



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

2019-2023



Astana 2024

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Statistical compilation

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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

Address: 010000, Republic of Kazakhstan
Astana city, Mangilik El avenue, 8
House of Ministries, Entrance 4
Agency for Strategic planning and reforms
of the Republic of Kazakhstan
Bureau of National statistics
Unified contact center: 1446
Email address: e.stat@aspire.gov.kz
Internet-resource: <http://stat.gov.kz>

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 fully characterize the state of the environment, the compilation 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 2019-2023.

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 th 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 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 – 2 724,9 thousand square meters km

The population density is 7,4 people per 1 square km

The population size as of 01.01.2024 – 20 033,8 thousand people

The natural population growth – 12,95 ppm per 1 000 people

The largest mountain ranges, m:

Khan-Tengri Peak (Saryzhaz Ridge) – 6 995

The peak of the 100 years of the VGO (Meridian ridge) – 6 276

Talgar Peak (Ilei Alatau) – 4 979

Mount Ishanbulak (Kungei Alatau) – 4 653

Mount Besbaskan (Zhetisu Alatau) – 4 622

Mount Metallurg (Ileysky Alatau) – 4 600

Muztau Peak (Altai Mountains, Katyn Ridge) – 4 506

Manas Peak (Talas Ridge) – 4 482

Mountain Ashutor (Teriskei Alatau) – 4 427

Mountain Muztau (Zhetisu Alatau) – 4 370

Komsomol Peak (Ilei Alatau) – 4 330

The largest lakes, thousand km

Caspian Sea – 374

Aral Sea (Central Asia) – 41

Balkhash – 18,2

The length of the borders of the republic, km

Total – 13 394

including:

with the Russian Federation – 7 591

with the Republic of Uzbekistan – 2 354

with the Kyrgyz Republic – 1 241

with Turkmenistan – 426

with China – 1 782

over the Caspian Sea – 600

On the territory of the republic flows 85 022 rivers and temporary streams.

The longest rivers, km

Irtys – 4 248

length within the republic – 1 698

Esil – 2 450

length within the republic – 1 400

Zhaiyk – 2 428

length within the republic – 1 082

Syrdarya – 2 219

length within the republic – 1 400

The largest region by territory is Aktobe region - 300 thousand square km.

The largest city in terms of population is Almaty – 2 228,7 thousand people

2. Social factors

2.1 Main socio-demographic indicators

	2019	2020	2021	2022	2023
Total land (territory) ¹⁾	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	18 630.9	18 878.9	19 503.1	19 766.8	20 033.8
Population density, people per 1 square. km					
Percent of urban population	58.6	59.0	61.5	61.8	62.2
Percent of rural population	41.4	41.0	38.5	38.2	37.8
Life expectancy at birth, years	73.18	71.37	70.23	74.44	75.09
Infant mortality rate, per 1 000 live births	8.28	7.68	8.32	7.69	7.67
Number of doctors per 10 000 population ²⁾	39.7	40.5	40.9	40.1	40.6
Employment rate, percent	95.2	95.1	95.1	95.1	95.3
Unemployment rate, percent	4.8	4.9	4.9	4.9	4.7
Real wage in percent of previous year	109.1	106.8	108.8	107.6	102.7
Percent of the population with incomes below the subsistence minimum	4.3	5.3	5.2	5.2	5.2
Percent of the population with incomes below the cost of the food basket	0.1	0.2	0.1	0.1	0.2
The crime rate per 10 000 people	1 310	870	830	800	705

¹⁾According to the Committee on Land Management of the Ministry of Agriculture of the Republic of Kazakhstan.

²⁾According to the Ministry of Health of the Republic of Kazakhstan.

2.2 Natural population movement

	people								
	Births			Deaths			Natural increase		
	Total	including		Total	including		Total	including	
female		male	female		male	female		male	
2019	401 869	194 048	207 821	132 621	60 721	71 900	269 248	133 327	135 921
2020	426 726	206 010	220 716	160 962	74 330	86 632	265 764	131 680	134 084
2021	445 875	215 902	229 973	181 216	87 117	94 099	264 659	128 785	135 874
2022	403 893	195 752	208 141	133 523	60 984	72 539	270 370	134 768	135 602
2023	388 428	187 869	200 559	130 686	59 247	71 439	257 742	128 622	129 120

2.3 Natural movement of the population per 1 000 people

	at the end of the year								
	Births			Deaths			Natural increase		
	Total	including		Total	including		Total	including	
female		male	female		male	female		male	
2019	21.71	20.34	23.16	7.16	6.37	8.01	14.54	13.98	15.15
2020	22.75	21.33	24.26	8.58	7.70	9.52	14.17	13.63	14.74
2021	23.47	22.08	24.93	9.54	8.91	10.20	13.93	13.17	14.73
2022	20.57	19.47	21.72	6.80	6.07	7.57	13.77	13.40	14.15
2023	19.52	18.45	20.64	6.57	5.82	7.35	12.95	12.63	13.29

2.4 Growth structure and population density

	at the end of the year				
	2019	2020	2021	2022	2023
All population, end of period	18 630 920	18 878 966	19 503 159	19 766 807	20 033 842
including:					
men	9 033 482	9 159 956	9 513 784	9 647 701	9 783 814
women	9 597 438	9 719 010	9 989 375	10 119 106	10 250 028
Population density, people per 1 square, km	6.8	6.9	7.2	7.3	7.4
Demographic load factors					
younger and older than working age	681	698	727	740	748
younger than working age	508	521	537	542	542
older than working age, per 1 000 people of working age	172	178	189	198	205

2.5 Interstate migration

people

	2019			2020		
	arrived	left	migration balance	arrived	left	migration balance
Total	12 255	45 225	-32 970	11 370	29 088	-17 718
including:						
CIS country	9 401	40 927	-31 526	8 277	25 747	-17 470
Azerbaijan	199	39	160	176	32	144
Armenia	34	6	28	23	2	21
Belarus	75	355	-280	42	234	-192
Kyrgyzstan	374	177	197	465	85	380
Moldova	15	6	9	9	3	6
Russia	3 378	39 774	-36 396	3 599	25 126	-21 527
Tajikistan	172	5	167	150	2	148
Turkmenistan	879	44	835	1 189	0	1 189
Uzbekistan	4 174	440	3 734	2 554	192	2 362
Ukraine	101	81	20	70	71	-1
Other country	2 854	4 298	-1 444	3 093	3 341	-248
Germany	230	2 803	-2 573	175	2 249	-2 074
Israel	12	150	-138	9	61	-52
Canada	18	82	-64	21	111	-90
Mongolia	270	11	259	147	3	144
Turkey	136	83	53	312	53	259
USA	83	273	-190	72	247	-175
Greece	3	5	-2	3	9	-6
Latvia	0	3	-3	0	0	0
Lithuania	5	2	3	0	0	0
Estonia	1	1	0	0	0	0
Georgia	43	3	40	99	8	91
Other countries	2 053	882	1 171	2 255	600	1 655
country not specified	-	-	-	-	-	-

Continuation

	2021			2022			2023		
	arrived	left	migration balance	arrived	left	migration balance	arrived	left	migration balance
Total	11 039	32 256	-21 217	17 425	24 147	-6 722	25 387	16 094	9 293
including:									
CIS country	9 435	27 505	-18 070	15 000	20 128	-5 128	21 913	12 448	9 465
Azerbaijan	377	47	330	290	31	259	269	32	237
Armenia	57	0	57	50	2	48	77	1	76
Belarus	70	288	-218	90	233	-143	155	210	-55
Kyrgyzstan	561	122	439	709	175	534	1 022	232	790
Moldova	9	39	-30	11	4	7	16	7	9
Russia	3 456	26 717	-23 261	5 891	19 383	-13 492	11 711	11 737	-26
Tajikistan	269	3	266	491	3	488	639	-	639
Turkmenistan	347	0	347	633	1	632	1 166	2	1 164
Uzbekistan	4 184	187	3 997	6 631	266	6 365	6 519	172	6 347
Ukraine	105	102	3	204	30	174	339	55	284
Other country	1 604	4 751	-3 147	2 425	4 019	-1 594	3 474	3 646	-172
Germany	183	3 138	-2 955	276	2 518	-2 242	324	2 283	-1 959
Israel	10	165	-155	33	123	-90	21	39	-18
Canada	28	101	-73	37	129	-92	30	114	-84
Mongolia	110	14	96	287	40	247	657	12	645
Turkey	217	97	120	249	97	152	315	58	257
USA	62	338	-276	88	339	-251	128	452	-324
Greece	2	21	-19	5	21	-16	8	7	1
Latvia	0	0	0	-	-	-	12	4	8
Lithuania	0	0	0	-	-	-	13	6	7
Estonia	0	0	0	-	-	-	1	1	-
Georgia	95	4	91	5	7	-2	236	8	228
Other countries	301	402	-101	1 445	745	700	1 729	662	1 067
country not specified	-	-	-	-	-	-	-	-	-

2.6 Average life expectancy at birth in 2023

	number of years		
	Total population	Female	Male
Republic of Kazakhstan	75.09	79.06	70.99
Abay	74.14	78.30	69.74
Akmola	74.25	78.81	69.77
Aktobe	74.71	78.45	70.76
Almaty	74.53	78.22	71.03
Atyrau	75.29	79.33	70.96
Batys Kazakhstan	74.08	78.69	69.51
Zhambyl	75.25	79.36	71.13
Zhetisu	74.64	78.64	70.55
Karagandy	73.43	77.84	68.67
Kostanai	73.65	78.12	68.99
Kyzylorda	74.58	78.10	71.04
Mangystau	75.84	79.90	71.58
Pavlodar	74.33	78.71	69.63
Soltustik Kazakhstan	73.13	78.10	68.21
Turkistan	74.94	78.34	71.65
Ulytau	72.41	76.95	68.04
Shygys Kazakhstan	73.20	78.00	68.60
Astana city	78.09	81.28	74.23
Almaty city	78.28	81.43	74.47
Shymkent city	76.32	79.56	72.60

2.7 Life expectancy

	years				
	2019	2020	2021	2022	2023
Entire population	73.18	71.37	70.23	74.44	75.09
including:					
men	68.82	67.09	66.33	70.26	70.99
women	77.30	75.53	74.03	78.41	79.06

2.8 Mortality rates by cause in 2023

Classes of causes of death	Number of deaths, people			Mortality rate, per 100000 people		
	total	including		total	including	
		female	male		female	male
Total	130 686	59 247	71 439	656.75	649.25	667.78
including						
circulatory system diseases	28 746	11 354	17 392	144.50	179.00	111.50
accidents, poisoning and injuries	10 933	2 378	8 555	54.94	23.35	88.05
neoplasms	13 704	6 443	7 261	68.86	63.26	74.73
respiratory diseases	12 938	5 116	7 822	65.01	50.23	80.51
diseases of the digestive system	10 631	4 471	6 160	53.42	43.90	63.40
infectious and parasitic diseases	1 271	488	783	6.39	4.79	8.06
other diseases	52 463	28 997	23 466	263.63	284.72	241.53

2.9 Maternal mortality*

	Number of deaths of pregnant women, pregnant women, postpartum women, people	Per 100000 live births
2019	55	13.7
2020	156	36.5
2021	200	44.7
2022	70	17.0
2023	45	11.4

* 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
2019	8.3	7.2	9.3
2020	7.7	6.8	8.5
2021	8.3	7.7	8.9
2022	7.7	6.8	8.5
2023	7.7	6.7	8.5

2.11 Mortality of children under 5 years old

per 1000 born

	Mortality rate		
	total	female	male
2019	10.52	9.10	11.85
2020	9.28	8.13	10.36
2021	9.90	9.02	10.73
2022	9.88	8.76	10.93
2023	10.03	8.72	11.24

2.12 Morbidity by disease groups*

thousand cases

	2019	2020	2021	2022	2023
The number of registered diseases with the first established diagnosis – total, thousand cases	10 148.0	10 083.0	10 104.8	9 870.9	9 504.5
Of them:					
infectious and parasitic diseases	240.8	295.2	250.3	250.5	270.4
neoplasms	130.2	121.9	137.9	146.0	165.0
endocrine, nutritional and metabolic disorders	179.6	187.6	224.8	235.3	255.4
diseases of the blood, blood-forming organs and certain disorders involving the immune mechanism	311.3	266.3	232.2	221.7	196.1
mental and behavioral disorders	9.8	8.5	9.9	11.5	13.1
mental and behavioral disorders associated with the use of psychoactive substances	16.0	14.2	13.4	12.5	13.9
nervous system diseases	345.9	343.6	378.8	389.0	395.0
diseases of the eye and its adnexa	432.6	386.7	421.7	425.9	467.0
diseases of the ear and mastoid process	276.5	241.5	254.3	278.0	311.6
circulatory system diseases	520.5	567.2	519.5	514.1	553.5
respiratory diseases	4 303.3	4 333.0	4 195.8	3 934.4	3 660.9
diseases of the digestive system	780.8	781.1	710.3	763.3	782.4
diseases of the genitourinary system	762.6	664.4	595.0	567.4	578.2
complications of pregnancy, childbirth and the postpartum period	216.4	221.5	204.7	189.4	182.4
diseases of the skin and subcutaneous tissue	514.6	487.2	479.4	456.1	469.2
diseases of the musculoskeletal system and connective tissue	388.5	391.3	409.8	433.2	472.8
congenital anomalies (malformations), deformities and chromosomal abnormalities	78.3	72.8	78.9	73.9	73.6
symptoms, signs and abnormalities	33.6	34.3	63.9	51.8	73.5
Injuries, poisoning and some other consequences of external causes	540.7	505.0	478.0	489.7	468.7

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

2.13 The incidence of individual infectious and parasitic diseases*

thousand cases

	2019	2020	2021	2022	2023
Acute intestinal infections	11.4	6.9	8.9	13.1	13.0
Typhoid and paratyphoid A, B, C	0.001	-	-	-	-
Salmonella infections	1.1	0.5	0.5	0.9	0.9
Viral hepatitis, total	0.7	0.6	0.2	0.5	2.0
Influenza and acute viral infections	541.4	613.1	1 162.4	1 502.4	4 177.6
Scarlet fever	0.8	2.2	1.9	7.9	7.3
Whooping cough	0.147	0.054	0.001	0.003	0.4
Tetanus	0.001	-	-	-	-
Measles	13.3	3.3	0.002	0.04	29.7

2.14 The incidence of individual infectious and parasitic diseases per 10000 population*

thousand cases

	2019	2020	2021	2022	2023
Acute intestinal infections	61.6	37.1	47	66.4	65.6
Typhoid and paratyphoid A, B, C	0.005	-	-	-	-
Salmonella infections	5.9	2.7	2.6	4.9	4.7
Viral hepatitis, total	3.9	3.1	1.3	2.5	10.2
Influenza and acute viral infections	2 924.5	3 269.0	6 117.5	7 610.7	20 992.7
Scarlet fever	4.1	11.7	10.3	40.4	36.9
Whooping cough	0.8	0.3	0.01	0.02	2.1
Tetanus	0.005	-	-	-	-
Measles	72.0	17.4	0.001	0.02	149.4

* 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

	2019	2020	2021	2022	2023
Cholera					
Republic of Kazakhstan	4	-	-	-	-
Almaty city	2	-	-	-	-
Astana city	-	-	-	-	-
Typhoid fever					
Republic of Kazakhstan	1	-	-	-	-
Almaty	-	-	-	-	-
Zhambyl	-	-	-	-	-
Astana city	1	-	-	-	-
Almaty city	-	-	-	-	-
Acute intestinal infection					
Republic of Kazakhstan	-	179	8 932	13 116	13 048
Abay	-	-	-	-	298
Akmola	-	3	299	323	394
Almaty	-	16	915	1 209	1 090
Atyrau	-	0	406	781	119
Batys Kazakhstan	-	11	244	654	683
Zhambyl	-	36	870	1 327	1 152
Zhetisu	-	-	-	-	1 139
Karagandy	-	0	1 112	1 030	834
Kostanay	-	1	46	605	616
Kyzylorda	-	30	739	1 838	1 542
Mangystau	-	1	535	197	156
Pavlodar	-	8	893	394	471
Soltustik Kazakhstan	-	-	-	285	270
Turkistan	-	25	144	539	528
Ulytau	-	-	-	-	75
Shygys Kazakhstan	-	8	330	931	578
Astana city	-	28	264	1 355	250
Almaty city	-	1	349	331	1 611
Shymkent city	-	11	944	1 048	863

* 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*

thousand cases

	2019	2020	2021	2022	2023
Acute respiratory viral infection					
Republic of Kazakhstan	539 226	610 453	1 161 815	1 501 338	4 175 491
Abay	-	-	-	-	51 819
Akmola	19 602	32 687	69 338	106 963	219 238
Aktobe	6 527	11 655	15 336	29 442	288 834
Almaty	30 501	35 856	72 508	70 642	266 910
Atyrau	2 505	3 508	3 620	6 700	177 774
Batys Kazakhstan	23 439	31 382	59 756	58 854	242 074

Continuation

	2019	2020	2021	2022	2023
Zhambyl	13 431	12 122	18 629	65 763	344 142
Zhetisu	-	-	-	-	114 597
Karagandy	56 324	64 925	74 699	61 380	78 117
Kostanay	60 132	56 306	93 847	111 223	142 124
Kyzylorda	16 320	20 114	30 176	28 543	80 030
Mangystau	20 488	14 424	26 237	23 181	26 244
Pavlodar	22 436	44 632	92 199	65 807	245 407
Soltustik Kazakhstan	39 138	46 083	44 509	45 148	74 512
Turkistan	8 422	8 443	9 869	7 776	250 186
Ulytau	-	-	-	-	5 934
Shygys Kazakhstan	70 987	80 084	114 084	134 157	220 402
Astana city	50 853	33 639	93 969	143 798	871 852
Almaty city	77 980	99 647	323 571	505 514	367 754
Shymkent city	20 141	14 946	19 468	36 447	107 541
	Influenza				
Republic of Kazakhstan	2 214	2 678	569	3 055	2 098
Abay	-	-	-	-	88
Akmola	132	375	1	40	1
Aktobe	156	201	16	257	30
Almaty	75	177	18	286	49
Atyrau	61	14	7	30	162
Batys Kazakhstan	134	181	98	78	98
Zhambyl	110	105	4	89	90
Zhetisu	-	-	-	-	182
Karagandy	83	150	33	330	66
Kostanay	143	71	33	206	67
Kyzylorda	166	188	7	300	322
Mangystau	229	122	101	83	118
Pavlodar	96	187	12	14	67
Soltustik Kazakhstan	226	422	8	282	24
Turkistan	6	-	16	56	38
Ulytau	-	-	-	-	6
Shygys Kazakhstan	72	113	55	434	57
Astana city	232	139	96	296	272
Almaty city	213	208	48	181	246
Shymkent city	80	25	16	93	115

* 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

	2019	2020	2021	2022	2023
Republic of Kazakhstan	45.6	35.7	35.9	36.5	34.7
Abay	-	-	-	-	39.7
Akmola	51.0	42.0	41.5	39.0	38.7
Aktobe	49.7	36.8	35.5	39.3	37.3
Almaty	43.4	35.2	33.9	36.0	38.3
Atyrau	66.6	54.8	62.3	57.3	45.5
Batys Kazakhstan	47.2	44.3	44.2	47.2	44.2
Zhambyl	45.1	35.8	37.4	32.9	34.2
Zhetisu	-	-	-	-	38.4
Karagandy	43.5	34.7	32.8	40.7	37.4
Kostanay	56.2	44.4	42.2	48.1	40.4
Kyzylorda	51.4	48.5	46.1	48.8	47.9
Mangystau	52.1	46.0	43.0	41.8	31.8
Pavlodar	45.0	38.7	40.9	40.5	39.4
Soltustik Kazakhstan	63.1	40.1	33.9	39.3	40.6
Turkistan	36.0	26.5	27.5	26.1	24.4
Ulytau	-	-	-	-	37.5
Shygys Kazakhstan	49.3	36.9	41.8	41.9	42.7
Astana city	44.3	33.9	37.6	33.4	34.9
Almaty city	33.6	25.8	23.1	22.3	22.0
Shymkent city	41.4	23.5	28.3	27.2	25.7

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

2.18 Incidence of malignant neoplasms*

number of cases per 100000 population

	2019	2020	2021	2022	2023
Republic of Kazakhstan	190.0	168.0	190.1	193.9	202.9
Abay	-	-	-	239.9	259.8
Akmola	236.3	207.3	231.4	238.4	257.9
Aktobe	190.6	161.7	189.7	179.1	199.9
Almaty	135.8	124.0	136.9	136.7	136.4
Atyrau	154.5	138.2	160.4	151.9	160.6
Batys Kazakhstan	228.8	191.6	211.9	219.3	236.4
Zhambyl	137.4	124.6	133.7	131.8	132.8
Zhetisu	-	-	-	178.2	190.2
Karagandy	268.6	225.4	270.2	345.7	309.8
Kostanay	286.8	250.5	275.9	312.5	318.4
Kyzylorda	132.9	150.8	145.5	140.9	153.9
Mangystau	122.2	100.4	117.1	129.9	132.6
Pavlodar	317.4	265.2	318.4	316.5	320.9
Soltustik Kazakhstan	346.6	289.1	318.5	319.0	336.2
Turkistan	77.7	78.4	78.5	89.0	94.6
Ulytau	-	-	-	-	212.6
Shygys Kazakhstan	277.6	239.4	293.3	340.8	346.9
Astana city	187.2	157.3	179.7	176.7	187.0
Almaty city	196.5	193.2	224.0	226.8	242.7
Shymkent city	137.3	111.2	122.8	112.6	122.4

