relic gull	...	...	...	...	...
Black-bellied speck	1 936	1 939	...	2 021	2 032
White-tailed Grouse	353	...	...	360	365
Saja	475	483	...	491	497
Brown dove	792	798	...	803	815
Owl	268	384	...	389	394
Ili saxaul jay	...	...	...	...	...
Blue bird	167	...	...	169	175
Big lentils	...	...	...	...	...

\* Hereinafter, according to the Committee for Forestry and Fauna under Ministry of Ecology and Natural Resources of the Republic of Kazakhstan.

## 11.5 The trend of changes in the number and distribution of certain species of animals

	heads				
	2018	2019	2020	2021	2022
Saiga tatarika	215 100	334 400	842 000	1 318 000	1 915 000
Ovis ammon	17 065	17 954	18 465	18 863	19 730
Snow leopard	130	...	150	140-180	
Species of International Importance:					
Cervus elaphus bactrianus,	856	878	914	976	1 052
Bustard-beauty	9781	9 854	11 767	12 030	14 405
Most important species: Endemic					
species: Gazella subgutturosa	14 055	14 391	14 656	14894	15 089
Other species: Kulan/Equus hemionus	4 103	4 197	4 255	4337	4 413

## 11.6 Main indicators for hunting

	thousand ha				
	2018	2019	2020	2021	2022
Total area of hunting grounds	182 785.6	180 758.8	273 365.9	273365.9	273 365.9
Area of the fixed hunting lands for hunting	110 100.5	111 269.0	187 264	187 264.9	187 264.9
Area of fixed hunting grounds covered by on-farm hunting	85 990.3	101 413.1	970 017	970 017	970 017
Area of hunting grounds, where the number of wild animals is recorded	116 985.0	119 468.6	117 658	117 658	117 658
Ungulates, fur-bearing animals and feathered game, heads were extracted*	546 321.0	498 432.0	478 236	490 091	489 090
Ungulata	7 270.0	7 778.0	7 125	7 812	7 715
Fur animal	144 082.0	128 990.0	132 665	142 413	143 561
Feathered game	685 500.0	619 458.0	598 360	602 378	598 370

*Has been provided by the Forestry and wildlife Committee under the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.*

## 11.7 Results of hunting activities and payment to the budget for the use of wildlife

	thousand tenge				
	2018	2019	2020	2021	2022
Income from hunting activities – total, thousand tenge	386 371.4	1 105 694.3	1 890 081	1 205 112	343 729
of them:					
from a foreign hunter	312 026.3	141 270.2	699 983.7	699 932.7	63 698
from the sale of permits to citizens for hunting in fixed hunting grounds	416 909.0	1 081 981.3	981 981.3	1 102 734	967 767
from services rendered to citizens during the production of hunting	59 393.3	97 706.2	71 728.5	86 307	-
payments to the budget for the use of wildlife were transferred	188 886.1	201 412.1	699 932	711 527	343 729

## 12. Energy

### 12.1 Total primary energy supply

	2018	2019	2020	2021*	2022
					ktoe
Production of energy	174 098	166 941	159 030	157 399	160 667
Imports of energy	11 016	15 592	13 026	3 858	2 747
Exports of energy	-110 702	-108 832	-105 539	-94 241	-90 335
International marine and aviation bunkers	-642	-639	-328	-505	-490
Stock changes	399	114	-442	2 167	-2 720
Total primary energy supply	74 169	73 176	65 748	68 679	69 868
of which					
Coal	36 408	34 473	32 613	33 533	29 806
Crude oil	22 704	22 729	17085	20 548	7 720
Oil products	-4 309	-5 177	-5 164		
Natural gas	18 624	20 122	20 173	16 966	18 453
Hydropower	894	859	831	792	791
Geothermal and solar energy, etc.	73	132	217	290	363
Biofuels and waste	75	79	58	32	16
Electricity	-299	-42	-65	-49	-125
Heat	...	...	...	...	...

\* Preliminary data. The final data will be generated at the end of 2023.

### 12.2 Total primary fuel and energy consumption and energy intensity by sectors of the economy

	2018	2019	2020	2021*	2022
					million toe
Total primary fuel and energy consumption	74.2	73.2	65,7	68.7	69.9
including the main sectors of the economy:					
Agriculture, forestry and fisheries	1.6	0.9	...	...	1.1
Industry	15.0	13.1	...	...	12.3
Transport and warehousing	6.3	5.9	...	...	8.6
Accommodation and food services	5.2	4.6	...	...	...

\*Preliminary data. The final data will be generated at the end of 2022.

### 12.3 Final energy consumption

	2018	2019	2020	2021*	2022
					ktoe
Total final energy consumption	41 299	41 570	40 267	49 881	43 402
Industry	15 014	13 101	12 518	17 697	12 251
Transport	6 283	5 902	7 440	12 687	8 609
Households	11 277	15 145	13 469	13 400	13 388
Services sector	5 249	4 611	3974	5 082	6 930
Agriculture, forestry and fishery	1 650	869	830	1 012	1 069
Other activity	1 505	1 672	2 036	3	...



Continuation

	2018	2019	2020	2021*	2022
Non-energy use of energy	321	269	362	1 313	1 154

\* Preliminary data. The final data will be generated at the end of 2023.

### 12.4 GDP energy intensity

	2018	2019	2020	2021*	2022
Energy intensity of GDP, tne/thousand us dollars in 2015 prices	0.36	0.34	0.32	0.32	0.31

\* Preliminary data. The final data will be generated at the end of 2023.