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

2.19 Incidence of respiratory diseases*

number of cases per 100000 population

	2019	2020	2021	2022	2023
Republic of Kazakhstan	23 243.7	23 102.6	22 081.9	20 037.8	18 396.4
Abay	-	-	-	21 414.2	21 039.5
Akmola	22 860.8	20 106.8	20 524.7	15 343.3	15 304.3
Aktobe	16 106.3	15 761.0	15 784.1	15 498.4	14 904.7
Almaty	34 077.1	32 411.8	31 444.4	33 036.7	30 141.3
Atyrau	11 177.3	16 858.7	16 753.4	12 106.1	12 503.1
Batys Kazakhstan	17 133.9	17 153.0	18 079.2	17 205.0	17 461.3
Zhambyl	28 333.7	28 848.8	26 919.6	24 848.7	21 825.2
Zhetisu	-	-	-	16 992.4	13 831.0
Karagandy	18 909.4	23 812.5	25 569.4	23 348.3	22 285.4
Kostanay	26 213.3	26 296.9	27 366.1	24 913.3	24 871.8
Kyzylorda	16 822.8	17 511.7	15 935.2	14 477.7	14 299.0
Mangystau	17 906.1	15 473.7	16 831.4	11 923.2	10 307.3
Pavlodar	34 202.2	33 197.9	29 991.0	25 376.5	24 453.4
Soltustik Kazakhstan	22 098.1	26 029.2	27 767.1	27 447.2	27 384.7
Turkistan	13 099.9	10 946.0	7 296.9	7 182.2	6 615.7
Ulytau	-	-	-	15 594.6	12 979.1
Shygys Kazakhstan	25 518.9	24 305.1	23 741.2	22 225.2	22 068.3
Astana city	26 655.6	26 924.5	29 102.9	34 728.8	28 053.0
Almaty city	29 324.2	28 521.4	23 958.8	20 588.5	18 596.2
Shymkent city	20 133.8	19 324.2	16 914.6	13 262.3	10 386.2

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

2.20 Anemia incidence by age group*

number of cases per 100000 population

Age groups	2019	2020	2021	2022	2023
Total	1 555.2	1 272.7	1 016.0	983.2	875.5
Children 0-14 years old	3 193.7	2 288.4	1 754.1	1 715.6	1 541.9
Teenagers 15-17 years old	2 984.0	2 292.2	1 891.8	1 725.0	1 487.2
Adults 18 years and older	776.3	770.5	633.4	605.1	534.4

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

2.21 Anemia incidence by regions

number of cases per 100000 population

	2019	2020	2021	2022	2023
Republic of Kazakhstan	1 555.2	1 272.7	1 016.0	983.2	875.5
Abay	-	-	-	1 083.2	999.0
Akmola	736.7	574.9	623.8	395.9	548.2
Aktobe	1 506.2	1 418.9	1 335.9	1 331.4	1 238.9
Almaty	2 077.5	2 054.5	1 884.2	1 884.3	1 196.2
Atyrau	1 595.1	1 548.4	1 603.1	1 603.0	1 528.5
Batys Kazakhstan	1 775.6	1 719.4	1 714.9	1 619.2	1 601.0
Zhambyl	1 988.2	1 988.6	927.3	1 604.4	1 232.7
Zhetisu	-	-	-	1 052.3	1 252.4
Karagandy	477.2	390.9	273.1	253.7	284.1
Kostanay	385.4	377.6	388.2	384.0	353.4
Kyzylorda	3 493.3	2 846.3	2 663.1	2 330.8	2 040.3
Mangystau	2 443.4	1 737.5	1 115.8	1 094.9	976.7
Pavlodar	607.3	473.3	481.2	439.0	409.7
Soltustik Kazakhstan	694.8	689.4	622.3	536.1	462.9
Turkistan	2 518.0	1 431.8	648.4	659.1	606.8
Ulytau	-	-	-	299.8	323.7
Shygys Kazakhstan	903.9	780.1	726.7	460.2	438.6
Astana city	818.9	600.5	470.3	578.7	708.1
Almaty city	1 004.2	731.4	660.1	598.2	605.9
Shymkent city	2 793.2	2 191.9	1 662.1	1 340.9	1 008.1

2.22 The number of patients with anemia consisting on the dispensary

people

Age groups	2019	2020	2021	2022	2023
Total	247 577	270 908	246 691	255 764	241 395
Children 0-14 years old	142 340	138 407	123 148	130 407	123 463
Teenagers 15-17 years old	15 381	15 095	13 075	13 008	12 267
Adults 18 years and older	89 856	117 406	110 468	112 349	105 665

2.23 Morbidity in ecologically unfavorable regions and the city of Almaty in 2023*

number of cases per 100000 population

	Republic of Kazakhstan	Shygys Kazakhstan	Kyzylorda	Karagandy	Almaty city
Active tuberculosis	34.7	42.7	47.9	37.4	22.0
Malignant neoplasms	202.9	346.9	153.9	309.8	242.7
Malignant neoplasms of the breast, people	27.3	41.0	20.2	39.2	35.5
Mental and behavioral disorders due to alcohol use	55.7	131.2	68.9	56.7	23.5
Mental and behavioral disorders	65.6	109.5	77.5	82.2	39.6

* 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

	2019	2020	2021	2022	2023
Sunburn	124	2	9	0	16
First degree sunburn	38	8	9	0	7
Second degree sunburn	16	4	4	0	3
Third degree sunburn	6	-	-	0	0
Another sunburn	35	5	2	0	9
Uncpecified sunburn	29	5	2	0	14
Other skin changes, caused by ultraviolet radiation	499	-	-	0	13
Drug photoxic reaction	27	-	1	0	3
Drug photoallergic reaction	32	1	1	0	12
Photo contact dermatit [berloque dermatitis]	349	73	110	25	231
Solar urticaria	25	17	38	2	46
Polymorphic light mouse	26	-	1	0	0

	Continuation				
	2019	2020	2021	2022	2023
Other refined acute skin changes caused by ultraviolet radiation	29	11	9	0	3
Acute skin change caused by ultraviolet radiation, unspecified	11	-	-	0	1
Skin changes caused by chronic exposure to non-ionizing radiation	47	4	2	3	8
Actinic (photochemical) keratosis	35	3	3	0	17
Actinic reticuloid	-	-	-	0	1
Rhombic skin on the back of the head (neck)	1	-	-	0	1
Poikiloderma Sivatta	-	-	-	0	0
Senile atrophy (lethargy) of the skin	4	2	1	0	10
Actinic (photochemical) granuloma	1	-	1	0	0
Other skin changes, caused by chronic exposure to non-ionizing radiation	4	-	1	2	5
Skin change, caused by chronic exposure to non-ionizing radiation, unspecified	2	1	1	1	5
Radiation dermatitis	-	-	-	0	0
Acute radiation dermatitis	-	-	-	0	1
Chronic radiation dermatitis	-	-	-	0	0
Radiation dermatitis, unspecified	-	-	-	0	0
Other diseases of the skin and subcutaneous tissue associated with radiation	47	2	2	4	23
Erythema burn (dermatitis ab igne)	10	3	1	1	11
Other specified diseases of the skin and subcutaneous tissue associated with radiation	8	3	3	2	14
Skin and subcutaneous tissue diseases associated with exposure to radiation, unspecified	29	3	3	1	8

2.25 Vaccination coverage of children¹⁾

in percent

	2019	2020	2021	2022	2023
BCG ²⁾	96.6	97.9	96.1	93.4	93.0
OPV-3 ³⁾	97.4	88.3	95.2	98.6	96.7
AKDS-3 ⁴⁾	97.4	88.3	95.3	98.6	96.7
HBV-3	-	-	-	-	-
Mumps (under 2 years of age)	99.2	92.9	97.3	99.2	99.9
Measles (under 2 years old)	99.2	92.9	97.4	99.2	99.0
BCG revaccination (under 7 years old)	51.9	58.7	53.3	57.1	1.4
Measles booster vaccination	97.8	-	95.9	97.3	99.7
HBV-3 ⁵⁾	97.7	-	95.4	98.8	96.8

¹⁾ According to the Ministry of Health of the Republic of Kazakhstan, the percent of immunized children.

²⁾ BCG - tuberculosis.

³⁾ OPV-3 - complete vaccination of the course against poliomyelitis.

⁴⁾ AKDS-3 - diphtheria, whooping cough, and tetanus.

⁵⁾ HBV-3 - against viral hepatitis B.

2.26 The results of preventive examinations of children aged 0-14 years in 2023*

	1000 examined children identified			
	with reduced hearing acuity	with reduced visual acuity	with scoliosis	with posture violation
Republic of Kazakhstan	1.7	11.9	1.7	2.3
Abay	0.6	9.1	2.5	1.6
Akmola	0.5	4.2	0.9	1.4
Aktobe	1.1	12.8	0.6	1.8
Almaty	4.6	4.4	4.3	5.8
Atyrau	1.3	26.1	1.0	0.7
Batys Kazakhstan	3.4	23.7	2.2	1.7
Zhambyl	0.3	3.1	0.6	0.3
Zhetisu	0.9	7.7	0.6	1.3
Karagandy	4.3	31.4	3.4	6.7

	1000 examined children identified			
	with reduced hearing acuity	with reduced visual acuity	with scoliosis	with posture violation
Kostanay	0.5	9.3	1.7	1.8
Kyzylorda	3.7	19.5	0.3	0.5
Mangystau	0.4	6.4	0.9	0.6
Pavlodar	0.8	14.7	4.5	6.9
Soltustik Kazakhstan	1.5	27.3	5.3	4.3
Turkistan	0.7	1.8	0.4	0.2
Ulytau	2.1	12.4	1.5	1.2
Shygys Kazakhstan	1.7	22.7	1.9	2.7
Astana city	2.1	22.2	1.9	4.8
Almaty city	0.7	13.3	2.2	2.6
Shymkent city	1.6	7.3	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

	2019	2020	2021	2022	2023
Republic of Kazakhstan	2.20	1.98	1.85	1.63	1.33
Abay	1.71	1.56	1.88	1.47	1.48
Akmola	2.44	2.72	2.45	3.18	2.66
Aktobe	2.06	1.58	1.22	0.98	0.86
Almaty	1.30	1.21	1.12	0.67	0.79
Atyrau	2.03	2.30	1.96	1.60	1.43
Batys Kazakhstan	3.21	2.28	2.26	2.04	1.88
Zhambyl	2.84	1.94	1.49	1.24	1.64
Zhetisu	1.06	1.96	2.41	1.14	1.00
Karagandy	4.00	2.70	2.88	2.56	1.76
Kostanay	3.22	3.00	2.91	1.92	1.80
Kyzylorda	2.00	1.86	1.83	1.69	1.31
Mangystau	2.32	1.27	0.96	1.72	0.90
Pavlodar	2.52	2.00	1.47	1.46	1.06
Soltustik Kazakhstan	4.72	2.93	3.15	2.80	2.82
Turkistan	1.20	0.84	0.87	0.52	0.56
Ulytau	2.64	5.28	2.64	4.52	4.06
Shygys Kazakhstan	2.20	4.55	3.47	3.96	2.33
Astana city	1.62	1.97	2.46	1.58	1.51
Almaty city	2.17	2.05	1.40	1.88	1.09
Shymkent city	1.37	0.76	1.74	0.93	0.41

2.28 Mortality from respiratory diseases

number of cases per 100000 population

	2019	2020	2021	2022	2023
Republic of Kazakhstan	87.64	122.72	108.49	66.76	65.01
Abay	109.28	109.99	122.39	54.01	58.30
Akmola	81.62	120.03	116.84	67.61	75.00
Aktobe	106.73	186.83	133.15	98.76	95.10
Almaty	118.19	133.07	129.10	91.21	84.82
Atyrau	97.88	161.08	106.70	75.67	74.15
Batys Kazakhstan	117.36	139.63	145.76	97.41	99.61
Zhambyl	94.27	142.84	138.98	80.81	84.15
Zhetisu	156.01	189.46	216.76	125.8	106.11
Karagandy	89.47	92.54	75.97	49.08	47.40
Kostanay	175.29	177.39	191.27	122.2	125.37
Kyzylorda	65.39	136.45	58.25	45.75	50.73
Mangystau	44.55	97.92	44.47	27.23	28.57
Pavlodar	96.06	155.87	135.03	99.11	83.24
Soltustik Kazakhstan	178.05	273.65	337.92	175.4	156.74
Turkistan	36.64	76.67	71.20	33.98	38.34
Ulytau	95.60	124.11	60.81	47.93	41.53
Shygys Kazakhstan	98.78	92.16	152.98	69.71	51.33
Astana city	31.16	52.12	33.57	24.45	25.86
Almaty city	68.66	90.23	66.06	50.06	47.83
Shymkent city	45.14	106.91	58.54	29.99	38.11

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

	2019	2020	2021	2022	2023
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)	1.27	1.28	1.27	0.60	0.78
Mortality from unintentional poisoning	2.29	2.02	1.65	1.46	1.33

2.30 Accidents, poisonings and injuries

	Number of deaths, people					per 100000 people				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Republic of Kazakhstan	11 952	10 730	11 218	11 182	10 933	64,56	57,21	59,04	56,95	54,94
Abay	486	423	473	478	464	75,44	65,99	74,12	78,4	76,20
Akmola	602	639	632	596	547	81,76	86,96	86,17	75,7	69,42
Aktobe	487	453	491	491	521	55,65	51,05	54,57	53,2	55,79
Almaty	861	784	761	964	866	62,28	55,91	53,36	64,8	57,03
Atyrau	271	284	301	276	332	42,37	43,61	45,43	40,2	47,53
Batys Kazakhstan	508	477	472	485	480	77,63	72,39	71,15	70,7	69,50
Zhambyl	675	585	547	707	613	59,92	51,61	47,84	58,2	50,23
Zhetisu	531	445	459	513	527	80,19	67,23	69,14	73,4	75,46
Karagandy	928	859	887	878	879	80,69	74,78	77,37	77,4	77,44
Kostanay	818	822	875	752	649	94,02	94,93	101,68	90,3	78,09
Kyzylorda	308	300	345	383	332	38,59	37,11	42,04	46,2	39,63
Mangystau	267	248	325	294	293	38,75	34,94	44,47	38,9	37,71
Pavlodar	707	671	662	623	567	93,93	89,32	88,42	82,4	75,16
Soltustik Kazakhstan	588	555	510	442	411	106,72	101,72	94,49	82,4	77,24
Turkistan	1009	818	951	890	925	50,51	40,33	46,22	42,4	43,41
Ulytau	166	151	160	157	166	73,13	66,46	70,51	71,0	74,94
Shygys Kazakhstan	998	842	921	726	765	136,92	116,17	127,74	99,1	104,99
Astana city	419	400	479	433	498	37,63	34,29	39,31	32,6	35,77
Almaty city	904	602	589	694	674	47,82	30,84	29,37	32,4	30,70
Shymkent city	419	372	378	400	424	40,94	35,22	34,58	33,7	35,12

Accessibility of education

2.31 Gross enrollment ratio in higher education

in percent

	2019	2020	2021	2022	2023
Total in the country	67.0	64.1	62.6	59.1	54.4
including:					
men	61.0	58.1	56.3	53.6	49.9
women	73.2	70.4	69.2	64.9	59.1

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

	2019	2020	2021	2022	2023
Total in the country	104.6	105.4	104.4	101.0	102.2
including:					
men	104.6	105.4	104.3	101.0	102.2
women	104.6	105.5	104.6	101.1	102.3

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

	2019	2020	2021	2022	2023
Total in the country	23.6	26.6	26.4	28.0	26.5
including:					
men	10.5	11.8	11.9	12.5	11.6
women	13.1	14.8	14.5	15.5	14.9

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

in percent

	2019	2020	2021	2022	2023
Total in the country	30.4	30.6	29.8	26.4	25.7
including:					
men	16.1	16.3	15.6	13.8	13.5
women	14.3	14.3	14.2	12.6	12.2

2.35 Graduates of higher education institutions for environmental professions

people

Name of specialties	2019	2020	2021	2022	2023
Ecology	988	897	705	711	9
Life safety and environmental protection	1 300	1 483	1 183	1 022	2
Water resources and water use	298	275	287	220	134
Land management	190	235	220	229	79
Forest resources and forestry	239	290	502	316	-
Total graduates in environmental professions	3 015	3 180	2 897	2 498	224
The share of graduates in environmental professions in the total number of graduates of higher educational institutions	2,12	2,07	1,91	1,54	0,14
For reference:					
Graduation of students of higher educational institutions	142 435	153 627	151 679	161 974	157 106

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

people

	2019	2020	2021	2022	2023
Total number of employees	1 683 146	1 645 247	1 641 593	1 671 149	1 692 214
Including:					
employed in conditions that do not meet sanitary and hygienic requirements	370 277	366 898	374 987	386 349	410 318
of them:					
working under the influence of increased noise and vibration	170 034	169 802	169 438	180 975	187 709
increased dustiness and gas contamination of the working area exceeding the MPC	120 825	119 666	120 556	128 135	131 389
adverse temperature conditions	62 799	62 202	61 660	64 571	65 575
engaged in heavy physical labor	93972	94 319	93 647	102 668	107 166
working on equipment that does not meet safety requirements	3 561	3 556	4 168	2 121	1 893

2.37 The proportion in the total number of employees

in percent

	2019	2020	2021	2022	2023
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	22.0	22.3	22.8	23.1	24.2
of them:					
working under the influence of increased noise and vibration	10.1	10.3	10.3	10.8	11.1
increased dustiness and gas contamination of the working area exceeding the MPC	7.2	7.3	7.3	7.7	7.8
adverse temperature conditions	3.7	3.8	3.8	3.9	3.9
engaged in heavy physical labor	5.6	5.7	5.7	6.1	6.3
working on equipment that does not meet safety requirements	0.2	0.2	0.3	0.1	0.1

2.38 Number of employees employed in harmful and unfavorable working conditions in 2023

people

	Total number of employees	Of them						engaged in heavy physical labor	working on equipment that does not meet safety requirements
		employed in conditions that do not meet sanitary and hygienic requirements (standards)	of them working under the influence		adverse temperature conditions	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					
Industry, total	1 692 214	410 318	187 709	131 389	65 575	107 166	1 893		
including:									
mining and quarrying	194 573	103 158	60 842	45 473	16 235	31 100	700		
manufacturing industry	310 557	112 634	57 521	50 469	22 883	19 368	200		
electricity, gas, steam and air conditioning	99 934	34 753	21 319	12 688	10 645	5 098	116		
water supply, sewerage system, waste collection and distribution control	40 512	14 366	6 010	3 930	1 811	4 756	71		
Construction	143 630	18 045	9 642	7 215	4 459	8 296	23		
Transport and warehousing	225 351	57 388	24 614	7 432	5 597	31 030	43		
Information and communication	63 091	1 182	372	185	138	136	-		
Professional, scientific and technical activities	49 498	10 432	5 191	829	2 017	1 461	-		
Health and social services	466 183	53 128	1 051	1 673	649	4 372	740		

2.39 The number of victims of accidents connected with work

	2019	2020	2021	2022	2023
The number of victims of accidents related to work, total, people	2 111	2 033	2 133	2 449	2 670
including: fatal	190	203	176	205	246
The number of people injured in work-related accidents per 1.000 employees, people	0.4	0.4	0.4	-	-
including: fatal	0.04	0.04	0.03	-	-

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

		people			
Name of groups		2019			
Military establishment		27			
Heads (representatives) of authorities at all levels, including heads of organizations		275			
Specialists of the highest qualification level		176			
Professionals of average skill level (support staff)		20			
Employees engaged in the preparation of information, paperwork, accounting and maintenance		160			
Employees in the service sector, housing and communal services, trade and related activities		23			
Qualified employees in agriculture, forestry, hunting, fish farming and fisheries		724			
Qualified employees of large and small industrial organizations, art crafts, construction, transport, communications, geology and exploration of mineral resources		412			
Operators, apparatuses, drivers of plants and machines and mechanics - assemblers		255			
Unqualified employees		39			
		Continuation			
Name of groups		2020	2021	2022	2023
Executives and civil servants		32	18	20	24
Professional specialists		180	186	221	253
Technicians and other professional support staff		153	156	157	171
Administration Officers		13	20	8	17
Service and sales staff		117	123	146	144
Farmers and workers in agriculture and forestry, fish farming and fisheries		32	32	32	23
Employees in industry, construction, transport and other related occupations		813	795	1 009	1 245
Production Equipment Operators, assemblers and drivers		361	519	602	514
Unqualified employees		302	260	235	255
Non-Employees		30	24	19	24

2.41 The number of victims of accidents by reasons

		people				
Causes of accidents		2019	2020	2021	2022	2023
Constructive defects of machines, mechanisms and equipment		17	13	14	7	19
Operation of defective machines, mechanisms and equipment		21	6	11	16	16
Violation of technological processes		30	22	17	10	14
Violation of safety requirements for vehicle operation		59	34	54	49	42
Violation of road traffic rules		208	200	165	163	165
Violation of railway traffic rules		2	3	-	1	1
Violation of air traffic rules		3	-	-	2	-
Violation of the rules of water transport traffic		1	-	-	1	-
Unsatisfactory work organization		225	269	266	257	278
The unsatisfactory technical condition of buildings, structures, maintenance of territories and deficiencies in the organization of workplaces		27	34	34	44	42
Deficiencies in learning safe labor practices		32	33	41	32	38
Insecurity or non-use of personal protective equipment		20	23	19	18	28
Insecurity of collective protection		1	4	11	7	6
Violation of labor and production discipline		26	34	39	40	40
Increased dust and gas pollution of the working area		4	5	10	5	6
Increased noise level		1	3	1	-	-
Increased vibration		2	1	-	-	1
Increased level of ionizing radiation		-	-	1	-	1

Continuation

Causes of accidents	2019	2020	2021	2022	2023
Contact with sources of infectious diseases	2	1	-	2	-
The impact on the human body physical overload	6	5	3	6	2
Violation of the established labor regime	6	4	6	6	1
Violation of the rules of safety and labor protection	306	258	276	234	301
Accidents	59	47	63	99	141
Gross negligence of the victim	736	733	688	687	775
Other	66	64	63	106	91

2.42 The number of deaths as a result of accidents

people

Causes of accidents	2019	2020	2021	2022	2023
Constructive defects of machines, mechanisms and equipment	1	1	1	1	3
Operation of defective machines, mechanisms and equipment	2	2	-	2	1
Violation of technological processes	2	3	3	2	3
Violation of safety requirements for vehicle operation	9	7	10	7	7
Traffic offense	25	19	20	26	16
Violation of air traffic rules	2	2	-	-	-
Violation of railway traffic rules	1	-	-	1	-
Unsatisfactory work organization	18	31	26	32	49
The unsatisfactory technical condition of buildings, structures, maintenance of territories and deficiencies in the organization of workplaces	3	5	3	10	2
Deficiencies in learning safe labor practices	2	1	5	4	1
Insecurity or non-use of personal protective equipment	1	1	1	2	3
Violation of labor and production discipline	7	10	9	8	6
Increased dust and gas pollution of the working area	-	2	1	1	-
Increased noise level	-	-	-	-	-
The impact on the human body physical overload	-	-	-	-	-
Violation of the established labor regime	1	1	-	1	-
Violation of the rules of safety and labor protection	33	42	19	22	32
Accidents	12	9	13	13	56
Gross negligence of the victim	61	62	61	60	57
Other	10	5	4	11	9

2.43 The number of victims of occupational diseases

	2019	2020	2021	2022	2023
The number of victims of occupational diseases, total, people	251	237	351	657	662
of these, the number of cases of diseases by type of disease:					
Toxic effects of metals	1	-	-	1	3
toxic effect of other inorganic substances	15	6	1	3	4
brucellosis	-	-	-	-	-
Lesions of the trigeminal nerve	1	-	-	-	-
bronchitis and pneumonitis caused by chemicals, gases, fumes and vapors	5	4	22	28	97
Respiratory tract inflammation caused by chemicals, gases, fumes and vapors, not classified elsewhere	-	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	10	10	38	38	97
Polyneuropathy caused by other toxic substances	1	-	-	-	-
kin diseases: epidermosis, contact dermatitis, photodermatitis, onychia, paranechia, toxic melisma, oily folliculitis	-	-	-	-	-
Coal miner pneumoconiosis	2	4	5	14	1
Pneumoconiosis caused by dust containing silicon	53	49	33	89	136
Pneumoconiosis caused by other inorganic dust	2	1	1	2	1
A respiratory disease caused by specific organic dust (Byssinosis etc.)	5	1	-	4	-

Continuation

	2019	2020	2021	2022	2023
Tuberculosis-associated pneumoconiosis	-	-	-	-	-
Professional bronchitis (dust. toxic-dust), including non-obstructive and obstructive	28	39	-	-	-
Other chronic sinusitis	-	-	-	-	-
Vibration disease	46	36	73	95	65
Two-way neurosensory hearing loss	50	28	22	33	39
Mixed conductive and sensorineural hearing loss bilateral	14	7	20	24	17
Autonomic-sensory (angioneurosis) polyneuropathy of hands	5	1	-	-	-
Other polyneuropathy	1	1	1	-	1
Coxarthrosis (hip joint arthrosis)	-	-	-	-	-
Gonarthrosis (arthrosis of the knee joint)	2	-	-	-	-
Other arthrosis	15	5	15	25	31
Damage to the intervertebral discs of the cervical spine	-	2	8	1	1
Damage to the intervertebral discs of other departments	110	85	57	211	60
Other dorsopathies, not elsewhere classified	1	-	-	-	-
	-	-	-	-	-
Osteoporosis in diseases classified elsewhere	7	-	-	-	-
Respiratory tuberculosis, confirmed bacteriologically and histologically	9	3	-	-	2
asthma	12	2	-	-	-
asthmatic status	-	-	-	-	-
other acquired musculoskeletal deformities and connective tissues	-	2	-	-	-
Seropositive rheumatoid arthritis	-	1	-	-	-
Toxic encephalopathy	-	1	-	-	-
Other respiratory conditions caused by chemicals, gases, fumes and vapors	30	61	200	289	414

2.44 Deaths from road-traffic accidents

	Number of deaths, people					per 100000 people				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Republic of Kazakhstan	2 706	2 126	2 261	2 715	2 635	14.62	11.34	11.90	13.8	13.2
Abay	43	39	62	86	85	6.67	6.08	9.72	14.1	14.0
Akmola	107	90	89	150	89	14.53	12.25	12.13	19.1	11.3
Aktobe	125	93	153	154	142	14.28	10.48	17.01	16.7	15.2
Almaty	258	232	219	272	272	18.66	16.54	15.36	18.2	17.9
Atyrau	73	95	61	75	98	11.41	14.59	9.21	10.9	14.0
Batys Kazakhstan	132	88	84	102	86	20.17	13.36	12.66	14.9	12.4
Zhambyl	217	170	159	209	200	19.26	15.00	13.91	17.2	16.4
Zhetisu	156	106	130	126	156	23.56	16.02	19.58	18.0	22.3
Karagandy	142	145	128	197	160	12.35	12.62	11.16	17.4	14.1
Kostanay	89	95	98	157	109	10.23	10.97	11.39	18.8	13.1
Kyzylorda	126	99	120	129	114	15.78	12.25	14.62	15.6	13.6
Mangystau	85	84	78	89	113	12.34	11.84	10.67	11.8	14.5
Pavlodar	82	67	69	116	84	10.89	8.92	9.22	15.3	11.1
Soltustik Kazakhstan	39	57	48	71	45	7.08	10.45	8.89	13.2	8.5
Turkistan	476	331	359	308	367	23.83	16.32	17.45	14.6	17.2
Ulytau	38	35	32	34	36	16.74	15.40	14.10	15.4	16.2
Shygys Kazakhstan	93	39	45	91	73	12.76	5.38	6.24	12.4	10.0
Astana city	74	65	93	113	126	6.65	5.57	7.63	8.5	9.0
Almaty city	213	90	96	148	166	11.27	4.61	4.79	6.9	7.6
Shymkent city	138	106	138	88	114	13.48	10.04	12.62	7.5	9.4

2.45 Unequal distribution of income*

in percent

	Proportion of population with incomes lower than*		Depth poverty*	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	
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
2023	5.2	0.2	0.9	0.3	0.290	0.275	6.0

* 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

	2019	2020	2021	2022	2023
Republic of Kazakhstan	4.3	5.3	5.2	5.2	5.2
Abay	10.5	10.2	6.8	5.9	8.0
Akmola	4.3	5.9	6.4	6.0	5.3
Aktobe	3.0	3.5	3.7	4.4	4.2
Almaty	1.0	2.8	3.4	3.8	3.6
Atyrau	2.5	3.0	3.3	3.3	2.6
Batys Kazakhstan	3.7	3.9	4.4	4.2	4.3
Zhambyl	4.8	5.8	5.3	5.0	5.2
Zhetisu	5.7	5.7	5.7	5.5	7.8
Karagandy	2.8	3.5	3.7	3.8	3.0
Kostanay	3.4	3.5	3.4	5.0	3.5
Kyzylorda	4.9	5.8	5.5	5.0	6.2
Mangystau	4.3	5.7	8.6	8.1	7.0
Pavlodar	3.8	3.9	3.9	3.9	3.9
Soltustik Kazakhstan	5.6	6.7	5.5	5.7	4.9
Turkistan	10.8	12.2	9.8	9.7	9.0
Ulytau	1.6	1.3	1.1	2.2	4.9
Shygys Kazakhstan	3.2	4.0	4.6	4.8	4.2
Astana city	1.1	1.5	2.2	1.9	2.4
Almaty city	2.8	4.9	5.2	4.8	5.1
Shymkent city	2.8	5.0	5.5	6.6	6.4

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

in percent

	2019	2020	2021	2022	2023
Republic of Kazakhstan	2.7	3.7	3.8	4.0	4.1
Abay	6.6	9.5	6.3	5.1	7.9
Akmola	3.3	4.7	5.7	5.8	5.9
Aktobe	2.1	2.3	2.6	3.3	2.7
Almaty	1.8	...	2.7	4.6	3.6
Atyrau	...	0.6	0.7	1.5	0.8
Batys Kazakhstan	2.2	2.1	2.4	2.3	2.5
Zhambyl	2.9	3.7	3.1	2.8	2.9
Zhetisu	2.7	3.9	2.8	3.5	6.0
Karagandy	2.6	3.6	3.8	4.0	3.1
Kostanay	2.4	2.1	2.3	3.4	1.8
Kyzylorda	3.5	4.0	5.2	4.3	7.0
Mangystau	0.5	2.5	2.9	2.4	2.3
Pavlodar	3.0	3.3	3.4	3.3	3.3
Soltustik Kazakhstan	4.4	5.1	3.9	3.1	3.5
Turkistan	8.8	9.9	7.6	7.2	5.4
Ulytau	1.7	1.2	0.9	2.2	4.5
Shygys Kazakhstan	0.6	1.6	2.4	2.4	2.1
Astana city	1.1	1.5	2.2	1.9	2.4
Almaty city	2.8	4.9	5.2	4.8	5.1
Shymkent city	2.8	5.0	5.5	6.6	6.4

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

in percent

	2019	2020	2021	2022	2023
Republic of Kazakhstan	6.6	7.6	7.2	7.3	7.0
Abay	16.4	11.2	7.4	7.3	8.2
Akmola	5.2	6.9	7.0	6.4	4.6
Aktobe	5.0	6.4	6.6	7.4	8.6
Almaty	1.1	3.2	3.5	3.7	3.6
Atyrau	4.4	5.9	6.4	5.5	4.9
Batys Kazakhstan	5.4	6.0	6.5	6.6	6.7
Zhambyl	6.1	7.2	6.7	6.6	7.0
Zhetisu	7.5	6.7	7.0	7.0	9.3
Karagandy	3.6	3.1	3.6	2.7	2.3
Kostanay	4.6	5.6	4.9	7.7	6.3
Kyzylorda	6.0	7.2	5.7	5.6	5.4
Mangystau	6.8	7.9	12.5	12.9	10.9
Pavlodar	5.5	5.3	5.1	5.2	5.2
Soltustik Kazakhstan	6.6	8.0	7.0	8.2	6.3
Turkistan	11.3	12.7	10.5	10.5	10.1
Ulytau	...	2.5	2.9	2.5	6.1
Shygys Kazakhstan	7.7	8.2	9.6	9.5	8.5

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

in percent

	2019	2020	2021	2022	2023
Republic of Kazakhstan	0.1	0.2	0.1	0.1	0.2
Abay	0.2	0.2	0.2	0.1	1.1
Akmola	0.2	0.3	0.2	0.4	0.5
Aktobe	0.1	...	0.1	...	...
Almaty	0.1	0.2	0.1	...	0.4
Atyrau	...	...	...	...	...
Batys Kazakhstan	...	0.1	...	...	...
Zhambyl	0.1	...	0.1	...	...
Zhetisu	...	...	...	0.2	0.8
Karagandy	0.4	...	0.4	0.2	0.3
Kostanay	0.2	0.4	0.2	...	0.1
Kyzylorda	0.1	...	0.1	...	...
Mangystau	0.2	0.7	0.2	0.1	0.3
Pavlodar	0.0	...	0.0	...	...
Soltustik Kazakhstan	0.1	...	0.1	0.2	0.1
Turkistan	0.1	0.2	0.1	0.1	0.2
Ulytau	...	...	...	...	0.6
Shygys Kazakhstan	0.5	...	0.5	0.6	0.2
Astana city	...	-	...	...	0.2
Almaty city	0.0	-	0.0	0.2	0.1
Shymkent city	...	-	...	0.1	0.3

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

in percent

	2019	2020	2021	2022	2023
Republic of Kazakhstan	0.1	0.1	0.1	0.1	0.2
Abay	...	...	...	...	1.5
Akmola	...	0.2	0.4	0.4	0.6
Aktobe	...	...	...	...	...
Almaty	...	...	...	...	...
Atyrau	...	...	...	...	...
Batys Kazakhstan	...	...	...	...	...
Zhambyl	...	...	...	...	...
Zhetisu	...	...	...	...	...
Karagandy	0.3	0.5	0.2	0.2	0.4
Kostanay	0.2	...	...	...	...

Continuation

	2019	2020	2021	2022	2023
Kyzylorda	0.1	...	...
Mangystau
Pavlodar	...	0.3	...	...	...
Soltustik Kazakhstan	...	0.1	...	0.1	...
Turkistan	0.2	0.2	...	0.1	...
Ulytau	0.6
Shygys Kazakhstan
Astana city	0.1	...	0.2
Almaty city	0.0	0.2	0.3	0.2	0.1
Shymkent city	0.1	0.3

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

in percent

	2019	2020	2021	2022	2023
Republic of Kazakhstan	0.2	0.2	0.2	0.1	0.3
Abay	0.5	...	0.2	0.2	0.4
Akmola	0.5	0.5	0.6	0.4	0.4
Aktobe	0.3	0.2	...	...	...
Almaty	0.1	0.2	0.2	...	0.4
Atyrau	...	...	...	...	...
Batys Kazakhstan	...	...	...	...	...
Zhambyl	0.2	0.1	0.4	...	...
Zhetisu	...	...	...	0.4	1.5
Karagandy	...	0.1	...	0.1	...
Kostanay	0.1	...	0.2	0.1	0.4
Kyzylorda	0.2	...	0.1	...	...
Mangystau	0.3	0.4	0.8	0.1	0.5
Pavlodar	0.1	...	...	...	...
Soltustik Kazakhstan	0.2	0.2	...	0.3	0.1
Turkistan	0.1	0.3	0.3	0.1	0.3
Ulytau	...	...	...	...	0.6
Shygys Kazakhstan	1.3	0.4	...	1.7	0.7

2.52 The spread of poverty in Kazakhstan

in percent

	2019	2020	2021	2022	2023
Share of the population of regions to the national population					
Republic of Kazakhstan	100.0	100.0	100	100.0	100.0
Abay	3.1	3.0	3.1	3.1	3.0
Akmola	4.0	3.9	3.8	4.0	3.9
Aktobe	4.7	4.7	4.8	4.7	4.7
Almaty	6.7	6.6	7.1	7.6	7.7
Atyrau	3.5	3.5	3.5	3.5	3.5
Batys Kazakhstan	3.5	3.5	3.5	3.5	3.5
Zhambyl	6.1	6.0	6.0	6.2	6.1
Zhetisu	4.4	4.4	4.0	3.5	3.5
Karagandy	5.8	5.7	5.7	5.8	5.7
Kostanay	4.7	4.6	4.5	4.2	4.2
Kyzylorda	4.1	4.1	4.1	4.0	4.0
Mangystau	3.8	3.8	3.9	3.9	3.9
Pavlodar	4.0	4.0	3.9	3.8	3.8
Soltustik Kazakhstan	3.0	2.9	2.8	2.7	2.7
Turkistan	10.9	11.0	10.9	10.7	10.7
Ulytau	1.6	1.6	1.5	1.1	1.1
Shygys Kazakhstan	4.3	4.3	4.0	3.7	3.6
Astana city	6.1	6.3	6.5	6.9	7.2
Almaty city	10.3	10.5	10.6	11.0	11.1
Shymkent city	5.6	5.7	5.8	6.1	6.1
Share of the poor population of the regions to the nationwide number of poor					
Republic of Kazakhstan	100.0	100.0	100.0	100.0	100.0
Abay	7.5	5.7	4.1	3.5	4.7
Akmola	3.9	4.3	4.7	4.6	4.0
Aktobe	3.3	3.1	3.4	3.9	3.8

Continuation

	2019	2020	2021	2022	2023
Almaty	1.5	3.6	4.6	5.6	5.4
Atyrau	2.0	2.0	2.2	2.2	1.8
Batys Kazakhstan	3.1	2.6	2.9	2.8	2.9
Zhambyl	6.8	6.7	6.1	5.9	6.2
Zhetisu	5.8	4.7	4.3	3.7	5.3
Karagandy	3.8	3.7	4.1	4.1	3.2
Kostanay	3.7	3.1	2.9	4.1	2.8
Kyzylorda	4.7	4.5	4.4	3.9	4.8
Mangystau	3.8	4.1	6.4	6.0	5.3
Pavlodar	3.5	2.9	2.9	2.9	2.8
Soltustik Kazakhstan	3.8	3.6	3.0	2.9	2.5
Turkistan	27.1	25.0	20.6	19.9	18.6
Ulytau	0.6	0.4	0.3	0.5	1.0
Shygys Kazakhstan	3.2	3.2	3.5	3.4	3.0
Astana city	1.6	1.8	2.8	2.4	3.3
Almaty city	6.6	9.6	10.5	10.0	11.0
Shymkent city	3.6	5.4	6.1	7.7	7.6

2.53 Poverty indicators

in percent

	2019	2020	2021	2022	2023
Share of povetry					
Republic of Kazakhstan	4.3	5.3	5.2	5.2	5.2
Abay	10.5	10.2	6.8	5.9	8.0
Akmola	4.3	5.9	6.4	6.0	5.3
Aktobe	3.0	3.5	3.7	4.4	4.2
Almaty	1.0	2.8	3.4	3.8	3.6
Atyrau	2.5	3.0	3.3	3.3	2.6
Batys Kazakhstan	3.7	3.9	4.4	4.2	4.3
Zhambyl	4.8	5.8	5.3	5.0	5.2
Zhetisu	5.7	5.7	5.7	5.5	7.8
Karagandy	2.8	3.5	3.7	3.8	3.0
Kostanay	3.4	3.5	3.4	5.0	3.5
Kyzylorda	4.9	5.8	5.5	5.0	6.2
Mangystau	4.3	5.7	8.6	8.1	7.0
Pavlodar	3.8	3.9	3.9	3.9	3.9
Soltustik Kazakhstan	5.6	6.7	5.5	5.7	4.9
Turkistan	10.8	12.2	9.8	9.7	9.0
Ulytau	1.6	1.3	1.1	2.2	4.9
Shygys Kazakhstan	3.2	4.0	4.6	4.8	4.2
Astana city	1.1	1.5	2.2	1.9	2.4
Almaty city	2.8	4.9	5.2	4.8	5.1
Shymkent city	2.8	5.0	5.5	6.6	6.4
Depth of poverty					
Republic of Kazakhstan	0.7	0.8	0.8	0.8	0.9
Abay	1.4	1.6	1.1	0.9	1.9
Akmola	0.8	1.0	1.2	1.2	0.9
Aktobe	0.4	0.6	0.6	0.7	0.8
Almaty	0.2	0.4	0.5	0.5	0.7
Atyrau	0.2	0.2	0.2	0.3	0.2
Batys Kazakhstan	0.5	0.7	0.7	0.8	0.7
Zhambyl	0.6	0.7	0.5	0.5	0.7
Zhetisu	0.9	0.9	0.9	0.9	1.2
Karagandy	0.5	0.7	0.6	0.7	0.6
Kostanay	0.6	0.5	0.5	0.6	0.5
Kyzylorda	0.7	0.8	0.7	0.5	0.7
Mangystau	1.4	1.6	1.6	1.9	1.6
Pavlodar	0.4	0.6	0.6	0.6	0.6
Soltustik Kazakhstan	0.9	1.2	0.8	0.9	0.6
Turkistan	1.4	1.6	1.3	1.2	1.4
Ulytau	0.3	0.2	0.2	0.2	1.0
Shygys Kazakhstan	0.7	0.7	0.7	1.1	0.7
Astana city	0.2	0.2	0.3	0.3	0.5
Almaty city	0.6	0.8	1.0	1.0	0.9
Shymkent city	0.2	0.7	0.9	1.1	1.4