### 12.5 Production of electricity

	2018	2019	2020	2021	2022
<b>Republic of Kazakhstan</b>	107 268.8	106 483.2	108 628.4	115 079.2	113 453.2
Abai	1 906.3	1 861.9	1 845.5	1 754.6	1 778.4
Akmola	1 013.4	1 080.6	1 312.1	1 529.9	1 308.0
Aktobe	4 125.9	4 176.6	4 102.9	4 042.7	3 925.8
Almaty	3 447.4	3 222.9	3 375.7	3 092.8	3 430.5
Atyrau	5 955.2	6 113.3	6 567.5	7 356.8	7 523.0
Batys Kazakhstan	2 068.7	2 048.7	2 162.0	2 411.8	2 317.9
Zhambyl	2 331.3	2 393.9	2 545.3	3 229.9	4 899.3
Zhetisu	543.2	520.3	467.6	492.5	5760.6
Karagandy	12 908.3	13 804.4	13 704.6	13 466.7	11 995.2
Kostanai	893.1	945.0	1 082.9	995.0	1 066.7
Kyzylorda	1 611.8	1 555.7	1 770.6	1 781.3	1 832.9
Mangystau	5 179.7	5 179.5	4 748.8	4 843.8	4 785.5
Pavlodar	45 627.2	42 731.5	44 340.2	49 916.9	49 090.6
Soltustik Kazakhstan	3 232.9	3 494.4	3 355.0	2 724.5	1 625.9
Turkistan	393.7	522.6	766.6	802.5	944.8
Ulytau	1 209.1	1 659.1	1 510.8	1 274.8	1 193.7
Shygys Kazakhstan	7 745.2	7 826.1	7 636.3	7 497.1	7 049.0
Astana city	3 351.9	3 400.5	3 321.8	3 901.4	4 070.2
Almaty city	3 263.6	3 250.5	3 230.5	3 085.4	3 144.1
Shymkent city	460.9	695.4	781.7	878.8	894.9

### 12.6 Electricity generation by renewable energy sources

million, kWh

	2018	2019	2020	2021	2022
Electricity production, taking into account small hydroelectric power plants, total	107 268.8	106 483.2	108 628.4	115 079.2	113 453.2
produced by small hydroelectric power plants	633.8	459.3	558.1	602.2	742.3
produced by wind farms	460.6	707.1	1 028.7	1 746.7	2 311.8
produced by solar power plants	141.3	391.2	1 237.5	1 629.1	1 772.5
using biogas	2.8	4.9	6.5	2.6	2.9

## 12.7 The share of electricity generated from renewable energy sources (RES) in the total amount of electricity generated

	percent				
	2018	2019	2020	2021	2022
The share of electricity generated from renewable energy sources in the total amount of electricity generated	10.2	10.4	11.0	10.9	11.8
hydroelectric power stations	9.6	9.4	8.9	8.0	8.1
wind farms	0.4	0.6	0.9	1.5	2.0
solar power plants	0.1	0.4	1.1	1.4	1.7
biogas use	0.0	0.0	0.0	0.0	0.0
<b>Including by type of renewable energy</b>					
hydroelectric power stations	94.5	90.1	80.9	73.2	68.3
wind farms	4.2	6.4	8.6	13.8	17.2
solar power plants	1.3	3.5	10.4	12.9	14.1
biogas use	0.0	0.0	0.0	0.0	0.0

\* Preliminary data. The final data will be generated at the end of 2022.

## 12.8 Prices of enterprises producing industrial products for electricity and certain types of energy carriers

	at the end of the period				
	2018	2019	2020	2021	2022
Steam coal, tenge / ton	4 668	4 862	5 242	5 664	5 256
Crude oil (natural mixture of hydrocarbons), including oil derived from bituminous minerals, tenge / ton	65 297	65 089	41 907	81 909	81 655
Natural gas (natural) in a gaseous state, tenge / thousand cube m	15 032	14 044	16 614	14 031	16 985
Motor gasoline (distillation temperature - 30-220 degrees Celsius) for engines with spark ignition, with a lead content of not more than 0.013 g / l, without additives TEL or TML, tenge / ton	142 339	135 348	118 865	152 046	155 274
Gas oils (diesel fuel), tenge / ton	166 927	169 245	152 732	174 494	177 641
Fuel oil, tenge / ton	62 218	88 817	56 649	103 710	102 188
Electricity, taking into account the services for its distribution, tenge / 1000 kWh	8 930	8 294	9 292	11 144	11 862

## 12.9 Average prices and tariffs for consumer goods and services

	at the end of the period				
	2018	2019	2020	2021	2022
Gas transported through distribution networks					
Natural, tenge / cubic m	19	19	19	26.1	26,76
liquefied gas, tenge / kg	156	155	154	126.1	166,82
LPG, tenge / 50 liter bottle	2709	2 680	2 853	4 487	3 524
Electricity depending on the volume of consumption,					

Continuation

	2018	2019	2020	2021	2022
for the population using electric stoves					
1st level, tenge / 100 kW hour	1174	1 123	1 199	1 452	1 569
2nd level, tenge / 100 kW hour	1518	1 474	1 575	1 885	2 059
3rd level, tenge / 100 kW hour	1849	1 818	1 943	2 347	2 558
Electricity depending on the volume of consumption, for the population not using electric stoves					
1st level, tenge / 100 kW hour	1191	1 140	1 217	1 475	1 569
2nd level, tenge / 100 kW hour	1519	1 473	1 577	1 902	2 052
3rd level, tenge / 100 kW hour	1850	1 817	1 946	2 369	2 550
AI-92 gasoline, tenge / liter	155	147	151	179.8	179
Gasoline AI-95, 96, tenge / liter	175	170	171	208.5	212
AI-98 gasoline, tenge / liter	192	188	190	231.2	233
Diesel fuel					
Summer, tenge / liter	193	193	183	243	239
Winter, tenge / liter	264	275	247	346	....