Continuation

	2019	2020	2021	2022	2023
Severity of poverty					
Republic of Kazakhstan	0.2	0.2	0.2	0.2	0.3
Abay	0.4	0.4	0.3	0.2	0.7
Akmola	0.3	0.3	0.4	0.4	0.3
Aktobe	0.1	0.1	0.1	0.2	0.2
Almaty	0.1	0.1	0.1	0.1	0.3
Atyrau	0.0	0.0	0.0	0.0	0.0
Batys Kazakhstan	0.1	0.1	0.1	0.2	0.1
Zhambyl	0.1	0.1	0.1	0.1	0.2
Zhetisu	0.2	0.2	0.2	0.2	0.4
Karagandy	0.2	0.2	0.2	0.2	0.2
Kostanay	0.2	0.1	0.1	0.1	0.1
Kyzylorda	0.2	0.2	0.2	0.1	0.1
Mangystau	0.5	0.6	0.5	0.6	0.5
Pavlodar	0.1	0.2	0.1	0.1	0.1
Soltustik Kazakhstan	0.2	0.4	0.2	0.2	0.1
Turkistan	0.3	0.4	0.3	0.2	0.3
Ulytau	0.1	0.1	0.0	...	0.3
Shygys Kazakhstan	0.3	0.2	0.2	0.4	0.2
Astana city	0.1	0.0	0.1	0.1	0.2
Almaty city	0.2	0.2	0.3	0.3	0.2
Shymkent city	0.0	0.2	0.2	0.3	0.4

2.54 Share of low-income population depending on the size of households in 2023

	Households consisting				
	from 1 person	from 2 persons	from 3 persons	from 4 persons	from 5 and more persons
Total population, people	940 715	2 852 492	3 244 443	3 583 866	9 312 334
the proportion of the population with Lower incomes:					
subsistence minimum, in percent	0.25	0.41	1.52	3.12	10.01
food basket cost, in percent	...	0.05	0.08	0.06	0.44

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

in percent

	Percent of population income by decile groups									
	1 (with the lowest income)	2	3	4	5	6	7	8	9	10 (with the highest incomes)
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
2023	4.11	5.38	6.08	6.81	7.68	8.71	10.0	11.86	14.78	24.59

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

2.56 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
Republic of Kazakhstan	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
Kostanay	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

Continuation

	1	2	3	4	5	6	7	8	9	10	Total
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

2.57 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
Republic of Kazakhstan	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
Kostanay	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
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

2.58 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
Republic of Kazakhstan	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
Kostanay	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

2.59 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
Republic of Kazakhstan	4.30	5.47	6.14	6.84	7.66	8.65	9.95	11.76	14.68	24.55	100.0
Abay	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

Continuation

	1	2	3	4	5	6	7	8	9	10	Total
Kostanay	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
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

2.60 Share of income of the population by 10 percent (decile) population groups in 2023

in percent

	1	2	3	4	5	6	7	8	9	10	Total
Republic of Kazakhstan	4.11	5.38	6.08	6.81	7.68	8.71	10.00	11.86	14.78	24.59	100.00
Abay	4.17	5.55	6.34	7.07	7.95	9.07	10.02	12.01	15.02	22.80	100.00
Akmola	3.99	5.26	6.15	6.99	7.97	9.07	10.47	12.31	14.92	22.87	100.00
Aktobe	4.37	5.33	5.89	6.73	7.61	8.85	10.32	12.13	14.59	24.18	100.00
Almaty	4.92	6.19	6.79	7.40	8.08	9.04	10.13	11.68	14.47	21.30	100.00
Atyrau	5.57	6.45	7.10	7.72	8.39	9.16	10.12	11.34	13.73	20.42	100.00
Batys Kazakhstan	4.94	6.34	6.95	7.62	8.40	9.32	10.31	11.70	13.65	20.77	100.00
Zhambyl	4.87	6.06	6.59	7.10	7.87	8.95	10.19	11.78	14.58	22.01	100.00
Zhetisu	3.96	5.06	5.89	6.83	7.70	8.91	10.23	12.07	14.98	24.37	100.00
Karagandy	3.64	4.90	5.90	6.82	7.83	8.99	10.38	12.25	15.02	24.27	100.00
Kostanay	4.19	5.54	6.47	7.28	8.16	9.06	10.24	11.80	14.10	23.16	100.00
Kyzylorda	4.89	6.30	7.15	7.78	8.45	9.23	10.20	11.70	14.18	20.12	100.00
Mangystau	5.52	7.55	8.00	8.44	8.98	9.58	10.35	11.39	13.03	17.16	100.00
Pavlodar	4.13	5.05	5.77	6.69	7.59	8.72	9.95	11.88	14.59	25.63	100.00
Soltustik Kazakhstan	3.72	5.12	6.13	7.07	7.90	8.91	10.26	11.85	14.60	24.44	100.00
Turkistan	5.09	6.49	7.17	7.77	8.48	9.26	10.18	11.54	13.82	20.20	100.00
Ulytau	3.27	4.61	5.45	6.32	7.30	8.36	10.00	12.75	15.92	26.02	100.00
Shygys Kazakhstan	3.73	4.71	5.58	6.74	8.03	9.28	10.68	12.78	15.87	22.60	100.00
Astana city	4.24	5.41	6.24	6.93	7.78	8.85	10.02	11.61	14.29	24.63	100.00
Almaty city	3.43	4.83	5.88	6.97	8.18	9.40	10.66	12.44	15.10	23.11	100.00
Shymkent city	5.12	6.96	7.54	8.00	8.52	9.17	10.08	11.40	13.65	19.56	100.00

2.61 Improvement of housing stock

in percent

	2019	2020	2021	2022	2023
The share of the total area of the total housing stock, (in percent) equipped:					
water supply	98	98	98	98.2	98.3
sewage	70	71	73	74.0	76.1
central heating	42	42	43	43.9	45.1
gas	87	87	87	85.7	85.2
central hot water supply	36	37	37	37.7	38.4
in bathroom or shower	42	43	43	44.2	45.7
floor electric stoves	11	12	12	13.2	13.7
The share of the total area of urban housing stock, (in percent) equipped:					
it is one in the supply	100	100	100	99.7	99.7
to the analysis	88	88	89	89.8	90.5
central heating	63	64	64	65.1	66.4
gas	82	81	81	79.5	79.0
central hot water supply	56	56	56	56.7	57.5
bath or shower	63	63	62	63.2	64.4
floor electric stoves	17	17	18	19.4	20.0
The share of the total area of rural housing stock, (in percent) equipped:					
it is one in the supply	96	96	96	95.4	95.6
to the analysis	40	41	42	44.5	48.8
central heating	4	4	4	4.3	4.6
gas	97	97	97	97.2	97.1

Continuation

	2019	2020	2021	2022	2023
central hot water supply in a constant or shower	2	2	2	2.1	2.1
floor electric stoves	7	7	8	8.6	10.3
	2	2	2	1.6	1.8

2.62 Drinking water quality of decentralized water supply facilities*

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

	2019	2020	2021	2022	2023
By sanitary and chemical indicators					
Republic of Kazakhstan	14.7	14.0	10.0	13.0	8.7
Abay	-	-	-	-	1.2
Akmola	36.2	27.3	23.3	38.2	0.0
Aktobe	12.2	4.2	0.	0.0	1.3
Almaty	0	0	2.5	11.9	5.1
Atyrau	0	0	0.0	0.0	0.0
Batys Kazakhstan	18.1	27.4	2.1	22.7	9.1
Zhambyl	-	0	43.2	0.0	0.0
Zhetisu	-	-	-	-	1.6
Karagandy	11.1	5.6	24.5	12.1	5.0
Kostanay	14.6	9.2	7.5	15.1	12.6
Kyzylorda	20	10.0	8.1	0.0	31.8
Mangystau	7.2	9.1	50.0	9.4	18.5
Pavlodar	28.7	13.9	5.6	4.8	5.2
Soltustik Kazakhstan	7.5	23.6	10.2	24.5	9.8
Turkistan	2.6	-	7.2	8.3	3.6
Ulytau	-	-	-	...	2.9
Shygys Kazakhstan	2.6	6.8	7.7	22.5	1.5
Astana city	-	0	0.0	0.0	0.0
Almaty city	-	0	0.0	0.0	0.0
Shymkent city	-	0	0.0	0.0	0.0
By microbiological indicators					
Republic of Kazakhstan	8.7	7.4	5.8	6.3	4.3
Abay	-	-	-	-	0.6
Akmola	14.0	0.38	18.5	7.0	0.0
Aktobe	14.4	5.6	0.0	0.0	0.0
Almaty	0	0	3.6	5.3	3.1
Atyrau	-	0	0.0	0.0	0.0
Batys Kazakhstan	13.8	0	5.2	20.7	11.8
Zhambyl	-	0	5.4	0.0	0.0
Zhetisu	-	-	-	...	0.0
Karagandy	5.4	0.7	18.5	0.0	0.0
Kostanay	5.9	7.6	0.0	9.5	5.7
Kyzylorda	-	10.0	4.5	0.0	0.0
Mangystau	0	9.1	0.0	0.0	0.0
Pavlodar	21.2	15.1	2.6	1.4	1.9
Soltustik Kazakhstan	2.4	2.3	2.1	1.4	1.0
Turkistan	2.9	8.1	3.7	5.1	2.2
Ulytau	-	-	-	...	4.0
Shygys Kazakhstan	-	14.0	6.1	14.2	9.9
Astana city	-	0	2.3	0.0	0.0
Almaty city	-	11.2	0	0.0	12.5
Shymkent city	-	0.0	0.0	0.0	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

	2019	2020	2021	2022	2023
By sanitary and chemical indicators					
Republic of Kazakhstan	4.2	5.7	5.2	4.2	3.1
Abay	-	-	-	-	0.6
Akmola	17.7	15.2	17.2	16.7	38.1
Aktobe	2.4	2.9	0.0	2.4	2.4
Almaty	2.4	5.3	6.6	3.3	1.8

Continuation

	2019	2020	2021	2022	2023
Atyrau	4.8	2.5	5.8	6.5	3.0
Batys Kazakhstan	11.3	11.0	0.8	11.5	8.6
Zhambyl	0.2	5.1	2.3	3.6	1.2
Zhetisu	-	-	-	...	5.8
Karagandy	0.5	0.1	9.0	1.2	1.4
Kostanay	2.9	4.5	0.2	3.2	4.8
Kyzylorda	13.7	11.5	9.8	8.2	2.8
Mangystau	3.6	5.6	14.0	5.8	8.0
Pavlodar	9.4	11.7	3.2	5.1	5.8
Soltustik Kazakhstan	1.2	5.0	6.5	1.6	1.0
Turkistan	2.3	6.2	2.3	2.3	1.4
Ulytau	-	-	-	...	0.4
Shygys Kazakhstan	0.9	1.3	2.7	2.7	2.9
Astana city	2.3	1.9	0.0	5.9	5.4
Almaty city	0	0	0.0	0.0	0.0
Shymkent city	1.0	0.3	1.9	3.2	1.8
By microbiological indicators					
Republic of Kazakhstan	2.2	3.0	2.4	2.4	1.5
Abay	-	-	-	-	0.4
Akmola	9.5	9.6	6.5	8.5	15.8
Aktobe	1.4	0.1	0.0	1.3	0.2
Almaty	4.1	5.7	3.9	4.7	1.1
Atyrau	1.6	2.5	1.6	2.7	1.5
Batys Kazakhstan	5.4	5.8	2.5	5.5	5.2
Zhambyl	1.8	1.9	1.5	3.3	0.5
Zhetisu	-	-	-	...	7.7
Karagandy	0.1	0.01	5.3	0.2	0.0
Kostanay	0.5	1.8	0.1	1.9	1.0
Kyzylorda	7.1	3.5	2.6	9.0	0.7
Mangystau	0.8	1.2	5.5	1.7	0.7
Pavlodar	4.5	7.9	1.0	3.1	2.9
Soltustik Kazakhstan	1.2	0.1	5.4	0.2	0.6
Turkistan	2.5	4.0	0.3	2.4	1.3
Ulytau	-	-	-	...	0.0
Shygys Kazakhstan	1.6	2.8	2.5	5.4	4.8
Astana city	0	0.6	2.0	1.0	1.4
Almaty city	1.2	1.0	0.2	0.4	0.2
Shymkent city	1.0	0.6	0.1	0.2	0.7

2.64 Drinking water quality*

units

	2019	2020	2021	2022	2023
Purified water in centralized water supply systems					
Total number of samples	63 401	63 504	66 684	65 622	95 814
The number of samples exceeding the standards established in the country	2 027	2 769	2 611	2 137	2 221
of them:					
on microbiological indicators	767	1 786	1 007	859	755
by chemical parameters	1 260	983	1 604	1 278	1 466
Percent of samples exceeding established standards in the country, in percent	3.1	4.3	3.9	3.2	2.3
Decentralized water supply facilities					
Total number of samples	14 193	8 103	10 666	7 304	10 562
The number of samples exceeding the standards established in the country	1 663	894	854	697	692
of them:					
on microbiological indicators	620	277	298	232	225
by chemical parameters	1 043	617	556	465	467
Percent of samples exceeding established standards in the country, in percent	11.7	11.0	8.0	9.5	6.5

* 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

	2019	2020	2021	2022	2023
Public access to water services, including					
in cities	97.2	97.5	98.1	98.4	98.9
in villages	64.3	90.1	93	94.8	96.6
Provision of the population with centralized water supply, including					
in cities	97.2	97.5	98.1	98.4	99
in villages	64.3	88.1	90.4	92.1	92.3
Public access to centralized water disposal systems, including					
in cities	...	...	...	...	...
in villages	...	...	...	...	...
Coverage of the population with wastewater treatment, including					
in cities	70.5	70.5	75.7	77.1 ¹	77.2
in villages	8.8	...	...	...	...

¹ Hereinafter, according to the Ministry of industry and construction of the Republic of Kazakhstan.

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 to the total population

	2019	2020	2021	2022	2023
Republic of Kazakhstan					
in cities:	97.2	97.5	98.1	98.4	98.9
in villages	64.3	90.1	93	94.8	96.6
Abay					
in cities:	-	-	-	92.8	92.8
in villages	-	-	-	90.6	92.9
Akmola					
in cities:	97.8	98.8	95.1	95.3	97.2
in villages	60.1	88.8	89.3	93	95.2
Aktobe					
in cities:	99.2	99.5	99.6	100	100
in villages	56.5	88.8	91.3	95	97
Almaty					
in cities:	96.8	98.4	99.5	99.9	100
in villages	89.2	98.3	99.1	99.3	99.3
Atyrau					
in cities:	100	100	100	100	100
in villages	83.5	98.5	99.0	99.3	99.6
Batys Kazakhstan					
in cities:	95.9	96.9	97.8	100	100
in villages	50.0	88.0	89.8	92.0	95
Zhambyl					
in cities:	88.0	88.9	91.0	92	97.5
in villages	66.9	82.2	88.8	92	94.9
Zhetisu					
in cities:	-	-	-	100	100
in villages	-	-	-	98.8	98.9
Karagandy					
in cities:	97.0	98.0	98.5	98.5	98.8
in villages	62.0	90.8	91.8	92.9	93.6
Kostanay					
in cities:	97.6	97.8	98.0	98.2	98.6
in villages:	31.4	64.7	97.8	80.4	86.7
Kyzylorda					
in cities:	95.0	98.0	100	100	100
in villages:	76.5	97.6	97.8	98.1	98.5
Mangystau					
in cities:	100	100	100	100	100
in villages:	75.4	92.2	96.2	100	100
Pavlodar					
in cities:	93.0	94.5	95.0	96	97
in villages:	31.0	88.4	94	95.1	98.1
Soltustik Kazakhstan					

Continuation

	2019	2020	2021	2022	2023
in cities:	100.0	100	100	100	100
in villages:	59.5	82.1	83.5	85	88.3
Turkistan					
in cities:	96.5	97.9	99.4	99.4	99.8
in villages:	75.1	92.1	93.3	94.3	97.3
Ulytau					
in cities:	-	-	-	100.	100
in villages:	-	-	-	95.1	97.2
Shygys Kazakhstan					
in cities:	98.2	98.6	98.1	99.7	99.9
in villages:	56.0	81.4	93	95.5	97
Astana city					
in cities:	95.4	96.5	98.1	98.9	99
Almaty city					
in cities:	98.0	98.3	98.5	99	99.3
Shymkent city					
in cities:	94.7	95.6	98.0	98.5	98.5

2.67 Provision of centralized water supply to the population

as a percent to the total population

	2019	2020	2021	2022	2023
Republic of Kazakhstan					
in cities:	97.2	97.5	98.1	98.4	99
in villages	64.3	88.1	90.4	92.1	92.3
Abay					
in cities:	-	-	-	92.8	92.8
in villages	-	-	-	79	82
Akmola					
in cities:	97.8	98.8	95.1	95.3	97.8
in villages	60.1	82.7	82.9	86.7	88
Aktobe					
in cities:	99.2	99.5	99.6	100	98.7
in villages	56.5	88.8	90.1	92.3	94
Almaty					
in cities:	98.5	98.4	99.5	99.9	100
in villages	89.2	98.3	99.1	99.3	99.3
Atyrau					
in cities:	100	100	100	100	100
in villages	83.5	98.5	99.0	99.3	99.3
Batys Kazakhstan					
in cities:	95.9	96.9	97.8	100	100
in villages	50.0	88.0	89.5	90.7	93.6
Zhambyl					
in cities:	88.0	88.9	91.0	92	97.5
in villages	66.9	82.2	88.8	92	94.6
Zhetisu					
in cities:	-	-	-	100	100
in villages	-	-	-	98.8	98.9
Karagandy					
in cities:	97.0	98.0	98.5	98.5	98.8
in villages	62.0	90.8	91.8	92.9	91.7
Kostanay					
in cities:	97.6	97.8	98.0	98.2	98.6
in villages:	31.4	63.1	64.7	69.9	74
Kyzylorda					
in cities:	95.0	98.0	100	100	100
in villages:	76.5	97.3	97.8	98.1	98.3
Mangystau					
in cities:	100	100	100	100	100
in villages:	75.4	92.2	96.2	99.3	99.9
Pavlodar					
in cities:	93.0	94.5	95	96	97
in villages:	31.0	82.4	88	89.3	92.1
Soltustik Kazakhstan					
in cities:	100	100	100	100	100
in villages:	59.5	51.9	49.9	57	60.3

	Continuation				
	2019	2020	2021	2022	2023
Turkistan					
in cities:	96.5	97.9	99.4	99.4	99.8
in villages:	75.1	92.1	93.3	94.3	97.3
Ulytau					
in cities:	-	-	-	100	100
in villages:	-	-	-	95.1	95.1
Shygyz Kazakhstan					
in cities:	98.2	98.6	99.1	99.7	99.9
in villages:	56.0	77.9	87.2	89.5	90.7
Astana city	95.4	96.5	98	98.9	100
Almaty city	98.0	98.3	98.5	99	99.3
Shymkent city	94.7	95.6	98	98.5	99

2.68 Coverage of the population by wastewater treatment

as a percent to the total population

	2019	2020	2021	2022	2023
Republic of Kazakhstan					
in cities:	70.5	70.5	75.7	77.1	68.6
in villages	8.8	...	...	...	5.0
Abay					
in cities:	-	-	-	67.7	37.6
in villages	-	-	-	...	3.0
Akmola					
in cities:	72.1	72.1	79.1	100	79.0
in villages	14.7	...	...	...	8.8
Aktobe					
in cities:	95.3	67.4	95.6	100	92.8
in villages	6.6	...	...	...	0.0
Almaty					
in cities:	95.1	95.1	55.9	100	72.0
in villages	6.3	...	...	...	3.0
Atyrau					
in cities:	37.2	37.2	54.1	65.9	66.8
in villages	9.5	...	...	...	0.0
Batys Kazakhstan					
in cities:	91.2	91.2	91.2	91.5	94.7
in villages	0.0	...	...	...	0.0
Zhambyl					
in cities:	0.0	0.0	0.0	0.0	0.0
in villages	0.0	...	...	...	0.0
Zhetisu					
in cities:	-	-	-	58	44.4
in villages	-	-	-	...	...
Karagandy					
in cities:	66.0	66.0	72.9	74.2	71.0
in villages	20.9	...	...	...	20.6
Kostanay					
in cities:	100	100	94.8	0.0	37.2
in villages:	17.1	...	...	...	8.7
Kyzylorda					
in cities:	48.9	48.9	55.0	57	40.0
in villages:	0.4	...	...	...	1.2
Mangystau					
in cities:	93.1	93.1	93.1	100	94.0
in villages:	3.8	...	...	...	0.0
Pavlodar					
in cities:	87.0	76.1	88.0	88.5	89.0
in villages:	5.3	...	...	...	0.0
Soltustik Kazakhstan					
in cities:	84.0	74.4	74.4	86.4	74.4
in villages:	0.6	...	...	...	0.6
Turkistan					
in cities:	25.7	25.7	33.2	27.9	37.9
in villages:	9.4	...	...	...	8.7
Ulytau					

Continuation

	2019	2020	2021	2022	2023
in cities:	-	-	-	86.2	56.1
in villages:	-	-	-	...	0.0
Shygyz Kazakhstan					
in cities:	72.0	72.0	74.0	80.7	80.5
in villages:	30.1	...	...	...	30.6
Astana city	91.0	100.0	100.0	100.0	100.0
Almaty city	80.0	80.0	92.5	92.5	85.7
Shymkent city	60.7	50.2	54.0	60	65.0