## 13. International comparisons

### 13.1 The main socio-economic indicators of the CIS countries in 2022

hereinafter, the source of information is the CIS Interstate Statistical Committee

	Kazakhstan	Azerbaijan	Armenia	Belarus
Population size at the beginning of 2021 million	19.8	10.1	3.0	9.3
Percentage of urban population	61.8	55.0	63.3	78.5
Percentage of rural population	38.2	45.0	36.7	21.5
Life expectancy at birth, number of years	74.44	76.0	75.1	74.5
Infant mortality rate, per 1000 live births	7.69	7.8	6.7	2.4
Unemployment rate, percent	4.9	5.6	13.0	3.6
Number of doctors per 10,000 population	40.1	33	<sup>51</sup>	52
Crime rate per 10,000 population	80	361	1267	960
State budget expenditures on education, as a percentage of GDP	4.4	2.8	1.9	...
State budget expenditures on health care, as a percentage of GDP	2.0	1.1	1.7	...
Index of physical volume of GDP, 2018 as a percentage of 2006	185	191	...	...
Index of physical volume of GDP, 2018 as a percentage of 1991	261	287	149	116

Continuation

	Kyrgyzstan	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Population size at the beginning of 2019 million	6.7	2.6	147.0	9.9	7.1 <sup>2</sup>	35.3	41.0
Percentage of urban population	35.8	42.3	74.8	29.3	47.1 <sup>2</sup>	51.0	69.5
Percentage of rural population	64.2	57.7	25.2	70.7	529 <sup>2</sup>	49.0	30.5
Life expectancy at birth, number of years	71.9	74.5	72.7	73.34	...	74.3	69.8 <sup>4</sup>
Infant mortality rate, per 1000 live births	14.3	8.5	4.6	...	...	8.6	7.2 <sup>4</sup>
Unemployment rate, percent	4.9	3.1	39	6.9 <sup>3</sup>	...	8.9	9.8 <sup>4</sup>
Number of doctors per 10,000 population	21 <sup>4</sup>	47 <sup>4</sup>	51	21 <sup>5</sup>	...	27 <sup>4</sup>	34 <sup>4</sup>
Crime rate per 10,000 population	647	1057	1341	225	...	295	...
State budget expenditures on education, as a percentage of GDP	7.0	5.8	...	5.5	...	...	...
State budget expenditures on health care, as a percentage of GDP	2.7	5.0	...	2.3	...	...	...
Index of physical volume of GDP, 2018 as a percentage of 2006	...	-	-	-	36 <sup>8</sup>	280	97 <sup>6</sup>

Continuation

	Kyrgyzstan	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Index of physical volume of GDP, 2018 as a percentage of 1991	109	116	113	143 <sup>7</sup> 143 <sup>7</sup>	...	385	151 <sup>1</sup>

Note: The CIS Statistical Committee has not had data on Ukraine since December 2022, until December 2022 the data are provided from the official website of the national statistical service of this state, for Turkmenistan – from the websites of state organizations of the country.

<sup>1)</sup> In Armenia - as a percentage by 2012, Belarus - as a percentage by 2009, Kyrgyzstan - as a percentage by 2018, Moldova - as a percentage by 2014, Russia - as a percentage by 2011, Tajikistan - as a percentage by 2017, Ukraine 2021 - as a percentage by 2000.

<sup>2)</sup> According to the census data as of December 17, 2022.

<sup>3)</sup> 2016

<sup>4)</sup> 2021

<sup>5)</sup> 2020

<sup>6)</sup> 2021 as a percentage of 2006

<sup>7)</sup> For Tajikistan for 2022, instead of gross domestic product, a short-term indicator of the development of the main sectors of the economy is presented; relative indicators are calculated on its basis.

### 13.2 Number of births, deaths and natural population growth

thousand people

	Kazakhstan	Azerbaijan	Armenia	Belarus	Kyrgyzstan
Number of births					
2018	398	139	37	94	171
2019	402	141	36	88	173
2020	427	126	37	...	158
2021	446	112	37	...	150
2022	404	123	37	...	150
Number of deaths					
2018	130	57	26	120	33
2019	133	56	26	120	33
2020	161	76	36	...	40
2021	182	77	34	...	39
2022	134	61	27	...	31
Natural increase, decrease (-)					
2018	267	82	11	-14	138
2019	269	85	10	-32	140
2020	265	51	0,1	...	118
2021	264	35	3	...	111
2022	270	62	10	...	119

Continuation

	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Number of births						
2018	35	1 604	231	...	768	336
2019	32	1 481	...	...	815	309
2020	31	1 436	...	...	853	293
2021	29	1 398	...	...	905	272
2022	29	1 304	...	...	932	...
Number of deaths						

Continuation						
	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
2018	37	1 829	33	...	155	588
2019	36	1 798	...	...	154	581
2020	41	2 124	...	...	176	617
2021	45	2 442	...	...	174	714
2022	45	1 899	...	...	172	...
Natural increase, decrease (-)						
2018	-2	-225	198	...	613	-252
2019	-4	-317	...	...	661	-272
2020	-11	-689	...	...	666	-323
2021	-16	-1044	...	...	731	-442
2022	-16	-595	...	...	760	...