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

in percent

	Total respondent	2019				2020			
		satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Republic of Kazakhstan	100.0	42.7	46.2	11.0	0.1	47.1	42.5	10.0	0.4
Akmola	100.0	35.7	42.0	22.3	...	45.4	33.5	20.4	0.7
Aktobe	100.0	31.9	61.3	6.7	0.1	15.8	81.7	2.5	-
Almaty	100.0	62.8	33.3	3.8	0.1	73.6	22.9	2.2	1.3
Atyrau	100.0	54.1	37.2	8.7	...	65.9	29.3	2.3	2.5
Batys Kazakhstan	100.0	42.9	45.1	11.6	0.4	46.4	40.0	13.2	0.4
Zhambyl	100.0	74.7	24.4	0.9	...	79.3	16.7	3.8	0.2
Karagandy	100.0	18.5	54.0	27.2	0.3	19.9	48.7	31.1	0.3
Kostanay	100.0	19.2	57.5	23.3	...	24.0	60.6	15.2	0.2
Kyzylorda	100.0	70.2	29.4	0.2	0.2	65.3	31.5	2.4	0.8
Mangystau	100.0	47.6	50.4	2.0	...	55.2	42.3	2.5	-
Pavlodar	100.0	33.1	60.8	6.1	...	44.4	46.2	9.3	0.1
Soltustik Kazakhstan	100.0	42.7	46.2	11.0	0.1	31.7	55.6	12.7	-
Turkistan	100.0	35.7	42.0	22.3	...	62.8	36.3	0.9	-
Shygyz Kazakhstan	100.0	31.9	61.3	6.7	0.1	55.4	37.0	7.5	0.1
Astana city	100.0	62.8	33.3	3.8	0.1	31.0	56.5	12.0	0.5
Almaty city	100.0	54.1	37.2	8.7	...	22.7	60.0	17.3	-
Shymkent city	100.0	42.9	45.1	11.6	0.4	79.5	19.7	0.2	0.6

Continuation

	2021				2022				2023			
	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Republic of Kazakhstan	44.1	46.5	9.1	0.3	43.0	47.5	9.0	0.5	42.9	46.2	10.5	0.4
Akmola	42.6	35.1	21.5	0.8	38.8	33.8	27.1	0.3	43.9	56.1	-	-
Aktobe	11.1	84.4	4.3	0.2	38.4	58.7	2.3	0.6	39.1	34.7	25.5	0.7
Almaty	74.6	21.2	3.0	1.2	69.8	26.2	3.2	0.8	35.7	61.8	2.0	0.5
Atyrau	66.5	28.6	4.5	0.4	58.3	30.6	10.7	0.4	74.3	23.7	0.8	1.2
Batys Kazakhstan	41.2	53.1	5.5	0.2								
Zhambyl	80.7	15.3	4.0	...								
Karagandy	22.4	51.5	26.0	0.1								
Kostanay	24.4	52.2	23.2	0.2								
Kyzylorda	63.2	35.4	1.1	0.3								
Mangystau	59.3	39.3	1.4	...								
Pavlodar	43.6	51.7	4.7	...								
Soltustik Kazakhstan	32.2	58.2	9.6	...								
Turkistan	49.8	48.6	1.6	...								
Shygyz Kazakhstan	50.6	46.3	3.1	...								
Astana city	17.8	62.0	19.9	0.3								
Almaty city	23.5	66.1	10.4	...								
Shymkent city	68.3	30.0	0.2	1.5								

Continuation

	2022				2023			
	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Republic of Kazakhstan	43.0	47.5	9.0	0.5	42.9	46.2	10.5	0.4
Abay	38.8	33.8	27.1	0.3	43.9	56.1	-	-
Akmola	38.4	58.7	2.3	0.6	39.1	34.7	25.5	0.7
Aktobe	69.8	26.2	3.2	0.8	35.7	61.8	2.0	0.5
Almaty	58.3	30.6	10.7	0.4	74.3	23.7	0.8	1.2

Continuation

	2022				2023			
	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Atyrau	41.0	52.9	5.0	1.1	37.3	49.3	13.0	0.4
Batys Kazakhstan	80.7	14.4	4.3	0.6	32.2	51.5	15.3	1.0
Zhambyl	30.0	42.9	25.7	1.4	77.1	21.5	1.4	-
Zhetisu	23.6	64.1	12.3	0.0	74.0	21.4	3.8	0.8
Karagandy	71.7	26.3	0.0	2.0	23.4	44.3	31.6	0.7
Kostanay	65.6	30.7	2.7	1.0	32.8	60.8	6.4	-
Kyzylorda	49.6	43.0	7.4	0.0	45.9	52.2	1.9	-
Mangystau	26.9	63.8	9.3	0.0	62.7	33.6	3.7	-
Pavlodar	44.2	55.4	0.2	0.2	46.2	46.1	7.7	-
Soltustik Kazakhstan	45.3	47.3	7.4	0.0	21.5	68.6	9.9	-
Turkistan	22.1	61.5	15.9	0.5	52.1	47.3	0.4	0.2
Ulytau	14.3	75.6	10.1	0.0	36.7	19.1	44.2	-
Shygys Kazakhstan	59.9	37.4	1.8	0.9	42.0	45.3	12.7	-
Astana city	43.0	47.5	9.0	0.5	37.0	43.8	17.9	1.3
Almaty city	38.8	33.8	27.1	0.3	15.7	67.9	16.3	0.1
Shymkent city	38.4	58.7	2.3	0.6	64.8	33.3	1.5	0.4

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

in percent

	Total respondents	2019				2020			
		satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Republic of Kazakhstan	100.0	41.4	49.6	8.8	0.2	45.2	46.7	7.8	0.3
Akmola	100.0	44.5	43.8	10.9	0.8	50.0	41.5	7.0	1.5
Aktobe	100.0	29.1	63.8	7.1	...	14.8	81.8	3.3	0.1
Almaty	100.0	62.7	33.9	3.0	0.4	76.4	21.6	1.9	0.1
Atyrau	100.0	54.9	39.8	5.3	...	58.3	35.9	2.3	3.5
Batys Kazakhstan	100.0	46.5	47.8	4.6	1.1	45.0	51.2	3.5	0.3
Zhambyl	100.0	70.1	29.3	0.6	...	73.7	25.0	1.0	0.3
Karagandy	100.0	16.7	62.1	20.8	0.4	16.5	63.1	20.2	0.2
Kostanay	100.0	31.6	65.0	3.4	...	45.4	52.3	2.3	-
Kyzylorda	100.0	62.6	36.5	0.2	0.7	58.9	37.4	3.7	-
Mangystau	100.0	38.0	58.5	3.5	...	43.5	50.7	5.8	-
Pavlodar	100.0	27.9	60.5	11.6	...	34.8	54.1	11.1	-
Soltustik Kazakhstan	100.0	35.1	59.4	5.5	...	45.0	47.4	7.6	-
Turkistan	100.0	52.0	45.8	2.2	...	62.3	37.2	0.5	-
Shygys Kazakhstan	100.0	39.8	33.1	27.1	...	38.9	39.1	22.0	-
Astana city	100.0	35.4	61.2	3.2	0.2	31.2	61.7	6.1	1.0
Almaty city	100.0	24.0	62.3	13.6	0.1	17.7	68.7	13.4	0.2
Shymkent city	100.0	56.1	43.7	...	0.2	56.1	43.7	...	0.2

Continuation

	2021			
	satisfied	partially satisfied	not satisfied	difficult to answer
Republic of Kazakhstan	44.8	47.8	7.0	0.4
Akmola	50.9	41.8	6.7	0.6
Aktobe	12.7	83.8	3.3	0.2
Almaty	75.4	22.3	1.4	0.9
Atyrau	58.4	34.2	7.0	0.4
Batys Kazakhstan	49.8	46.4	3.2	0.6
Zhambyl	76.2	23.3	0.5	...
Karagandy	22.4	59.1	18.2	0.3
Kostanay	41.1	57.3	1.6	...
Kyzylorda	64.5	34.5	0.7	0.3
Mangystau	52.2	46.6	0.8	0.4
Pavlodar	39.2	49.2	11.6	...
Soltustik Kazakhstan	45.4	51.3	3.3	...
Turkistan	54.9	44.8	0.3	...
Shygys Kazakhstan	40.5	46.4	13.1	...
Astana city	20.2	72.7	6.9	0.2

Continuation

	2021			
	satisfied	partially satisfied	not satisfied	difficult to answer
Almaty city	22.2	60.0	17.8	...
Shymkent city	64.6	32.4	0.6	2.4

Continuation

	2022				2023			
	satisfied	partially satisfied	not satisfied	difficult to answer	satisfied	partially satisfied	not satisfied	difficult to answer
Republic of Kazakhstan	48.7	48.0	2.7	0.6	42.9	47.6	9.1	0.4
Abay	-	-	-	-	37.2	61.8	1.0	-
Akmola	52.4	43.0	2.7	1.9	47.4	44.9	7.0	0.7
Aktobe	41.6	57.3	0.3	0.8	30.0	68.1	1.4	0.5
Almaty	63.4	31.9	3.6	1.1	73.6	24.2	0.4	1.8
Atyrau	61.7	35.6	2.5	0.2	43.0	38.2	18.4	0.4
Batys Kazakhstan	54.1	42.1	1.7	2.1	41.0	52.7	5.9	0.4
Zhambyl	77.6	21.2	0.6	0.6	72.9	26.2	0.9	-
Zhetisu	-	-	-	-	84.1	14.2	1.1	0.6
Karagandy	40.8	52.1	6.3	0.8	22.2	55.5	22.0	0.3
Kostanay	38.2	61.0	0.8	0.0	47.3	52.5	-	0.2
Kyzylorda	75.7	22.3	0.0	2.0	46.3	51.2	2.3	0.2
Mangystau	60.3	38.2	0.9	0.6	45.8	47.7	5.1	1.4
Pavlodar	53.0	45.4	1.6	0.0	46.4	48.3	5.3	-
Soltustik Kazakhstan	41.6	55.3	3.1	0.0	34.2	60.6	5.2	-
Turkistan	65.5	34.3	0.2	0.0	52.5	47.2	0.3	-
Ulytau	-	-	-	-	30.2	35.1	34.7	-
Shygys Kazakhstan	41.1	55.5	3.4	0.0	28.7	44.2	27.1	-
Astana city	27.8	67.8	4.1	0.3	41.0	49.9	8.9	0.2
Almaty city	24.2	71.7	3.9	0.2	12.8	63.8	23.4	-
Shymkent city	61.8	33.9	2.8	1.5	60.7	35.2	3.3	0.8

* 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

	2019	2020	2021	2022	2023
Number of water supply facilities	3 255	3 786	3 830	3 844	4 117
Number of individual water supply networks	1 145	1 164	1 162	1 183	1 201
Number of street water taps (booths, columns, taps)	18 120	16 689	16 085	15 124	14 687
Number of accidents	2 275	1 895	1 870	1 917	1 459
of these, on ad networks	2 177	1 712	1 620	1 385	1 042
Length of water pipes	83 909.7	85 105.9	88 718.0	93 511.9	99 962.5
Replaced networks	619.9	706.6	448.0	655.6	614.2
Length of worn-out water supply networks	15 116	17 241	17 412	18 529	18 588
Repaired several of them, major repairs	579.2	567.5	471.8	389.0	501.6
357.4	303.8	180.0	161.7	253.2	
The performance of the construction of water supply system	32 669.0	32 918.1	33 127.6	32 428.4	32 568.3
The production capacity of the water supply	14 495.39	14 456.63	13 818.016	13 552.968	13 595.948
Number of pumping stations	5 419	5 587	5 705	5 967	6 222
Number of water treatment plants	381	396	405	425	518
Water supplied to the network	2 339 939.5	2 412 266.9	2 474 160.4	2 390 578.3	2 675 648.9
Water was released to consumers. of which to the population for	1 160 918.3	1 205 611.1	1 286 944.0	1 330 153.3	1 372 897.4
536 127.8	573 698.8	609 157.5	635 617.0	671 941.9	
the utility needs of enterprises for	158 249.5	154 427.4	166 717.8	182 534.8	176 694.6
the production needs of enterprises	353 565.1	357 997.0	378 578.0	367 723.9	372 485.9
to other consumers	112 975.9	119 488.0	132 490.8	144 277.7	151 775.1
Spent on own production needs	937 990.8	960 901.2	938 561.7	834 680.9	1 052 514.6
Leakage and unrecorded consumption, thousand sq.m	241 031.1	246 752.5	249 735.9	226 382.3	248 484.9
Average daily water release per resident, liter	79.3	83.8	87.8	88.7	92.5

2.72 The main performance indicators of water disposal companies

	2019	2020	2021	2022	2023
Length of drainage system networks	16 593.0	16 886.3	17 231.4	17 727.4	18 042.4
Replaced networks	130.0	79.2	118.1	74.4	84.1

	Continuation				
	2019	2020	2021	2022	2023
Design capacity of pumping stations of the drainage system	8 365.7	8 317.7	8 547.0	9 384.1	9 526.7
Number of pumping stations for water disposal systems	1 367	1 420	1 464	1 475	1 520
Number of discharge stations (points)	72	73	76	73	76
Number of wastewater treatment plants	238	244	245	252	290
Waste water skipped	685 668.1	682 889.2	706 702.1	713 986.7	722 574.8
Waste water passed through treatment facilities of these, biological treatment facilities	579 225.8	578 676.2	596 913.9	621 967.7	632 189.6
Discharged treated wastewater into natural water bodies (river, lake, sea)	495 526.0	501 153.9	517 229.7	537 112.7	554 010.6
	496 976.8	462 753.1	474 354.8	374 754.5	463 641.0

3. Economic factors

3.1 Main economic indicators

	2019	2020	2021	2022	2023
Index of physical volume of GDP, as a percent of the previous year	104.5	97.5	104.3	103.2	105.1
Index of physical volume of GDP, as a percent of 1990	221.4	215.8	225.1	...	...
GDP at current prices, million tenge	69 532 626.5	70 649 033.2	83 951 587.9	103 765 518.2	119 808 038.7
GDP at current prices, million USD	181 665.9	171 083.7	197 055.6	225 342.1	262 558.4
GDP per capita, tenge	3 755 744.6	3 766 810.2	4 418 504.6	5 284 726.7	6 020 406.1
GDP per capita, USD	9 812.5	9 121.7	10 371.3	11 476.6	13 193.7
Share of industry, as a percent of GDP	27.5	27.1	29.6	29.7	26.7
Dwelling houses, th. 1.meters (total area)	13 126	15 332	16 910	15 666.5	17 827
Foreign trade turnover with non-CIS countries*, million USD	70 400.6	61 269.6	68 498.5	98 393.1	102 659.4
including:					
export	47 956.1	38 389.5	47 827.5	69 004.9	62 622.9
import	22 444.5	22 280.1	20 671.0	29 388.2	40 036.5
Foreign trade turnover with CIS countries*, million USD	27 374.3	25 200.3	33 237.9	37 134.3	36 891.6
including:					
export	10 109.5	9 151.3	12 493.5	15 588.1	16 515.8
import	17 264.8	16 049.0	20 744.4	21 546.2	20 375.8

3.2 Structure of gross domestic product

	Share of economic sectors in total GDP, as a percent				
	2019	2020	2021	2022	2023
Agriculture, forestry and fisheries	4.4	5.4	5.1	5.2	3.9
Industry	27.5	27.1	29.6	29.5	26.7
Mining and quarrying	14.5	12.2	14.1	14.5	12.9
Manufacturing industry	11.4	13.1	13.6	13.4	12.2
Electricity, gas, steam and air conditioning	1.4	1.6	1.6	1.4	1.4
Water supply; sewer system, control over the collection and distribution of waste	0.2	0.2	0.3	0.2	0.2
Construction	5.5	6.1	5.7	5.3	5.6
Wholesale and retail trade; car and motorcycle repair	17.0	17.2	16.8	16.4	18.2
Transport and storage	8.0	6.8	6.8	6.2	5.6
Accommodation and food services	1.1	1.0	1.0	1.0	1.1
Information and Communication	2.0	2.4	2.3	2.1	2.2
Financial and insurance activities	3.2	3.4	2.8	3.1	3.2
Real estate operations	7.5	7.2	6.5	6.5	7.5
Professional, scientific and technical activities	4.4	4.1	3.7	3.3	3.6
Administrative and support activities	2.3	2.3	2.0	2.1	2.3
Public Administration and Defense; compulsory social security	1.7	1.9	1.8	1.9	2.1
Education	2.7	3.6	3.9	4.1	4.7
Health and social services	1.9	2.6	2.9	2.9	2.9
Arts, entertainment and recreation	0.7	0.9	0.9	0.9	0.9
The provision of other types of services	3.0	2.5	2.3	2.3	2.0
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	94.6	94.2	92.9	92.6
Gross value added	93.0	94.6	94.2	92.9	92.6
Net taxes on products and imports	7.0	5.4	5.8	7.1	7.4
Product and Import Taxes	7.3	5.8	6.1	7.5	7.7
Subsidies for products and imports	0.3	0.4	0.4	0.4	0.3
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

	2019	2020	2021	2022	2023
Gross disposable income	61 114 519.2	64 951 498.4	73 296 220.9	91 584 589.2	...

3.4 Labor productivity indices in the Republic of Kazakhstan

percent

	2019	2020	2021	2022	2023
In general, in the economy	103.7	97.5	103.3	101.3	104.7
Agriculture, forestry and fisheries	103.8	105.2	98.4	116.3	101.4
Industry	104.4	100.0	102.8	99.1	104.4
Mining and quarrying	105.4	97.1	101.5	100.2	103.8
Manufacturing industry	105.3	104.3	104.0	98.9	105.4
Electricity, gas, steam and air conditioning	100.9	100.7	105.2	101.8	104.9
Water supply; sewer system, control over the collection and distribution of waste	105.7	97.0	107.2	95.4	95.5
Construction	112.1	112.4	106.5	107.3	118.1
Wholesale and retail trade; car and motorcycle repair	104.5	97.4	102.4	101.4	106.7
Transport and storage	103.2	79.9	111.3	96.4	115.7
Accommodation and food services	98.3	82.3	106.9	98.7	96.1
Information and Communication	107.5	112.0	110.9	96.1	96.2
Financial and insurance activities	95.5	101.9	102.9	102.4	93.6
Real estate operations	104.1	93.7	95.7	103.7	116.9
Professional, scientific and technical activities	98.4	95.6	104.9	91.8	94.6
Administrative and support activities	100.8	97.7	99.3	105.9	105.8
Public Administration and Defense; compulsory social security	109.5	102.6	105.9	98.2	100.1
Education	105.2	105.5	102.2	102.8	98.7
Health and social services	101.1	101.8	100.6	96.5	98.9
Arts, entertainment and recreation	102.9	106.1	108.2	100.3	94.1
The provision of other types of services	85.1	79.8	95.2	99.3	92.6

3.5 The relative importance of trade

	2019	2020	2021	2022	2023
2017 gross domestic product at constant prices (PPP), billion international dollars	487.9	475.2	494.6	512.0	...
2021 gross domestic product at constant prices (PPP), billion international dollars	639.6	623.7	650.5	671.3	705.5
Commodity circulation, billion US dollars	97.8	86.5	101.7	135.5	139.6
Export of goods, billion US dollars	58.1	47.5	60.3	84.6	79.1
Import of goods, billion US dollars	39.7	39.0	41.4	50.9	60.4
The relative importance of trade (the ratio of turnover to GDP) to 2017 prices, in percent	20.0	18.2	20.6	26.5	...
The relative importance of trade (the ratio of turnover to GDP) to 2021 prices, in percent	15.3	13.9	15.6	20.2	19.8

3.6 The average cost of labor in trade

tenge

	2020		2021		2022		2023	
	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	2 776.4	1.7	3 255.3	2.0	4 113.7	2.5	4 813.0	2.9
of them in certain sectors of the economy								
Agriculture, forestry and fisheries	1 520.5	0.9	1 806.6	1.0	2 325.4	1.3	2 757.9	1.6
Industry	4 246.6	2.6	4 576.2	2.8	5 897.0	3.5	7 070.6	4.2
Construction	3 020.4	1.9	3 737.3	2.2	5 539.6	3.2	6 235.1	3.6
Wholesale and retail trade; car and motorcycle repair	2 394.6	1.5	2 884.1	1.7	3 523.6	2.1	4 233.5	2.5
Retail trade, excluding trade in cars and motorcycles	1 891.4	1.2	2 452.0	1.5	2 769.0	1.7	3 320.0	2.0

Continuation

	2020		2021		2022		2023	
	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
Transport and warehousing	3 300.7	2.0	3 896.6	2.4	5 375.1	3.3	6 334.3	3.7
Accommodation and food services	2 216.5	1.4	2 718.0	1.6	3 559.1	2.0	4 084.3	2.2

3.7 Consumer price index

percent

	2019	2020	2021	2022	2023
To the previous year					
Goods and services	105.3	106.8	108.0	115.0	114.5
Products	107.1	108.3	...	...	...
Foodstuffs	108.2	110.4	110.8	119.0	115.2
Non-grocery goods	105.7	105.5	106.9	114.0	114.8
Paid services for the population	101.2	103.3	105.5	110.3	113.2
At the end of the period, december 2000 = 100					
Goods and services	420.1	451.5	489.6	589.0	646.6
Products	438.7	477.8	...	...	...
Foodstuffs	473.4	526.8	579.2	725.6	787.5
Non-grocery goods	379.5	400.5	434.7	518.9	566.0
Paid services for the population	379.5	395.4	421.2	480.5	539.9
At the end of the period, december 2005 = 100					
Goods and services	302.4	324.9	352.4	423.9	465.3
Products	310.8	338.5	...	...	...
Foodstuffs	326.6	363.4	399.5	500.5	543.3
Non-grocery goods	284.1	299.9	325.5	388.5	423.8
Paid services for the population	286.1	298.1	317.5	362.2	407.0
At the end of the period, december 2010 = 100					
Goods and services	187.5	201.5	218.5	262.9	288.6
Products	195.0	212.3	...	...	...
Foodstuffs	191.4	213.0	234.2	293.4	318.4
Non-grocery goods	198.1	209.0	226.9	270.8	295.4
Paid services for the population	172.3	179.6	191.3	218.2	245.1
At the end of the period, december 2015 = 100					
Goods and services	128.9	138.5	150.2	180.7	198.4
Products	134.1	146.0	...	...	...
Foodstuffs	134.6	149.7	164.6	206.2	223.8
Non-grocery goods	133.2	140.6	152.6	182.2	198.7
Paid services for the population	118.2	123.2	131.2	149.7	168.2

3.8 Indexes of physical volume of industrial production

as a percent of the previous year

	2019	2020	2021	2022	2023
Republic of Kazakhstan	104.1	99.5	103.6	101.2	104.4
Abay	23.5	106.8	109.5	110.1	104.3
Akmola	105.7	106.8	108.1	113.8	111.9
Aktobe	104.9	102.6	102.4	101.2	95.2
Almaty	109.9	102.5	111.9	109.1	106.9
Atyrau	105.4	94.5	102.8	98.3	111.2
Batys Kazakhstan	93.1	103.9	92.6	99.5	106.7
Zhambyl	106.8	103.3	106.0	110.5	100.3
Zhetisu	113.1	104.3	113.5	101.6	105.3
Karagandy	101.4	101.2	100.9	98.1	97.9
Kostanay	115.9	107.8	110.6	96.0	105.7
Kyzylorda	89.8	87.1	101.8	98.4	104.5
Mangystau	100.9	94.1	98.3	101.9	99.0
Pavlodar	102.7	101.2	102.5	99.8	100.7
Soltustik Kazakhstan	103.9	105.1	107.2	104.6	114.4
Turkistan	107.2	96.1	105.6	93.1	103.0
Ulytau	91.8	88.7	89.0	103.5	98.3
Shygys Kazakhstan	110.7	101.1	100.1	102.3	100.7
Astana city	118.2	102.8	115.6	103.3	102.0
Almaty city	108.6	105.2	125.3	109.1	110.1
Shymkent city	113.4	99.1	105.2	106.1	102.9

3.9 The volume of industrial production (goods, services) by economic activity

	million tenge				
	2019	2020	2021	2022	2023
Industry - total	29 380 342	27 028 506	37 606 243	48 777 089	46 992 553
including:					
mining industry	15 978 061	11 785 557	17 976 976	24 926 378	21 925 367
coal mining, lignite	357 768	335 981	395 505	642 254	539 717
crude oil and natural gas					
production	12 653 589	8 274 652	13 181 562	19 372 319	16 086 957
metal ore mining	1 908 282	2 256 236	3 370 042	3 471 012	3 884 676
other mining industries	248 735	231 665	341 134	501 785	409 590
technical services in the field of					
mining industry	809 687	687 023	688 733	939 008	1 004 427
manufacturing industry	11 573 350	13 232 696	17 121 392	21 161 830	22 048 167
of them:					
food production	1 708 013	1 957 241	2 287 783	3 070 130	3 184 949
beverage industry	398 492	443 428	565 288	770 298	904 197
tobacco production	112 491	211 590	237 126	285 119	282 651
manufacture of textiles	60 238	75 997	84 888	109 313	129 306
manufacture of wearing apparel	43 964	53 627	54 440	65 558	89 471
manufacture of leather and					
related products	11 641	13 098	14 299	18 360	18 628
manufacture of wood and cork					
products, except furniture;					
manufacture of products from					
straw and materials for weaving	24 590	26 283	29 667	40 207	64 207
paper and paper products	67 848	71 073	93 028	128 940	138 848
production of coke and refined					
petroleum products	839 688	837 535	1 104 216	1 153 691	1 135 396
manufacture of industrial					
products	475 139	476 329	573 589	924 575	1 006 761
manufacture of rubber and					
plastic products	244 351	257 931	343 216	455 830	448 755
manufacture of other non-					
metallic mineral products	632 437	732 210	965 149	1 205 247	1 281 378
metallurgical industry	4 965 432	5 662 784	7 676 586	9 036 308	8 191 948
manufacture of finished metal					
products, except machinery and					
equipment	264 388	291 109	334 446	398 693	480 557
engineering	1 472 284	1 823 922	2 386 182	3 151 710	4 317 538
manufacture of other finished					
products	41 173	48 334	44 587	46 685	59 985
power supply, gas, steam and air					
conditioning	1 561 366	1 740 718	2 150 972	2 327 194	2 590 673
water supply; sewage system, control					
over the collection and distribution					
of waste	267 565	269 535	356 902	361 686	428 346
collection, treatment and					
distribution of water	113 953	112 616	127 525	139 610	200 399

3.10 Employment in the economy

	2019	2020	2021	2022	2023
Employed in the economy, total	8 780.8	8 732.0	8 807.1	8 971.5	9 081.9
Agriculture, forestry and fisheries	1 184.7	1 175.1	1 176.4	1 108.9	1 078.0
Industry	1 094.9	1 089.2	1 098.0	1 121.2	1 121.7
Mining and quarrying	279.9	276.9	277.9	274.8	277.5
Manufacturing industry	583.6	581.8	585.6	613.7	605.6
Electricity, gas, steam and air conditioning	150.2	149.0	150.1	148.1	149.2
Water supply; sewer system, control over the collection and					
distribution of waste	81.2	81.5	84.3	84.6	89.6
Construction	635.6	630.9	641.4	658.9	642.2
Wholesale and retail trade; car and motorcycle repair	1 431.1	1 421.3	1 451.9	1 497.9	1 514.0
Transport and storage	637.9	617.5	609.5	640.6	648.5
Accommodation and food services	196.9	193.7	190.9	198.4	214.4
Information and Communication	161.7	159.7	161.7	166.5	187.8
Financial and insurance activities	190.5	189.0	184.9	186.3	201.8
Real estate operations	154.5	158.4	168.4	166.1	151.1
Professional, scientific and technical activities	256.4	254.7	247.3	253.7	265.1

Continuation

	2019	2020	2021	2022	2023
Administrative and support activities	292.3	285.5	287.5	280.8	272.8
Public Administration and Defense; compulsory social security	495.3	489.3	484.1	508.5	524.3
Education	1 108.7	1 109.5	1 120.1	1 142.3	1 183.0
Health and social services	502.7	512.4	526.0	561.2	577.7
Arts, entertainment and recreation	142.0	138.4	134.7	137.9	139.4
The provision of other types of services	295.8	307.5	324.4	342.5	360.2
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	440.7	448.8	449.6	458.3	451.5

3.11 Labor force share and unemployment rate

thousand people

	2019	2020	2021	2022	2023
Work force	9 221.5	9 180.8	9 256.8	9 429.8	9 534.1
Employed population:	8 780.8	8 732.0	8 807.1	8 971.5	9 081.9
wage-earners	6 681.6	6 686.7	6 710.2	6 847.3	6 893.4
self-employed workers	2 099.2	2 045.4	2 096.9	2 124.2	2 188.5
Labor share	70.1	69.2	69.3	68.7	68.5
Unemployment rate	4.8	4.9	4.9	4.9	4.7

3.12 Sown area of agricultural crops

thousand hectares

	2019	2020	2021	2022	2023
Total sown area	22 135.8	22 582.3	22 925.7	23 162.1	23 940.1
of them:					
Cereals (including rice) and legumes	15 396.6	15 878.4	16 108.0	16 114.4	17 525.5
Sugar beet	15.2	15.2	15.5	10.2	18.7
Potatoes	193.0	194.4	195.8	199.2	187.8
Vegetables	159.1	163.4	168.6	170.2	165.9
Bakhchi	102.1	101.9	110.1	100.3	108.0
Oilseeds	2 861.1	2 905.1	3 102.4	3 461.8	2 813.1
of them sunflower	818.0	757.7	960.5	1 094.6	1 179.2

3.13 Harvested crop area

thousand hectares

	2019	2020	2021	2022	2023
Cereals (including rice) and legumes	15 227.0	15 685.9	15 800.7	16 011.7	16 657.3
Sunflower	815.3	749.9	939.8	1 090.5	1 127.1
Sugar beet	15.0	14.4	12.1	9.0	13.5
Potatoes	192.3	193.8	194.4	198.7	184.3
Vegetables	158.8	163.2	168.4	169.9	165.0

3.14 Gross harvest of main crops

in all categories of farms, thousand tons

	2019	2020	2021	2022	2023
Cereals (including rice) and legumes	17 428.6	20 065.3	16 375.9	22 030.5	17 096.6
Sunflower	838.7	844.3	1 031.8	1 304.3	1 236.4
Sugar beet	485.5	466.3	332.2	305.6	510.2
Potatoes	3 912.1	4 006.8	4 031.6	4 080.5	3 788.1
Vegetables	4 138.3	4 340.7	4 512.0	4 610.2	4 530.3

3.15 Yield of main crops

in all categories of farms, centners per hectare

	2019	2020	2021	2022	2023
Cereals (including rice) and legumes	11.4	12.8	10.4	14.5	10.3
Sunflower	10.3	11.3	11.0	13.0	11.0
Sugar beet	324.5	323.2	275.5	364.0	379.0
Potatoes	203.4	206.7	207.4	205.4	205.5
Vegetables	260.5	265.9	268.0	271.3	274.6

3.16 Livestock and poultry

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

	2019	2020	2021	2022	2023
Cattle	7 436.4	7 850.0	8 192.4	8 538.1	6 616.8
Pigs	813.3	816.7	776.1	705.0	483.3
Sheep and goats	19 155.7	20 057.6	20 876.8	21 786.0	18 667.4
Horses	2 852.3	3 139.8	3 489.8	3 856.0	3 851.2
Camels	216.4	227.7	243.4	259.1	264.9
Poultry	45 041.4	43 335.0	47 884.7	49 787.7	44 174.2

3.17 Production of main livestock products

	2019	2020	2021	2022	2023
Meat (slaughter weight), million tons	1.1	1.2	1.2	1.2	1.1
Milk, million tons	5.9	6.1	6.2	6.4	3.5
Eggs, billion pieces	5.5	5.1	4.8	5.0	4.4

3.18 Availability of vehicles*

	The number of vehiclesthousand units	Including			Provision of the population of cars in the personal property per 100 population
		trucks	buses	cars	
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	18.8
2023	5 326.8	523.5	112.4	4 690.9	22.4

* 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
Republic of Kazakhstan	4 690 898	4 107 974	86 772	6 782	385 847	7 997	95 526
Abay	40 550	38 648	394	28	1 465	15	-
Akmola	195 221	176 356	2 577	161	11 873	43	4 211
Aktobe	182 437	137 083	1 196	272	42 519	75	1 292
Almaty	524 760	486 559	14 137	691	21 175	369	1 829
Atyrau	129 043	111 024	3 366	207	13 540	80	826
Batys Kazakhstan	145 389	124 199	3 063	64	17 157	92	814
Zhambyl	247 393	228 103	4 502	329	11 849	81	2 529
Zhetisu	42 876	39 830	1 211	73	1 715	39	8
Karagandy	311 707	285 778	6 698	275	14 215	134	4 607
Kostanay	197 708	179 498	4 756	59	12 181	75	1 139
Kyzylorda	139 469	116 557	1 180	191	21 249	52	240
Mangystau	161 510	69 968	1 997	235	87 495	125	1 690
Pavlodar	174 940	164 453	1 277	181	6 543	64	2 422
Soltustik Kazakhstan	144 521	126 502	2 142	358	13 455	41	2 023
Turkistan	253 795	218 725	2 706	591	31 659	67	47
Ulytau	17 079	15 871	304	10	859	35	-
Shygys Kazakhstan	297 148	286 357	3 640	115	5 208	89	1 739
Astana city	351 364	327 546	3 407	536	18 666	1 002	207
Almaty city	564 448	512 639	20 554	1 036	23 652	4 710	1 857
Shymkent city	191 256	170 055	2 598	884	17 396	263	60
Diplomatic numbers	35 779	30 713	2 629	37	2 243	65	92
Not specified region	201 868	130 357	1 321	303	4 620	480	64 787

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, 2024, units

	Total	Including					other
		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, but not more than 20 years	more than 20 years	
Republic of Kazakhstan	4 690 898	286 195	549 619	620 071	1 103 114	2 125 843	6 056
Abay	40 550	1 906	5 496	5 351	13 092	14 705	-
Akmola	195 221	9 564	14 264	22 305	42 040	106 657	391
Aktobe	182 437	12 729	16 463	34 443	62 085	56 601	116
Almaty	524 760	17 968	31 297	46 139	101 732	326 955	669
Atyrau	129 043	15 425	17 701	29 845	42 353	23 695	24
Batys Kazakhstan	145 389	13 160	18 144	24 885	40 765	48 240	195
Zhambyl	247 393	6 792	12 074	17 591	45 968	164 858	110
Zhetisu	42 876	1 333	3 761	2 823	8 483	26 476	-
Karagandy	311 707	17 034	30 911	36 017	64 473	162 887	385
Kostanay	197 708	13 793	24 140	26 306	44 404	88 712	353
Kyzylorda	139 469	5 815	10 083	15 178	40 892	67 411	90
Mangystau	161 510	11 678	15 700	32 212	56 805	45 056	59
Pavlodar	174 940	9 500	17 249	21 295	36 557	90 170	169
Soltustik Kazakhstan	144 521	6 715	9 544	14 689	32 632	80 701	240
Turkistan	253 795	10 237	26 858	35 397	72 886	108 417	-
Ulytau	17 079	716	2 809	1 505	4 908	7 141	-
Shygys Kazakhstan	297 148	15 154	21 620	41 602	62 713	155 754	305
Astana city	351 364	37 082	86 950	66 765	80 146	80 252	169
Almaty city	564 448	46 629	100 475	80 663	147 744	188 725	212
Shymkent city	191 256	13 560	36 465	30 626	49 106	61 498	1
Diplomatic numbers	35 779	5 795	8 669	6 100	8 068	7 142	5
Not specified region	201 868	13 610	35 330	12 071	18 882	119 648	2 327

* Note: "other" - not determined year.

3.21 The average age of the road vehicle fleet

	2019	2020	2021	2022	2023
Cars					
Total amount per 1 000 units	3 776.9	3 870.3	3 798.1	3 909.6	4 690.9
Including					
<= 3 years, per 1 000 units	401.1	462.6	516.8	319.8	286.2
<= 3 years, in percent	10.6	12.0	13.6	8.2	6.1
3 <= 7 years, per 1 000 units	593.0	570.9	494.7	250.3	549.6
3 <= 7 years, in percent	15.7	14.7	13.1	6.4	11.7
7 <= 10 years, per 1 000 units	240.2	268.3	317.3	572.0	620.1
7 <= 10 years, in percent	6.4	6.9	8.4	14.6	13.2
> 10 years, per 1 000 units	2 459.0	2 495.4	2 407.0	2 761.2	3 229.0
> 10 years, in percent	65.1	64.5	63.3	70.6	68.8
Other, per 1 000 units	83.5	73.1	62.2	6.3	6.1
Other, in percent	2.2	1.9	1.6	0.2	0.1
Buses					
Total amount per 1 000 units	86.6	83.6	82.0	93.2	112.4
Trolley buses					
Total amount per 1 000 units	0.2	0.2	0.2	0.2	0.3
Trucks					
Total amount per 1 000 units	461.8	479.6	506.5	446.5	523.5

3.22 Passenger traffic of all types of transport

	million pkm				
	2019	2020	2021	2022	2023
Total	68 643.8	36 698.6	54 277.3	63 527.0	71 293.8
of them:					
railway	17 721.0	9 163.3	12 750.0	16 690.9	16 459.5
automotive and urban	34 036.3	19 009.3	26 675.6	26 794.6	28 934.8
inland water	0.7	0.5	1.4	2.0	2.2
air	16 885.5	8 525.2	14 849.8	20 038.8	25 897.1
Population of the country, million people	18.5	18.8	19.0	19.6	19.9
Passenger turnover per capita, km	3 710.5	1 952.1	2 856.7	3 241.2	3 582.6

* For 2010-2021 the data have been recalculated taking into account changes in the methodological approach to the formation of performance indicators of individual entrepreneurs engaged in commercial transportation of goods and passengers by road transport.

* From 2022 and further, the data was generated taking into account changes in the methodological approach to the formation of performance indicators of individual entrepreneurs engaged in commercial transportation of goods and passengers by road transport.

Taking into account the transportation of passengers by subway.

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

	billion tkm				
	2019	2020	2021	2022	2023
Total	448.8	443.6	483.5	479.7	503.5
of them:					
railway	286.7	299.2	297.4	307.6	328.7
automobile and urban electric	24.7	19.6	33.7	30.0	30.1
inland water transport	0.01	0.02	0.05	0.05	0.02
pipeline	136.7	124.2	151.7	141.3	143.7
marine	0.7	x	0.6	0.7	0.9
air	83.8	0.06	0.08	0.05	0.05
GDP by PPP in constant prices 2017, billion international dollars	487.9	475.2	494.6	512.0	...
Cargo turnover per unit of GDP, t-km / 1 000 international dollars	919.9	933.5	977.6	936.9	...
GDP at constant prices in 2021 (PPP), billion international dollars	639.6	623.7	650.5	671.3	705.5
Cargo turnover per unit of GDP, t-km / 1 000 international dollars	701.7	711.2	743.3	714.6	713.7

* For 2019-2021, the data has been recalculated considering the change in the methodological approach to forming performance indicators for individual entrepreneurs engaged in commercial passenger transportation by road.