### 13.3 General birth, death and natural population rates

per 1000 population					
	Kazakhstan	Azerbaijan	Armenia	Belarus	Kyrgyzstan
Number of births					
2018	21.8	14.2	12.3	9.9	27.1
2019	21.7	14.3	12.2	9.4	26.9
2020	22.8	12.7	12.3	...	24.0
2021	23.5	11.2	12.4	...	22.4
2022	20.6	11.2	12.3	...	21.5
Number of deaths					
2018	7.1	5.8	8.7	12.7	5.2
2019	7.2	5.6	8.8	12.8	5.2
2020	8.6	7.6	11.9	...	6.1
2021	9.6	7.7	11.6	...	5.8
2022	6.8	6.0	9.0	...	4.5
Natural increase, decrease (-)					
2018	14.6	8.4	3.6	-2.8	21.9
2019	14.5	11.0	3.3	-3.5	21.7
2020	14.2	5.1	0.4	...	17.9
2021	13.9	3.5	0.8	...	16.6
2022	13.8	6.2	3.3	...	17.0

Continuation						
	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Number of births						
2018	12.8	10.9	21.7	...	23.3	8.7
2019	12.2	10.1	25.4	...	24.3	8.1
2020	11.7	9.8	25.6	...	24.6	7.8
2021	11.2	9.5	22.1	...	25.9	7.3
2022	10.6	8.8	...	...	26.2	...
Number of deaths						
2018	13.8	12.5	3.6	...	4.7	14.8
2019	13.7	12.3	3.6	...	4.6	14.7
2020	15.4	14.6	4.5	...	5.1	15.9
2021	17.4	17.5	4.0	...	5.0	18.5
2022	14.2	13.8	...	...	4.8	...

Continuation

	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Natural increase, decrease (-)						
2018	-1.0	-1.6	22.0	...	18.6	-5.1
2019	-1.5	-2.2	21.8	...	19.7	-6.6
2020	-3.7	-4.8	21.1	...	19.5	-8.1
2021	-6.2	-8.0	18.1	...	20.9	-11.2
2022	-3.6	-5.0	...	...	21.3	...

### 13.4 Infant mortality

number of deaths of children under 1 year per 1000 live births

	2018	2019	2020	2021	2022
Kazakhstan	8.1	8.4	7.8	8.4	7.7
Azerbaijan	11.1	11.0	9.8	7.5	7.8
Armenia	7.1	6.1	7.4	6.9	6.7
Belarus	2.5	2.4	...	...	...
Kyrgyzstan	14.8	15.1	14.4	15.2	14.3
Moldova	9.1	8.7	6.9	8.5	8.5
Russia	5.1	4.9	6.5	4.6	4.6
Tajikistan	...	...	...	...	...
Turkmenistan	...	...	...	...	...
Uzbekistan	9.9	9.3	9.3	9.2	8.6
Ukraine	7.0	7.0	6.8	7.2	...

### 13.5 Incidence of malignant neoplasms

number of cases per 100000 population

	2018	2019	2020	2021	2022
Kazakhstan	196	190	168	190.1	193.9
Azerbaijan	113	122	116	129	138
Armenia	231	267	234	...	274
Belarus	555	573	463	502	574
Kyrgyzstan	90	87	82	86	...
Moldova	289	394	326	336	...
Russia	426	436	380	398	426
Tajikistan	35	40	32	33	...
Turkmenistan	...	...	...	...	...
Uzbekistan	152	...	...	249	...
Ukraine	...	...	261	...	...

### 13.6 Morbidity of active tuberculosis

number of cases per 100000 population

	2018	2019	2020	2021	2022
Kazakhstan	48	46	36	36	36.5
Azerbaijan	38	37	26	25	28
Armenia	21	18	13	...	13
Belarus	20	19	13	13	15
Kyrgyzstan	83	79	54	58	...
Moldova	58	72	43	52	...
Russia	44	41	32	31	31

Continuation

	2018	2019	2020	2021	2022
Tajikistan	57	56	40	40	...
Turkmenistan	...	...	...	...	...
Uzbekistan	41	...	32	35	...
Ukraine	55	52	...	...	...

### 13.7 Number of victims of work-related accidents

per 10000 employees

	2018	2019	2020	2021	2022
Kazakhstan	4.2	4.1	3.9	4.1	...
Azerbaijan	1.3	...	1.5	1.9	...
Armenia	6.4	3.9	3.4	2.7	3
Belarus	5.0	...	5.0	5.4	...
Kyrgyzstan	2.7	2.5	3.3	4.2	...
Moldova	8.8	8.4	7.0	9.1	...
Russia	11.9	11.7	10.3	10.8	10
Tajikistan	2.1	1.5	0.7	0.7	...
Turkmenistan	...	...	...	...	...
Uzbekistan	...	4.6	2.9	3.3	3
Ukraine	5.0	6.0	9.0	17.0	...

### 13.8 Number of deaths from accidents involving work

per 10000 employees

	2018	2019	2020	2021	2022
Kazakhstan	0.4	0.4	0.4	0.3	...
Azerbaijan	0.3	...	0.3	0.3	...
Armenia	1.4	0.4	0.4	0.6	0.6
Belarus	0.3	...	0.3	0.3	0.3
Kyrgyzstan	0.2	0.3	0.2	0.4	...
Moldova	0.7	0.6	0.5	0.5	...
Russia	0.5	0.5	0.5	0.6	0.5
Tajikistan	0.2	0.3	0.2	0.3	...
Turkmenistan	...	...	...	...	...
Uzbekistan	...	1.0	0.6	0.6	0.8
Ukraine	0.4	0.6	0.5	0.8	...