3.24 Composition of road motor vehicle fleet by fuel type

	unit				
	2019	2020	2021	2022	2023
Passenger cars					
Total	3 776 893	3 870 318	3 798 071	3 909 559	4 690 900
Gasoline	3 362 957	3 426 786	3 343 736	3 451 775	4 107 974
Diesel fuel	74 226	75 758	73 867	75 982	86 772
Gas cylinder	3 623	3 951	3 886	4 160	6 782
Mixed	276 273	292 437	297 120	322 350	385 847
Electric	613	550	491	812	7 997
Fuel type not specified	59 201	70 836	78 971	54 480	95 526

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

	2019	2020	2021	2022	2023
Total R&D expenditures	82 333.1	89 028.7	109 332.7	121 560.1	172 585.9
Total R&D expenditures in the business sector	33 884.4	36 832.9	38 215.7	31 921.4	35 509.7
R&D expenditures in the business sector in the total R&D expenditures	41.2	41.4	35.0	26.3	20.6

3.26 Internal R&D expenditures in the field of environmental protection and energy efficiency by region for 2023

thousand tenge

	Total	Including by source of funding				
		own funds	republican budget	foreign budget	foreign funds	other funds
Republic of Kazakhstan	32 341 566	2 992 463.3	28 344 375.7	26 974.0	50 560.0	927 193.0
Abay	752 336	-	752 336.0	-	-	-
Akmola	375 617	-	375 617.0	-	-	-
Almaty	466 419	-	466 419.0	-	-	-
Batys Kazakhstan	20 270	2 300.0	14 000.0	-	-	3 970.0
Zhambyl	4 434 742.2	140 463.8	3 841 076.4	9 599.0	-	443 603.0
Zhetisu	34 280.0	16 300.0	x	-	-	-
Karagandy	581 907.2	68 244.0	365 211.2	17 375.0	-	131 077.0
Kyzylorda	301 908.0	-	301 908.0	-	-	-
Mangystau	1 400 318.9	448 573.9	951 745.0	-	-	-
Pavlodar	393 727.4	292 527.0	101 200.4	-	-	-
Soltustik Kazakhstan	153 040.0	153 040.0	-	-	-	-
Ulytau	-	-	-	-	-	-
Shygys Kazakhstan	479 171.0	263 085.9	102 795.0	-	-	113 290.1
Astana city	2 732 934.7	95 465.5	2 580 497.0	-	-	56 972.2
Almaty city	19 904 575.4	1 508 454.0	18 167 280.7	-	50 560.0	178 280.7
Shymkent city	310 319.2	4 009.2	306 310.0	-	-	-

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

thousand tenge

	2022			2023		
	Total	Including by type of work		Total	Including by type of work	
		scientific research	development projects		scientific research	development projects
Republic of Kazakhstan	15 723 083.5	14 657 768.7	1 065 314.8	32 341 566.0	30 662 212.4	1 679 353.6
Abay	234 848.0	234 848.0	-	752 336.0	752 336.0	-
Akmola	447 038.8	447 038.8	-	375 617.0	375 617.0	-
Aktobe						
Almaty	x	x	-	466 419.0	466 419.0	-
Batys Kazakhstan	33 186.0	25 486.0	7 700.0	20 270.0	14 900.0	5 370.0
Zhambyl	2 921 724.0	2 659 016.0	262 708.0	4 434 742.2	3 849 644.4	585 097.8
Zhetisu	x	x	-	34 280.0	34 280.0	-
Karagandy	302 747.4	293 371.4	9 376.0	581 907.2	545 404.2	36 503.0
Kostanay				301 908.0	301 908.0	-
Kyzylorda	10 447.5	10 447.5	-			
Mangystau	849 370.7	552 371.0	296 999.7	1 400 318.9	1 190 182.0	210 136.9
Pavlodar	81 889.0	81 889.0	-	393 727.4	101 200.4	292 527.0
Soltustik Kazakhstan	4 200.0	-	4 200.0	153 040.0	-	153 040.0
Turkistan						
Ulytau	3 584.0	-	3 584.0			
Shygys Kazakhstan	383 645.2	54 662.0	328 983.2	479 171.0	124 881.9	354 289.1
Astana city	3 308 396.9	3 231 546.9	76 850.0	2 732 934.7	2 730 752.9	2 181.8
Almaty city	6 915 435.8	6 840 521.9	74 913.9	19 904 575.4	19 864 367.4	40 208.0
Shymkent city	4 009.2	4 009.2	-	310 319.2	310 319.2	-

3.28 Internal R & d expenditures in the field of environmental protection and energy efficiency by type of environmental protection activities for 2023

thousand tenge

	Total	Including by source of funding				
		own funds	republican budget	local budget	foreign funds	other funds
Domestic expenditure on R&D including:	32 314 592	2 992 463.3	28 344 375.7	26 974	50 560.0	927 193.0
protection of atmospheric air and climate	531 142.4	207 620.0	323 522.4	-	-	x
protection of water bodies	1 857 837.6	153 040.0	1 654 237.6	-	50 560.0	-
waste management	1 306 619.5	306 703.0	960 475.3	-	-	39 441.2

Continuation

	Total	Including by source of funding				
		own funds	republican budget	local budget	foreign funds	other funds
protection of soil and groundwater	611 513.8	144 340.0	444 351.8	-	-	22 822.0
to combat noise and vibration	56 972.2	-	-	-	-	56 972.2
protection of biological species and habitats (habitats)	4 598 547.9	165 240.0	4 269 838.5	-	-	163 469.4
on protection from radiation exposure	159 896	159 896.0	-	-	-	-
other research and development	23 145 172	1 855 624.3	20 691 950.1	26 974	-	570 623.6
of them						
in the field of renewable energy	416 302.3	-	416 302.3	-	-	x
in the field of energy-saving technologies and energy efficiency	2 859 904.6	405 849.7	2 362 851.7	-	-	91 203.2

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

thousand tenge

	2022			2023		
	Total	Including by type of work		Total	Including by type of work	
		scientific research	development projects		scientific research	development projects
Domestic expenditure on R&D including:	15 723 083.5	14 657 768.7	1 065 314.8	32 341 566.0	30 662 212.4	1 679 353.6
protection of atmospheric air and climate	959 421.1	955 145.1	x	605 007.0	596 027.0	8 980.0
protection of water bodies	1 154 522.2	1 152 422.2	2 100.0	1 857 837.6	1 704 797.6	153 040.0
waste management	1 043 897.8	1 041 939.8	1 958.0	1 306 619.5	1 304 461.5	2 158.0
protection of soil and groundwater	1 103 306.6	1 094 706.6	8 600.0	611 513.8	607 543.8	3 970.0
to combat noise and vibration	x	x	-	56 972.2	56 972.2	-
protection of biological species and habitats (habitats)	2 905 466.0	2 905 466.0	-	4 598 547.9	4 574 288.9	24 259.0
on protection from radiation exposure	120 345.7	120 151.7	194.0	159 896.0	x	8.0
other research and development	8 435 824.1	7 387 637.3	1 048 186.8	23 145 172.0	21 658 233.4	1 486 938.6
of them						
in the field of renewable energy	697 005.1	696 405.1	x	480 378.3	480 378.3	-
in the field of energy-saving technologies and energy efficiency	1 021 029.9	629 007.7	392 022.2	2 859 904.6	2 363 751.7	496 152.9

4. Environmental factors

4.1 The total expenses on environment protection

thousand tenge

	2019	2020	2021	2022	2023
Republic of Kazakhstan	420 392 105	384 015 734	416 955 575	444 514 269	610 285 222
Abay	2 309 533	2 600 586	3 244 786	5 804 267	6 962 550
Akmola	22 128 905	63 945 393	18 839 038	19 313 971	127 715 648
Aktobe	54 121 971	38 153 904	59 259 824	44 987 100	51 289 862
Almaty	910 304	1 472 042	1 814 394	2 096 057	2 876 627
Atyrau	55 376 398	43 869 542	76 753 130	100 859 822	89 151 170
Batys Kazakhstan	13 329 572	16 593 098	13 014 366	9 678 433	15 116 668
Zhambyl	52 768 246	12 148 355	58 751 671	26 993 650	50 254 606
Zhetisu	450 008	925 141	936 822	993 228	1 557 099
Karagandy	41 117 058	25 663 529	24 173 817	45 973 744	41 843 002
Kostanay	9 404 196	23 327 794	25 046 596	22 624 807	43 035 888
Kyzylorda	34 534 401	16 131 739	4 767 423	3 889 222	4 635 305
Mangystau	20 167 295	16 727 282	13 762 285	13 734 770	7 165 260
Pavlodar	37 133 277	40 474 833	38 155 928	37 326 905	59 495 022
Soltustik Kazakhstan	3 892 011	4 328 499	4 924 202	11 771 800	7 193 159
Turkistan	20 466 213	2 768 430	1 948 430	8 544 944	18 334 526
Ulytau	7 916 974	8 133 856	12 646 350	12 860 844	15 042 930
Shygys Kazakhstan	27 825 965	36 915 932	36 863 495	33 451 971	38 832 365
Astana city	4 781 433	17 222 878	8 219 235	16 852 108	7 321 551
Almaty city	5 115 686	5 060 060	8 893 841	7 519 421	12 505 140
Shymkent city	6 642 659	7 552 841	4 939 942	19 237 205	9 956 844

4.2 Total environmental protection expenses by type of environmental protection activity

thousand tenge

	2019	2020	2021	2022	2023
Total	420 392 105	384 015 734	416 955 575	444 514 269	610 285 222
including					
air and climate protection	85 393 439	88 476 190	82 513 454	127 995 826	122 068 658
on waste water treatment management	58 810 960	66 978 966	94 165 799	113 096 310	115 266 558
on waste management to protect and restore soil, groundwater and surface water sources	75 350 139	73 248 476	90 899 013	107 096 519	131 880 528
to combat noise and vibration (excluding measures of an in-house nature on labor protection in the workplace)	53 062	38 788	94 492	163 944	174 250
to protect landscape biodiversity	6 268 908	6 038 736	2 199 854	3 307 758	2 599 208
on protection from radiation exposure (excluding issues of external state security-news)	906 201	955 709	779 270	880 252	879 505
for research and development in the field of environmental protection (R&D)	4 214 328	4 502 777	4 921 332	3 479 430	5 063 347
for other environmental protection activities	166 887 474	127 596 045	114 573 623	64 798 639	216 404 371

4.3 Current costs on environmental protection

thousand tenge

	2019	2020	2021	2022	2023
Republic of Kazakhstan	221 670 479	210 397 122	245 790 216	284 853 377	343 024 440
Abay	2 309 533	2 600 586	3 244 786	4 569 245	6 590 398
Akmola	3 165 432	3 261 696	4 791 410	4 783 079	5 731 226
Aktobe	24 811 608	26 847 144	32 455 655	40 651 798	49 463 645
Almaty	837 074	860 967	1 367 871	1 965 645	2 136 758
Atyrau	51 198 333	39 940 657	52 132 403	56 508 271	54 505 203
Batys Kazakhstan	12 631 764	13 685 551	9 038 468	8 434 895	14 247 478
Zhambyl	4 782 879	4 951 362	5 765 390	7 328 188	8 008 858
Zhetisu	450 008	925 141	936 822	973 288	1 473 286

	Continuation				
	2019	2020	2021	2022	2023
Karagandy	18 957 980	20 369 294	24 124 305	32 904 100	37 822 671
Kostanay	8 797 401	10 423 346	13 722 916	18 068 017	23 335 280
Kyzylorda	2 853 868	2 863 434	3 300 927	3 827 088	4 489 312
Mangystau	11 127 425	9 632 475	7 823 690	7 783 851	7 165 260
Pavlodar	33 159 437	25 259 670	30 579 926	30 291 043	49 792 296
Soltustik Kazakhstan	3 688 821	3 102 405	4 919 885	4 419 072	4 407 484
Turkistan	1 581 227	1 294 883	1 472 529	1 649 601	1 999 229
Ulytau	7 916 974	8 133 856	12 646 350	12 860 844	15 041 253
Shygys Kazakhstan	20 576 334	23 034 866	25 567 469	29 156 691	33 827 877
Astana city	1 678 216	1 032 748	955 667	6 057 361	7 321 551
Almaty city	4 512 795	4 984 200	6 003 805	7 326 231	9 925 654
Shymkent city	6 633 370	7 552 841	4 939 942	5 295 069	5 739 721

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

	thousand tenge				
	2019	2020	2021	2022	2023
Total	221 670 479	210 397 122	245 790 216	284 853 377	343 024 440
including					
air and climate protection	74 385 432	73 049 345	74 466 978	89 897 029	100 093 829
on waste water treatment management	55 901 946	55 203 897	63 149 240	69 640 426	86 306 812
on waste management	66 280 727	62 097 465	76 490 710	98 376 788	126 820 792
to protect and restore soil, groundwater and surface water sources	13 732 360	9 071 184	16 323 180	12 403 139	12 998 142
to combat noise and vibration (excluding measures of an in-house nature on labor protection in the workplace)	52 623	38 788	70 892	163 944	148 407
to protect landscape biodiversity	2 114 424	801 745	1 443 986	1 322 879	2 599 208
on protection from radiation exposure (excluding issues of external state security-news)	905 865	921 317	630 128	619 965	746 234
for research and development in the field of environmental protection (R&D)	4 132 099	4 027 575	4 593 547	3 395 026	5 008 168
for other environmental protection activities	4 165 003	5 185 806	8 621 555	9 034 181	8 302 848

4.5 Current expenses for environmental protection by types of environmental activities in 2023

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			
Republic of Kazakhstan	343 024 440	100 093 829	86 306 812	126 820 792	12 998 142	148 407	2 599 208	746 234	5 008 168	8 302 848		
Abay	6 590 398	930 149	1 761 380	3 042 502	167 304	15 192	26 103	13 303	486 452	148 013		
Akmola	5 731 226	457 045	1 157 827	1 320 141	110 817	2 009	16 947	9 414	61 308	2 595 718		
Aktobe	49 463 645	24 146 124	5 907 615	17 909 256	1 160 283	2 980	13 144	19 184	-	305 059		
Alматы	2 136 758	310 121	463 783	841 426	236 387	4 528	38 858	1 674	118 047	121 934		
Atyrau	54 505 203	20 448 399	9 876 054	15 178 789	4 854 126	412	1 775 177	238 378	794 672	1 339 196		
Batys Kazakhstan	14 247 478	332 837	487 273	11 850 350	261 586	731	30 455	5 797	379 352	899 097		
Zhambyl	8 008 858	1 762 612	2 830 817	3 100 604	121 578	8 100	-	79 567	11 412	94 168		
Zhetisu	1 473 286	156 088	810 598	97 104	12 623	-	50	x	364 559	15 464		
Karagandy	37 822 671	6 577 435	10 261 160	18 169 947	1 902 659	85 626	59 181	5 644	236 461	524 558		
Kostanay	23 335 280	4 060 603	13 536 942	3 533 977	1 628 994	20	10 789	1 553	411 998	150 404		
Kyzylorda	4 489 312	714 240	327 727	2 004 607	131 549	4 301	269 756	43 982	680 893	312 257		
Mangystau	7 165 260	972 370	1 465 385	3 915 019	308 822	7 068	60 318	38 943	232 849	164 486		
Pavlodar	49 792 296	12 695 820	8 340 784	27 428 440	492 659	288	229 703	56 177	85 401	463 024		
Soltustik Kazakhstan	4 407 484	673 289	2 201 295	1 062 265	340 416	1 057	-	3 182	x	125 380		
Turkistan	1 999 229	203 753	123 386	835 218	117 320	14 344	27 317	174 134	397 278	106 479		
Ulytau	15 041 253	3 787 069	10 569 614	474 229	37 473	-	12 482	3 022	100 192	57 172		
Shygyys Kazakhstan	33 827 877	18 330 228	6 184 837	7 572 125	376 025	-	14 794	15 350	595 857	738 661		
Astana city	7 321 551	193 543	6 336 475	699 111	9 140	-	1 066	1 347	-	80 869		
Almaty city	9 925 654	1 483 659	174 448	7 459 814	721 782	1 650	-	18 687	15 342	50 272		
Shymkent city	5 739 721	1 858 445	3 489 412	325 868	6 599	x	13 068	96	35 495	10 637		

4.6 Investing in environmental protection

thousand tenge

	2019	2020	2021	2022	2023
Republic of Kazakhstan	198 721 626	173 618 612	171 165 359	159 660 892	267 260 782
Abay	471 837	10 856 704	557 633	1 235 022	372 152
Akmola	18 963 473	60 683 697	14 047 628	14 530 892	121 984 422
Aktobe	29 310 363	11 306 760	26 804 169	4 335 302	1 826 217
Almaty	47 878	27 849	441 007	130 412	739 869
Atyrau	4 178 065	3 928 885	24 620 727	44 351 551	34 645 967
Batys Kazakhstan	697 808	2 907 547	3 975 898	1 243 538	869 190
Zhambyl	47 985 367	7 556 993	52 986 281	19 665 462	42 245 748
Zhetisu	25 352	583 226	5 516	19 940	83 813
Karagandy	22 110 396	5 294 235	48 951	13 069 644	4 020 331
Kostanay	606 795	12 904 448	11 323 680	4 556 790	19 700 608
Kyzylorda	31 680 533	13 268 305	1 466 496	62 134	145 993
Mangystau	9 039 870	7 094 807	5 938 595	5 950 919	-
Pavlodar	3 973 840	15 215 163	7 576 002	7 035 862	9 702 726
Soltustik Kazakhstan	x	1 226 094	4 317	7 352 728	2 785 675
Turkistan	18 884 986	1 473 547	475 901	6 895 343	16 335 297
Ulytau	48 682	-	561	-	1 677
Shygys Kazakhstan	6 777 794	3024362	10 738 393	4 295 280	5 004 488
Astana city	3 103 217	16 190 130	7 263 568	10 794 747	-
Almaty city	602 891	75 860	2 890 036	193 190	2 579 486
Shymkent city	x	-	-	13 942 136	4 217 123

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

thousand tenge

	2019	2020	2021	2022	2023
Environmental investments	198 721 626	173 618 612	171 165 359	159 660 892	267 260 782
including:					
on air protection and climate change issues	11 008 007	15 426 845	8 046 476	38 098 797	21 974 829
for wastewater treatment	2 909 014	11 775 069	31 016 559	43 455 884	28 959 746
for waste management	9 069 412	11 151 011	14 408 303	8 719 731	5 059 736
for the protection and rehabilitation of soil, groundwater and surface water	8 775 234	7 108 863	10 485 558	11 292 452	2 950 655
to reduce noise and vibration	x	-	x	-	x
conservation of biodiversity and habitat	4 154 484	5 236 991	755 868	1 984 879	-
on radiation safety	x	34 392	149 142	260 287	x
for research work	82 229	475 202	327 785	84 404	55 179
to other areas of environmental detail related to the green economy	162 722 471	122 410 239	105 952 068	55 764 458	208 101 523
of them					
renewable energy investments	162 448 828	114 218 620	98 901 557	44 910 238	199 829 816
investments in energy-saving technologies and energy efficiency	234 749	5 959 183	4 833 394	6 843 924	186 024
investments aimed at reducing greenhouse gas emissions	399 190	65 385	31 988	1 145 120	1 013 456

4.8 Investments to protect the environment by types of environmental activities in 2023

thousand tenge

	Total	Including									
		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	other areas of environmental activities	
Republic of Kazakhstan	267 260 782	21 974 829	28 959 746	5 059 736	2 950 655	x	-	x	55 179	208 101 523	
Abay	x	-	-	x	-	-	-	-	-	-	
Akmola	121 984 422	3 863	-	427	-	-	-	-	-	121 980 132	
Aktobe	1 826 217	1 103 494	185 290	482 972	25 118	x	-	-	-	3 500	
Almaty	739 869	24 524	111 352	104 178	2 290	-	-	-	x	494 625	
Atyrau	34 645 967	x	21 973 220	-	-	-	-	-	-	7 712 667	
Batys Kazakhstan	869 190	x	2 568	333	-	-	-	-	-	-	
Zhambyl	42 245 748	-	-	-	2 234 596	-	-	-	-	x	
Zhetisu	83 813	39 205	44 608	-	-	-	-	-	-	-	
Karagandy	4 020 331	-	2 691 882	16 447	-	-	-	-	-	1 312 002	
Kostanay	19 700 608	-	-	-	-	-	-	-	-	19 700 608	
Kyzylorda	145 993	-	1 802	86 722	14 792	-	-	-	42 677	-	
Mangystau											
Pavlodar	9 702 726	9 030 550	-	88 609	96 721	-	-	x	-	353 575	
Soltustik Kazakhstan	2 785 675	2 735 365	1 500	-	48 810	-	-	-	-	-	
Turkistan	16 335 297	-	-	-	-	-	-	-	-	16 335 297	
Ulytau	1 677	-	-	-	-	-	-	-	-	1 677	
Shygyz Kazakhstan	5 004 488	604 483	2 044 761	1 792 012	363 022	-	-	-	x	194 600	
Astana city											
Almaty city	2 579 486	904 271	-	1 652 764	20 763	-	-	-	-	1 688	
Shymkent city	4 217 123	1 702 705	x	607 230	x	-	-	-	x	-	

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

thousand tenge

	2019	2020	2021	2022	2023
Environmental investments	198 721 626	173 618 612	171 165 359	159 660 892	267 260 782
domestic investment	58 704 956	105 256 779	92 134 392	101 010 042	84 256 956
external investment	140 016 671	68 361 834	79 030 967	58 650 851	183 003 826
Including by type of economic activity:					
Agriculture, forestry and fisheries	25 582	2 136 487	255 309	9 552	308
Industry	172 459 977	151 867 132	146 193 242	140 081 084	264 828 086
including:					
Mining and quarrying	13 027 150	14 537 196	32 975 370	50 961 402	31 738 914
Manufacturing industry	42 984 031	21 063 395	3 287 298	36 727 267	23 196 417
Electricity, gas, steam and air conditioning	115 893 750	115 784 294	107 404 049	51 879 047	209 515 306
Water supply; sewage system, control over the collection and distribution of waste	555 046	482 247	2 526 525	513 368	377 449
Construction	12 989 537	5 795 366	5 468 649	9 896 944	-
Wholesale and retail trade; car and motorcycle repair	x	2 223	31 051	-	x
Transportation and warehousing	x	-	-	x	193 080
Accommodation and Food Services	-	-	-	-	-
Information and communication	-	x	-	-	-
Financial and insurance activities	-	-	-	-	-
Real estate transactions	-	-	-	x	-
Professional, scientific and technical activities	5 899 311	53 425	633 760	14 574	1 655
Administrative and support services	x	-	-	-	59
Public administration and defense; compulsory social security	5 356 446	13 760 979	17 038 832	8 119 164	2 234 596
Education	-	2 136 487	x	-	-
Health and social services	-	151 867 132	-	-	2 568
Arts, entertainment and recreation	x	-	20 616	-	-
Provision of other services	1 820 577	14 537 196	x	-	-

4.10 Investments aimed at a «green economy» in 2023

thousand tenge

	Total	Including		
		investment in renewable energy	investments in energy-saving technologies and energy efficiency	investments to reduce greenhouse gas emissions
Republic of Kazakhstan	201 029 296	199 829 816	186 024	1 013 456
Abay	-	-	-	-
Akmola	121 980 132	121 980 132	-	-
Aktobe	-	-	-	-
Almaty	490 955	490 525	-	430
Atyrau	-	-	-	-
Zhambyl	40 011 152	40 011 152	-	-
Zhetisu	-	-	-	-
Karagandy	1 310 414	1 310 414	-	-
Kostanay	19 700 608	19 700 608	-	-
Kyzylorda	-	-	-	-
Mangystau	-	-	-	-
Pavlodar	29 971	-	29 971	-
Turkistan	16 335 297	16 335 297	-	-
Ulytau	-	-	-	-
Shygys Kazakhstan	156 053	-	156 053	-
Astana city	-	-	-	-
Almaty city	905 959	1 688	-	904 271
Shymkent city	108 755	-	-	108 755

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*

	2020	2021	2022	2023
Number of scientific and technical projects on the "green economy", unit	7	3	6	9
Expenditures on scientific and technical projects related to the "green economy", thousand tenge	163 998.4	175 215.8	221 931.8	2 292 489.8