### 13.9 Average size of pensions in the CIS countries

for December

	2019		2020		2021		2022	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Kazakhstan, tenge	57 622.0	150.5	63 937.0	150.8	67 432	158.3	73 902	160.49
Azerbaijan, manat	263.6	155.1	302.2	177.8	331.8	195.2	372.1	218.9
Armenia, drams	4 0424	84.3	43 983	84.2	43 677	91.0	46 629	118.5
Belarus, belarusian rubles	431.3	205.0	482.6	187.1	514.4	201.9	630.8	230.5



Continuation

	2019		2020		2021		2022	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Kyrgyzstan, soms	9 187	131.9	9616	116.3	10 428	123.0	12 020	140.3
Moldova, lei	1 901.1	110.5	2 104.5	122.3	2 578.5	145.3	3 156.4	164.8
Russia, rubles	1 4242	230.0	15 059	203.8	15 842	213.2	18 552	263.8
Tajikistan, somoni	303.2	31.3	320.9	28.4	321.4	28.4	337.3	33.1
Uzbekistan, soums	733.2 <sup>1)</sup>	77.1	8 48.5 <sup>1)</sup>	81.0	963.6 <sup>1)</sup>	88.9	1 080.8	96.3
Ukraine, hryvnia	2 969.0	125.3	3 399.3	120.2	...	...	...	...

### 13.10 Basic amount of old-age pensions in the CIS countries

for December

	2019		2020		2021		2022	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Kazakhstan, tenge	36 108	94.34	40 441	97.94	43 272	101.57	48 032	104.31
Azerbaijan, manat	200	117.6	200	117.6	200	117.6	240	141.2
Armenia, drams	16 000	33.4	16 000	30.6	16 000	33.3	21 000	53.4
Belarus, belarusian rubles	313	148.7	350	135.7	378	148.4	462	168.9
Kyrgyzstan, soms	1 780	25.6	1 780	21.5	1 780	21.0	3170	37.0
Moldova, lei	1 079	62.7	1 144	66.4	2 000	112.7	2279	118.9
Russia, rubles	5 334	86.2	5 686	77.0	6 044	81.4	7221	102.7
Tajikistan, somoni	180	18.6	207	18.3	207	18.3	207	20.3
Uzbekistan, soums	436	45.9	513	49.0	565	52.1	633	56.4
Ukraine, hryvnia	1 638	69.2	1 769	62.6	...	...	...	...

### 13.11 Minimum subsistence level in the CIS countries

	2019		2020		2021		2022	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Kazakhstan, tenge	29 342	76,7	33 015	79,9	37 266	87	43 566	95
Azerbaijan, manat	180	106	190	112	196	115	210	124
Armenia, drams	...	...	...	...	...	...	...	...
Belarus, тыс. belarusian rubles	229	109	254	103	282	111	...	...
Kyrgyzstan, soms	4 806	69	5 359	69	6 268	74	7 178	85
Moldova, lei	2 031	116	2 088	121	2 154	122	2 628	139
Russia, rubles	10 890	168	11 312	157	11 653	158	12 654	188
Tajikistan, somoni	...	...	...	...	...	...	...	...

Continuation

	2019		2020		2021		2022	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Uzbekistan, soums	...	...	...	...	...	...	...	...
Ukraine, hryvnia	1 902	74	2 078	77	2 250	82	...	...

### 13.12 Area of arable land in 2022

	Area of arable land, hectares per 100 population, ha
Kazakhstan	134
Azerbaijan	20
Armenia	15
Belarus	61
Kyrgyzstan	19
Moldova	74
Russia	80
Tajikistan	8
Turkmenistan	...
Uzbekistan	11
Ukraine <sup>2)</sup>	...

### 13.13 Structure of the acreage of the main types of grain and leguminous crops in 2022

as a percent of the total area of grain and leguminous crops

	Wheat	Rye	Corn	Barley	Oats	Rice	Other
Kazakhstan	80.0	0.2	1.2	13.6	1.2	0.5	1.7
Azerbaijan	55.5	0.0	3.1	39.2	0.6	0.3	1.2
Armenia	49.7	0.0	0.9	36.8	7.8	-	1.2
Belarus	31.9	13.6	9.7	15.7	5.8	-	4.5
Kyrgyzstan	36.1	...	16.6	36.5	0.2	1.8	8.8
Moldova	34.8	0.0	55.2	5.8	0.1	-	3.4
Russia	62.2	1.9	5.8	16.9	4.5	0.4	4.7
Tajikistan	69.4	0.1	4.6	17.5	0.5	3.3	4.5
Turkmenistan	...	...	...	...	...	...	...
Uzbekistan <sup>1)</sup>	80.0	0.0	4.0	6.1	0.0	3.1	3.6
Ukraine	...	...	...	...	...	...	...

### 13.14 Gross collection of main crops in 2022

mln. tons

	Grain and leguminous crops	Potatoes	Vegetables and melons
Kazakhstan	22.0	4.1	7.4
Azerbaijan	3.1	1.1	2.3
Armenia	0.2	0.4	0.7
Belarus	8.7	3.9	2.9
Kyrgyzstan	2.0	1.3	1.4
Moldova	1.8	0.2	0.3

Continuation

	Grain and leguminous crops	Potatoes	Vegetables and melons
Russia	157.7	18.8	15.2
Tajikistan	1.7	1.1	3.6
Turkmenistan	...	...	...
Uzbekistan <sup>1)</sup>	8.0	3.4	13.6
Ukraine	...	...	...

### 13.15 Productivity of grain and leguminous crops

	quintals per hectare of harvested area				
	2018	2019	2020	2021	2022
Kazakhstan	13.5	12.3	12.8	10.7	13.8
Azerbaijan	29.2	31.3	30.9	31.9	30.4
Armenia	26.1	16.9	20.5	12.9	21.8
Belarus	26.7	30.4	35.0	29.8	35.4
Kyrgyzstan	30.2	30.9	31.1	22.5	30.9
Moldova	35.8	37.5	18.7	50.4	20.9
Russia	25.4	26.7	28.6	26.7	33.6
Tajikistan	28.2	30.6	30.8	30.7	33.3
Turkmenistan	...	...	...	...	...
Uzbekistan	38.1	42.6	41.8	40.9	43.4
Ukraine	47.4	49.1	42.5	53.9	...

### 13.16 Number of cattle

	million heads on January 1					
	2018	2019	2020	2021	2022	
Kazakhstan	7.2	7.4	7.8	7.9	8.2	8.2
Azerbaijan	2.7	2.7	2.6	2.7	2.6	2.6
Armenia	0.6	0.6	0.6	0.6	0.6	0.6
Belarus	4.4	4.3	4.3	4.3	4.2	4.2
Kyrgyzstan	1.6	1.6	1.7	1.7	1.8	1.8
Moldova	0.2	0.1	0.1	0.1	0.1	0.1
Russia	18.3	18.2	18.1	18.0	17.6	17.6
Tajikistan	2.3	2.3	2.4	2.4	2.5	2.5
Turkmenistan	...	...	...	...	...	...
Uzbekistan	12.5	12.8	12.9	13.2	13.5	13.5
Ukraine	3.5	3.3	3.1	2.9	2.6	2.6

### 13.17 Production of main livestock products in 2022

	Meat (slaughter weight)		Milk		Eggs	
	thousand tons	per capita kg	thousand tons	per capita kg	million pieces	per capita pieces
Kazakhstan	1 245.3	64.0	6 320.0	322.0	5 027.1	258.5
Azerbaijan	368.2	36.5	2 264.7	224.0	2 018.1	199.9
Armenia	103.2	34.8	623.1	209.9	749.1	252.3
Belarus	1 220.5	132.3	7 871.1	853.0	3 462.3	375.2
Kyrgyzstan	241.7	34.7	1 734.1	248.6	607.8	87.1
Moldova	...	...	264.9	104.3	612.7	241.3
Russia	11 742.9	80.0	32 983.7	224.8	46 109.8	314.3
Tajikistan	190.8	19.1	1 064.2	275.0	1 212.2	121.4

Continuation

	Meat (slaughter weight)		Milk		Eggs	
	thousand tons	per capita kg	thousand tons	per capita kg	million pieces	per capita pieces
Turkmenistan	...	...	...	...	...	...
Uzbekistan	1 746.8	49.0	11 629.4	326.2	8 129.3	228.0
Ukraine	...	...	...	...	...	...

### 13.18 Water intake, water use and discharge of polluted wastewater in 2022

	Water intake from natural sources, million cubic meters	Water use million cubic meters	Discharge of polluted sewage into surface water bodies, total million cubic meters	of them without cleaning
Kazakhstan	24 966.7	20 443	53 218	0.04
Azerbaijan	13 842	10 528	208	208
Armenia	3 072	2 422	862	750
Belarus	1 414	1 270	3	-
Kyrgyzstan	8 597	5 915	2	2
Moldova	845	788	8	2
Russia	56 531	47 874	11 326	2 150
Tajikistan	...	...	...	...
Turkmenistan	...	...	...	...
Uzbekistan	...	...	...	...
Ukraine	...	...	...	...

### 13.19 Emissions of harmful substances into the atmosphere from stationary sources in 2022

thousand tons

	Emitted harmful substances	Including		From the total number of gaseous and liquid		
		solid	gaseous and liquid	sulfurous anhydride	carbon monoxide	nitrogen oxides
Kazakhstan	2 314.8	446.3	1 868.5	821.7	1.7	311.6
Azerbaijan	158	4	154	1	26	22
Armenia	106	9	97	1	4	2
Belarus	456	29	427	42	74	43
Kyrgyzstan	58	20	38	18	11	5
Moldova	17.5	2.2	15.3	1.0	5.1	1.6
Russia	17 174	1 668	15 506	3 429	5 169	1 973
Tajikistan	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...
Uzbekistan	874	167	707	...	74	14
Ukraine	...	...	...	...	...	...

## Methodological notes

Environment - a combination of natural and man-made objects, including atmospheric air, the ozone layer of the Earth, surface and underground waters, lands, subsoil, animal and plant world, as well as the climate in their interaction.

Environment – BBC with the topic of state and public measures aimed at the preservation and restoration of the environment, prevention of the negative impact of economic and other activity on the environment and the elimination of its consequences.

Current estimates of the population at the beginning of the year are calculated based on the results of the last census, to which the number of births and arrivals in a given territory is added each year and from which the number of deaths and departures from a given territory is subtracted. Current estimates of the population over the past years are updated on the basis of the results of the next census.

Natural population growth is equal to the difference in the number of births and deaths.

General birth and death rates - the ratio of the number of live-born and the number of deaths to the average annual population, multiplied by 1000.

Life expectancy at birth is the number of years that, on average, one person from the generation of births would have to live, provided that throughout this generation the mortality rate at each age remains the same as in the years for which the indicator is calculated.

Unemployment rate - the share of the number of unemployed in the labor force, measured as a percentage.

The mortality rate for the main classes of causes of death is calculated as the ratio of the number of deaths by the main classes of causes of death to the average annual population.

Maternal Mortality – Number of deaths of women from complications of pregnancy, child birth and the postpartum period per 100,000 live-born children.

Infant mortality - Number of children under 1 year per 1000 live births.

The incidence rate is determined by the ratio of the number of patients with the first established diagnosis to the average annual population.

Improvement of the housing stock – about Borum, the housing of individual residential premises by certain types of accomplishment: plumbing, sewage, central heating, gas, hot water, bathrooms, etc.

Living space is considered to be satisfied with Borum: running water, if the pipes are laid inside the dwelling. Water supply can be provided either from the central network or from an individual installation;

central heating, if the heating is carried out either by means of a central heating system or installation provided inside the building or dwelling and intended for heating purposes (regardless of the source of energy).

Gross domestic product at the production stage is determined by summing gross value added by industry. Gross domestic product is calculated at market prices, i.e. includes net taxes on products and imports. The term "net" means that taxes are shown net of related subsidies. This is one of the most important indicators of the system of national accounts, characterizing the final result of the economic activity of the country.

The production of an industrial enterprise in terms of value is the cost of products intended for the sale (marketing) of goods intended for further processing (semi-finished products of its own output and auxiliary and auxiliary production); works (services) of an industrial nature.

The volume of industrial production (goods and services) of the enterprise is determined by factory methods without the cost of intra-on Borum. Works, services of an industrial nature are included in the volume of manufactured industrial products at their cost, including the cost of their own consumable materials.

The volume of products for industry as a whole and its types of activity is defined as the

sum of data on the volume of products, goods and services of an industrial nature, produced by legal entities and their separate subdivisions regardless of the form of ownership. Data on the volume of production are given in actual prices (excluding VAT and excise taxes).

The aggregate data on the volume of industrial products in general includes the volumes of products (goods, services) produced by large, medium, small and subsidiary enterprises (industrial divisions at non-industrial enterprises), the household sector, also carried out calculations of the volume of products for non-observed activities.

Total land area is the surface area of the land along with inland waters located within the state border.

Agricultural land - plots of land used to produce agricultural products. They include arable land, land under perennial crops, hayfields and pastures.

Arable land - systematically cultivated agricultural land used for sowing crops, including sowing of perennial grasses and pure couples.

Hayfields are agricultural land systematically used for haymaking.

Pastures are agricultural land systematically used for grazing animals (this is the main use), as well as land plots suitable for grazing livestock that are not used for haying and are not fallow.

Irrigated lands are lands that have a permanent irrigated network (canals, pipelines, trays) associated with irrigation sources whose water resources provide for irrigation of these lands.

Disturbed lands are lands that have lost their initial value due to economic activity and are a source of negative environmental impact.

Reclaimed lands - lands brought into a condition suitable for use on the farm (rural, forest, water, etc.) and transferred to land users by acts in accordance with the current procedure for transferring reclaimed land by enterprises, organizations and institutions developing mineral deposits and peat conducting exploration, survey, construction and other works related to the violation of the soil cover.

Sown area - arable land planted with crops. It consists of: winter crops of the past year minus the winter death; Spring, sown in the current year on an independent area, including the re-sowing of winter crops and perennial grasses of the current year (without cover); perennial grasses sowing past years in the area that will be harvested in the current year, i.e. cutting area, preserved by spring.

Gross harvest of crops - products produced (collected) from the entire area of crops of various crops, agricultural plantations or other agricultural land. Gross harvest of grain crops, sunflower, sugar beet (factory) is set in weight after processing (net, test weight), for the rest of the crops - in the original capitalized (bunker) weight.

Crop yields are an indicator characterizing the average harvest of agricultural products per unit area; calculated as the ratio of the gross collection to the harvested area, in centners per 1 hectare.

The number of livestock and poultry - the number of live livestock and poultry available in the farms at the end of the reporting period.

The average monthly air temperature is determined as follows: to ensure uniformity and reliability of the results of observations, all stations located on the territory of the Republic of Kazakhstan conduct observations in accordance with the requirements and provisions of the Guide to Meteorological Instruments and Methods of Observation. Only the devices recommended for the Kazhydromet network for the relevant type of measurement are used for measurements.

Meteorological observations at all observation stations are made in a single synchronous timeframe according to the Greenwich Mean Time (GMT), taken as the international (8 timelines every 3 hours): 18, 21, 0, 3, 6, 9, 12 and 15 hours SGW.

Meteorological measurements are carried out regularly during the year in each period, including air temperature and precipitation.

To eliminate uncertainty at meteorological stations, the temperature is measured at a height of 2 m from the underlying surface in a protective louver box, which serves to eliminate the influence of solar radiation and radiation from surrounding objects on instrument readings and to protect against precipitation and strong gusts of wind.

Monthly precipitation is determined as follows: precipitation is measured 2 times a day to get the quantity for the day and night half of the day at 3 and 15 h SGV and is measured continuously throughout the year.

The amount of precipitation is determined by the volume of liquid water, which is obtained by collecting the precipitation by a receiving vessel with a fixed receiving surface area.

Water pollution index - the value of the complex index of water pollution (WPI), which is calculated for 6 indicators using the formula

$$IZV6 = \sum (qsr.i / PDKi) / 6, \text{ where}$$

q cf.i - the average concentration of the i-th substance

PDKi - the average daily maximum allowable concentration of the i-th substance.

The maximum permissible concentration (MPC) of an impurity (substance) in water resources is the maximum concentration of an impurity in water sources that does not cause adverse effects for the population, flora and fauna with constant or periodic exposure.

Water abstraction - the volume of water withdrawals from surface (including the sea) water bodies and underground horizons for the purpose of further water consumption. The total volume of the fence includes used mine-mine water, obtained by mining. This indicator does not include the volume of water passing through waterworks for producing electricity, sluicing ships, passing fish, maintaining navigable depths, etc. Also, the volume of intake of transit water for supply to large canals is not taken into account.

Water loss during transportation - water loss from the place of intake to the place of consumption (use) for evaporation, filtration, leakage, etc. This does not include the amount of water transferred for use to a third-party consumer.

Water use - the use of water taken from various sources of water (including sea water) to meet household needs. This does not include recycled water consumption, as well as the reuse of waste and collector-drainage water.

Discharge of wastewater - the volume of discharge of all types of wastewater directly into water bodies, underground horizons, drainage depressions, as well as the transfer of wastewater to other enterprises (organizations). Filtration fields are equated to drainless depressions, from which treated wastewater is not diverted to water sources. The volume of wastewater also includes industrial, municipal, mine, mine and other similar waters (for irrigation systems, drainage and other waste waters), as well as wastewater received from the outside.

Contaminated wastewater is water that does not represent any further immediate value for the purpose for which it was used, due to its quality, quantity or time of entry. However, the wastewater of one consumer can serve as a potential source of water for another consumer somewhere else.

Circulating water supply is a system for re-supplying treated water to industrial needs after cleaning, cooling and processing. Circulating water supply is used to save water in production.

Wastewater treatment - treatment of wastewater in order to extract, remove, neutralize the impurities contained in them to the established standards. Various methods are used for wastewater treatment: mechanical, physicochemical, biological.

Regulatory-treated wastewater - wastewater that has been cleaned at the relevant facilities, the discharge of which after treatment into water bodies does not lead to a violation of water quality standards at a controlled site or water use point, i.e. the content of pollutants in this wastewater must comply with the approved maximum permissible discharge (MPD).

The maximum permissible discharge (MPD) is the maximum amount of substances in wastewater allowed for discharge at a given point of a water body in units of time that does

not violate the water quality standards at a given site (pond). In statistics, the ratio of actual discharge and MPD is the main indicator characterizing the degree (category) of wastewater contamination.

Atmospheric pollution index (API5) - the value of the complex index of atmospheric pollution, which is calculated for the five substances with the highest values.

$IZA5 = \sum(q_{cf.i} / MPC_i) C_i$ , where

$q_{cf.i}$  - the average concentration of the  $i$ -th substance

MAC - the average daily maximum allowable concentration of the  $i$ -th substance;

$C_i$  - coefficient depending on the hazard class of the  $i$ -th substance taken to be 1.7; 1.3; 0.1 and 0.9 respectively for hazard classes 1, 2, 3, and 4

The average concentration of the pollutant is calculated as the arithmetic average of the one-off concentrations measured during the year.

Maximum permissible concentration of impurities in the atmosphere (MPC) - the maximum concentration of impurities in the atmosphere, referred to a specific time of averaging, which, with periodic effects or throughout a person's life, does not adversely affect them, including long-term effects, as well as on the environment as a whole.

Emissions of air pollutants - the release into the air of pollutants (having an adverse effect on the health or activity of the population, on the environment) of substances from stationary (non-mobile) emission sources. All pollutants entering the atmospheric air are taken into account both after passing the dust and gas treatment facilities (as a result of incomplete capture and purification) at organized sources of pollution, and without purification from organized and unorganized sources of pollution. Accounting for emissions of air polluting substances is carried out both by the state of aggregation (the amount of solid, gaseous and liquid), and by individual substances (ingredients).

A stationary source of air pollution is a non-mobile technological unit (installation, device, apparatus, etc.) that releases harmful substances during operation. This includes other objects (heaps, reservoirs, etc.).

Purification of gases that pollute the atmosphere (trapping) - removal of harmful substances from the gas-air mixture, exhaust from sources of air pollution, with the help of special devices, installations and equipment; it also includes neutralization, reduction of toxicity, neutralization, afterburning, etc. harmful substances in waste (generated) gases. Statistical observation in this case does not cover technological processes in which the formed and captured (recyclable) substances in accordance with the regulations were originally provided for the production of any types of raw materials, semi-finished products or finished products.

Maximum permissible emission (MPE) is a scientific and technical standard established from the condition that the content of pollutants in the surface layer of air from a source or their combination does not exceed the standards of air quality for the population, animal and plant world.

Availability, formation, use of toxic waste - accounting for the amount of formed, used, neutralized production and consumption wastes that pose a threat to public health and biological resources. All types of industrial toxic wastes that include harmful substances are considered

Waste disposal - operations for the disposal and destruction of waste.

Waste storage - storage of waste in designated areas for the purpose of their safe disposal.

Waste removal - storage of waste in places specially designated for its safe storage for an unlimited period.

Waste recycling - the use of waste as secondary material or energy resources.

The forest fund is a part of the territory of a country (region) occupied by the forest, as well as unoccupied by it, but intended for the needs of forestry. The forest fund includes forest area, i.e. the territory covered with forest (actually occupied by tree species forming the



stands) and uncovered by the forest, but intended for growing (burning, cutting, wasteland, clearing, openings, area of dead stands).

A forested area is the area actually occupied by tree species forming the plantations.

Reforestation - carrying out activities for the restoration of forests in cuttings, burns, wastelands, glades and other areas under the forest. Reforestation includes planting, sowing forests and promoting natural regeneration.

Thinning forest - periodic felling in plantations of the trees and shrubs, carried out since the formation of the desired composition, forms of plantings and increase growth.

The State Natural Conservancy area is a specially protected natural area, intended to preserve and study in its natural state and development of natural processes, typical and unique ecological systems, biological diversity and the genetic stock of the flora and fauna.

The State National Natural Park is a specially protected natural area intended for the preservation, restoration and multi-use of natural, historical and cultural complexes and objects of particular ecological, recreational and scientific value..

The State Natural Reserve is a specially protected natural area with different protection regimes, designed to preserve and restore landscape and biological diversity, ensure sustainable development and a balanced use of natural resources in a given territory.

Area of hunting grounds - lands occupied by forests, water and farmland, which serve as habitats for wild animals and birds and can be used for hunting.

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