* According to the National center for state scientific and technical expertise of the Ministry of Science and Higher Education 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

	2019	2020	2021	2022	2023
The volume of construction work (services), million tenge	4 431 666.2	4 934 069.2	5 530 680.7	6 304 274.1	7 612 810.3
The volume of work performed on the "green" construction, million tenge	12 103.2	13 884	58 329	165 447.4	38 930.5
The proportion of work performed on the "green" construction, in percent	0.3	0.3	1.1	2.6	0.5

4.13 Production of environmentally friendly products

	2019	2020	2021	2022	2023
Production in value terms, million tenge of them environmentally friendly products, million tenge	29 380 341	27 028 506	37 606 243	48 777 089	46 992 553
share of environmentally friendly products in total production, in percent	0.2	0.2	0.2	0.2	0.2

4.14 Gross organic crop production in 2022

center as of November 1, 2022

	Cereals (including rice) and legumes	Including			The culture of olives
		wheat	orghum (white durra), millet and other grains cultures*	dried leguminous vegetables	
Republic of Kazakhstan	33 199.0	33 199.0	-	-	-
Akmola	33 199.0	33 199.0	-	-	-
Share of organic crop production, in percent	0,015	0,020	-	-	-
Gross harvest of crop production	220 304 547.5	164 044 912.5	58 180 966.0	3 078 669.0	3 0512 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*

	2019	2020	2021	2022	2023
Number of issued certificates, licenses, patents in the field of environmental protection	142	109	154	297	223

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

4.16 Number of approved projects impact assessment on the environment

units

	2019	2020	2021	2022	2023
Number of approved projects impact assessment on the environment	1 174	800	107	559	666

4.17 Number of publications in the field of the environment

units

	2019*	2020	2021*	2022*	2023*
Number of publications in the field of the environment	12 363	13 829	13 192	6 155	6 500

* 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 and natural resources of the Republic of Kazakhstan from 20.02.2020 year № 49-P

4.18 Number of patents issued in the field of the environment*

units

	2019	2020	2021	2022	2023
Total number of issued patents	1 779	1 816	1 773	1 449	1 475
From them					
Number of patents issued in the field of environmental protection and energy efficiency	125	110	142	166	101
Including:					
on energy technologies	105	58	65	63	44
Including those, related to RES	32	13	19	28	25
on environmental technologies	20	52	77	103	57

* 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

units

	2019	2020	2021	2022	2023
Number of enterprises with environmental innovations, units	72	65	88	97	98
Level of activity in the field of environmental innovation, percent	0.3	0.2	0.3	0.3	0.3
Share of environmental innovation in total innovation, percent	2.2	2.0	3.0	3.0	2.7

4.20 Number of environmental innovations by type of innovation

units

	2019	2020	2021	2022	2023
Product innovations	25	23	29	49	43
Process innovations	54	47	58	61	67
Marketing innovation	2	3	5	...	...
Organizational innovations	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 2023

	Number of enterprises with environmental innovations, units	The level of activity in the field of environmental innovation, in percent	The share of environmental innovations in the total number of innovations, in percent	Number of environmental innovations by type of innovation, units	Including by type		Environmental innovation costs, million tenge
					Product innovations	Business-process innovations	
Total	98	0.3	2.7	98	43	67	59 111.3
Agriculture, forestry and fisheries	1	0.1	0.5	1	1	-	6.4
Mining and quarrying	19	2.3	15.1	19	2	19	19 523.1
Manufacturing industry	22	0.5	3.3	22	11	14	4 623.5
Supply of electricity, gas, steam, hot water and air-conditioned	5	1.1	10.2	5	2	3	33 752.3
Collection, treatment and dissemination of water	1	0.4	6.7	1	-	1	8.4
Collection, treatment and disposal of waste; disposal (recovery) of materials	1	0.4	12.5	1	-	1	60.9
Wholesale and retail trade; repair of cars and motorcycles	2	0.02	0.14	2	1	2	-
Information and communication	15	1.0	9.1	15	9	6	-
Research and development	4	1.9	4.0	4	2	3	648.5
Higher education	17	14.5	25.0	17	10	11	487.4
Other professional, scientific and technical activities	9	0.4	0.5	9	5	5	0.7
Activities in the field of architecture, engineering surveys, technical tests and analysis	2	0.6	5.1	2	-	2	-

4.22 The number of natural hazards*

	units					
	2019	2020	2021	2022	2023	
Republic of Kazakhstan	56	123	142	159	276	
Abay	-	-	-	5	15	
Akmola	4	4	11	10	24	
Aktobe	1	3	2	8	15	
Almaty	5	9	15	6	12	
Atyrau	1	-	22	7	2	
Batys Kazakhstan	4	6	10	13	15	
Zhambyl	1	4	8	7	17	
Zhetisu	-	-	-	4	3	
Karagandy	5	6	12	17	21	
Kostanay	4	15	9	8	43	
Kyzylorda	4	3	4	8	21	
Mangystau	-	1	2	11	13	
Pavlodar	4	3	4	4	6	
Soltustik Kazakhstan	6	13	7	4	10	
Turkistan	3	21	15	12	17	
Ulytau	-	-	-	3	7	
Shygys Kazakhstan	10	22	18	20	15	
Astana city	-	1	-	1	2	
Almaty city	3	8	-	7	11	
Shymkent city	1	4	3	4	7	

* 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

	2019				2020				2021				2022				2023			
	natural		man-made	total	natural		man-made	total	natural		man-made	total	natural		man-made	total	natural		man-made	total
	of which water	total			of which water	total			of which water	total			of which water	total			of which water	total		
Republic of Kazakhstan	1 589	10	14 232	1 438	5	13 258	1 476	9	11 562	1 518	19	11 837	1 610	23	11 294	2 438	23	11 294	2 438	
Abay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Akmola	72	-	946	67	-	929	180	1	888	302	4	786	243	2	850	159	6	884	159	
Aktobe	56	-	892	56	-	770	67	-	623	46	1	601	46	10	572	-	-	-	-	
Almaty	178	-	1 481	120	-	1 141	133	-	1 056	66	-	847	68	-	893	-	-	-	-	
Atyrau	36	-	294	28	-	264	64	1	339	45	2	320	26	-	268	-	-	-	-	
Batys Kazakhstan	60	-	585	123	-	535	88	1	527	59	2	549	49	3	568	-	-	-	-	
Zhambyl	202	-	774	132	-	718	21	1	666	27	1	760	62	-	804	-	-	-	-	
Zhetisu	-	-	-	-	-	-	-	-	-	24	-	508	14	1	424	-	-	-	-	
Karagandy	60	5	1 554	53	-	1 410	122	3	1 020	150	4	766	108	-	665	-	-	-	-	
Kostanay	118	-	1 162	98	-	1 088	152	1	903	100	-	786	153	-	721	-	-	-	-	
Kyzylorda	84	-	548	101	-	562	51	-	457	55	-	470	75	1	444	-	-	-	-	
Mangystau	5	-	292	4	-	269	14	-	268	23	3	264	33	-	270	-	-	-	-	
Pavlodar	202	-	898	155	-	940	152	-	583	168	1	357	229	-	291	-	-	-	-	
Soltustik Kazakhstan	38	-	698	54	-	704	80	-	719	53	-	662	47	-	584	-	-	-	-	
Turkistan	189	1	754	111	2	590	56	1	512	145	-	514	139	-	537	-	-	-	-	
Ulytau	-	-	-	-	-	-	-	-	-	14	-	197	24	-	195	-	-	-	-	
Shyngys Kazakhstan	251	4	1 911	290	2	1 823	269	-	1 287	110	1	757	98	-	731	-	-	-	-	
Astana city	6	-	671	5	-	627	10	-	721	12	-	834	12	-	649	-	-	-	-	
Almaty city	28	-	673	11	-	671	5	-	765	7	-	725	12	-	677	-	-	-	-	
Shymkent city	4	-	99	30	1	217	12	-	228	17	-	229	13	-	267	-	-	-	-	

4.24 Number of victims from emergency situations

people

	Man-made emergencies					Natural emergencies				
	2019	2020	2021	2022	2023	2019	2020	2021*	2022	2023
Republic of Kazakhstan	1 145	875	1 052	939	1 110	1 041	1 42 981	783	1 019	832
Abay	-	-	-	72	46	-	-	-	25	46
Akmola	26	49	69	60	50	13	7 252	40	12	38
Aktobe	65	33	49	32	51	15	3 699	29	26	12
Almaty	188	86	81	46	80	170	7 154	77	33	87
Atyrau	29	13	22	17	19	57	13 497	52	85	16
Batys Kazakhstan	24	32	20	22	29	65	9 222	41	146	29
Zhambyl	44	25	152	25	59	184	5 094	22	17	75
Zhetisu	-	-	-	20	26	-	-	-	5	-
Karagandy	32	92	112	74	160	18	12 074	48	47	47
Kostanay	48	59	62	80	69	44	7 590	28	44	75
Kyzylorda	51	21	39	24	19	77	3 422	41	35	60
Mangystau	19	14	27	23	36	5	1 699	11	11	32
Pavlodar	46	62	48	55	47	31	4 030	31	80	7
Soltustik Kazakhstan	43	67	96	70	64	11	8 632	42	8	6
Turkistan	150	40	35	42	61	217	3 691	66	206	224
Ulytau	-	-	-	25	13	-	-	-	1	-
Shygys Kazakhstan	148	123	104	86	80	86	12 806	197	17	6
Astana city	102	82	36	53	61	21	18 535	10	207	50
Almaty city	66	57	71	72	97	25	19 030	5	5	1
Shymkent city	64	20	29	41	43	2	5 554	43	9	21

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

4.25 Number of deaths from ES

people

	Man-made emergencies					Natural emergencies				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Republic of Kazakhstan	557	414	460	396	486	16	2 379	436	267	258
Abay	-	-	-	24	14	-	-	-	21	7
Akmola	32	30	36	35	37	-	100	38	11	1
Aktobe	19	7	19	14	29	-	42	26	20	19
Almaty	82	43	38	24	31	3	83	63	25	15
Atyrau	13	6	10	6	16	-	101	28	21	11
Batys Kazakhstan	20	12	8	12	5	-	169	33	19	11
Zhambyl	37	13	39	9	40	1	62	9	7	6
Zhetisu	-	-	-	14	23	-	-	-	5	11
Karagandy	42	41	54	37	17	-	292	25	18	17
Kostanay	48	38	47	55	87	1	49	24	28	18
Kyzylorda	26	8	15	9	10	1	15	23	18	18
Mangystau	6	4	12	11	41	-	76	11	11	26
Pavlodar	32	32	22	16	13	1	51	29	11	15
Soltustik Kazakhstan	46	47	53	39	23	2	41	22	6	7
Turkistan	36	15	18	10	35	3	47	39	20	5
Ulytau	-	-	-	6	11	-	-	-	1	23
Shygys Kazakhstan	64	63	48	31	22	2	415	48	12	0
Astana city	21	22	11	22	15	-	365	10	6	35
Almaty city	15	26	22	11	8	-	389	5	2	8
Shymkent city	18	7	8	11	9	2	82	3	5	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

	2019	2020	2021	2022	2023
Total funds allocated	28 543.1	19 076.3	3 450.8	65 532.4	12 365.2

*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

	2019	2020	2021	2022	2023
Natural emergencies					
Republic of Kazakhstan	4 607 623.6	7 321 631.3	6 771 141.0	15 751 116.5	16 826 452.1
Abay	-	-	-	101 420.0	119 111.2
Akmola	55 379.0	477 505.0	56 747.4	60 534.3	192 490.1
Aktobe	699.5	-	-	1 020 331.5	6 708 704.8
Almaty	487 687	1 006 824	595 676.9	266 769.0	-
Atyrau	-	1 080.0	2 800.0	334 914.0	-
Batys Kazakhstan	464 678.1	19 241.8	313 357.6	1 054 607.4	-
Zhambyl	21.0	-	300 460.9	141 218.0	903 983.3
Zhetisu	-	-	-	244 716.7	526 088.4
Karagandy	61 401.5	50 781.5	457 892.1	156 206.6	1 151 618.2
Kostanay	35 377.9	508 056.5	51 812.7	631 204.5	403 317.0
Kyzylorda	38 342.0	-	244 769.9	30 698.4	223 357.6
Mangystau	-	-	-	3 894.0	-
Pavlodar	-	-	-	491 405.4	1 074 471.9
Soltustik Kazakhstan	1000	193 492.9	35 164.8	48080.1	-
Turkistan	-	348 687.0	270 802.0	1 860 077.3	174 171.0
Ulytau	-	-	-	53 388.4	106 643.8
Shygys Kazakhstan	101 398.2	486 711.6	134 418.0	109 849.2	134 986.6
Astana city	-	2 256 052.9	-	-	-
Almaty city	3 361 639.4	1 687 618.1	4 307 238.7	9 141 801.7	5 107 508.2
Shymkent city	-	285 580.0	-	-	-
Man-made emergencies					
Republic of Kazakhstan	3 025 584.7	2 364 012.9	2 541 215.4	2 369 576.3	5 948 765.2
Abay	-	-	-	-	40 000.0
Akmola	3 574.3	126 111.8	9 228.2	-	8 328.6
Aktobe	10 000.0	-	-	-	-
Almaty	62 492	88 336	-	333 447.0	-
Atyrau	-	899 667.8	-	-	86 203.7
Batys Kazakhstan	6 950	-	26 706.5	43 610.8	-
Zhambyl	78.9	260 369.6	41 969.6	491 873.3	92 248.5
Zhetisu	-	-	-	249 342.4	-
Karagandy	19 100.4	-	26 035.0	81 985.9	225 604.2
Kostanay	-	-	-	-	-
Kyzylorda	38 064.0	-	-	332 261.0	-
Mangystau	-	259 258.7	-	-	-
Pavlodar	478 779.1	-	1 458.0	321 796.1	179 065.7
Soltustik Kazakhstan	-	-	80 980.1	-	-
Turkistan	146 300.0	108 282.0	55 300.0	-	-
Ulytau	-	-	-	16 033.0	59 907.0
Shygys Kazakhstan	56 876.0	32 120.4	29 142.0	269 319.2	1 274 149.8
Astana city	-	-	-	-	-
Almaty city	1 169 241	589 866.6	1 897 224.3	229 907.6	3 983 257.7
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*

	2019	2020	2021	2022	2023
Wastewater treatment facilities, thousand cubic meters, m per day	297.0	275.7	89.2	26 444.7	490.7
Circulating water supply systems, thousand cubic meters, m per day	-	2.0	7.2	0.1	188.8
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

	2019	2020	2021	2022	2023
Republic of Kazakhstan	12 375.1	275.7	89.9	71.7	490.7
Abay	-	-	0.7	0.4	-
Akmola	-	210	-	-	-
Almaty	-	-	-	-	-
Atyrau	-	-	-	-	490.7
Zhambyl	-	-	87.5	1.9	-
Mangystau	-	0.1	0.1	-	-
Pavlodar	-	0.3	-	26.4	-
Turkistan	-	-	0.9	-	-
Ulytau	4.2	-	-	0.1	-
Shygys Kazakhstan	-	-	0.7	-	-
Astana city	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 per day

	2019	2020	2021	2022	2023
Republic of Kazakhstan	-	1 080.0	28.8	-	-
Pavlodar	-	-	28.8	-	-
Shygys Kazakhstan	-	1 080.0	-	-	-
Astana city	-	-	-	-	-

4.31 Environmental taxation

thousand tenge

Type of environmental tax	2019	2020	2021	2022	2023
Energy taxes	1 706 402 804.8	881 692 071.7	1 592 128 228.9	2 742 055 473.5	2 537 067 615.9
Transport taxes	78 318 677.5	63 439 188.1	77 638 335.1	87 760 624.3	103 295 791.7
Pollution taxes	100 809 615.2	85 593 121.1	110 934 387.7	98 604 623.9	97 944 008.0
Resource Use taxes	394 415 327.2	359 187 841.9	487 890 932.3	586 621 414.1	766 574 994.5
Total environmental taxes, thousand tenge	2 279 946 424.7	1 389 912 222.8	2 268 591 884.0	3 515 042 135.8	3 504 882 410.1
	24.7	16.2	14.3	23.7	18.5
The share of environmental taxes in GDP, as a percent					
Energy taxes,	2.5	1.2	1.9	2.6	2.1
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	0.6	0.5	0.6	0.6	0.6
Total environmental taxes,	3.3	2.0	2.7	3.4	2.9
Environmental tax structure, as a percent					
Energy taxes,	74.8	63.4	70.2	78.0	72.4
Transport taxes	3.4	4.6	3.4	2.5	2.9
Pollution taxes	4.4	6.2	4.9	2.8	2.8
Resource Use taxes	17.3	25.8	21.5	16.7	21.9
Total environmental taxes,	100.0	100.0	100.0	100.0	100.0

* Tax classification is given according to the SNA 2008 и SEEA 2012

4.32 Payments for the use of natural resources in 2023 (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
Republic of Kazakhstan	2 128 021	2 870 258	2 389 682	1 281 519	22 062 096	3 179 957	97 944 008
Abay							
Akmola	35 566	261 068	226 875	312 539	1 447 698	27 192	4 729 736
Aktobe	9 569	5 234	61 133	298	1 133 786	102 282	9 074 085
Almaty	181 372	41 340	153 287	285 633	226 798	21 549	1 403 302
Atyrau	59 437	3 077	252 353	306	476 026	17 609	9 498 432
Batys Kazakhstan	9 658	21 555	23 554	0	359 291	32 231	1 910 881
Zhambyl	65 215	84 748	79 212	2	497 818	14 168	5 688 333
Zhetisu	46 468	29 662	137 873	11 015	187 062	45 492	589 870
Karagandy	357 303	8 599	55 132	63 428	2 705 664	15 852	13 326 466
Kostanay	15 552	1 646 607	273 661	288	2 973 169	19 193	8 491 559
Kyzylorda	21 893	13 027	157 671	595	200 939	217 140	880 148
Mangystau	120 143	628	19 602	826	987 837	2 400 704	1 909 556
Pavlodar	630 274	62 522	159 326	63 406	2 713 424	21 790	13 491 871
Soltustik Kazakhstan	74 172	400 829	80 044	14 756	1 871 887	37 704	2 033 804
Turkistan	93 509	68 515	108 996	42 621	289 158	32 336	1 118 817
Ulytau	49 100	288	6 973	0	2 079 853	72 212	6 436 482
Shygyz Kazakhstan	237 238	174 032	247 365	5 300	690 020	23 140	3 822 151
Astana city	12 338	17	327 136	0	1 206 257	154	3 349 431
Almaty city	15 581	283	129	456 942	1 073 066	68 895	1 858 283
Shymkent city	3 231	176	0	13	297 940	307	1 508 937

4.33 The number of employees in «green jobs» in 2023

	List number of employees, people	The number of employees in "green jobs", people	The share of the number of employees in in "green jobs", in percent
Republic of Kazakhstan	5 686 142	57 135	1.7
Abay	152 827	1 777	2.4
Akmola	213 262	2 217	1.5
Aktobe	258 360	4 050	3.4
Almaty	236 439	2 003	1.2
Atyrau	262 347	2 485	1.4
Batys Kazakhstan	186 420	2 578	2.1
Zhambyl	218 448	1 313	0.7
Zhetisu	129 094	1 660	1.6
Karagandy	387 207	5 699	2.7
Kostanay	236 102	2 476	1.7
Kyzylorda	183 894	3 124	2.3
Mangystau	213 861	2 349	1.5
Pavlodar	247 426	3 741	2.2
Soltustik Kazakhstan	157 288	2 489	3.1
Turkistan	295 525	2 705	3.7
Ulytau	74 568	627	1.0
Shygys Kazakhstan	233 297	3 082	2.2
Astana city	632 848	5 263	1.6
Almaty city	1 094 089	5 739	1.0
Shymkent city	272 840	1 758	1.0
By the main branches of the economy*			
Agriculture, forestry and fisheries	63 872	384	0.6
Industry	656 313	44 775	6.8
of these			
Water supply; sewer system. control over the collection and distribution of waste	42 712	42 425	99.3
Other activities	3 209 692	5053	0.2

*For medium and large enterprises

4.34 The number of employees in green jobs

	2022			2023		
	List number of employees, people	The number of employees in "green workplaces", people	The share of the number of employees in "green jobs", in percent	List number of employees, people	The number of employees in "green workplaces", people	The share of the number of employees in "green jobs", in percent
Republic of Kazakhstan	4 481 856	48 895	2.2	5 686 142	57 135	1.7
Abay	109 697	1 392	2.9	152 827	1 777	2.4
Akmola	155 959	2 208	2.6	213 262	2 217	1.5
Aktobe	210 374	2 581	2.9	258 360	4 050	3.4
Almaty	166 181	1 640	1.7	236 439	2 003	1.2
Atyrau	252 114	2 158	1.1	262 347	2 485	1.4
Batys Kazakhstan	135 040	2 334	3.5	186 420	2 578	2.1
Zhambyl	151 295	1 239	1.2	218 448	1 313	0.7
Zhetisu	87 050	1 711	2.8	129 094	1 660	1.6
Karagandy	314 412	4 222	3.1	387 207	5 699	2.7
Kostanay	189 975	2 327	2.7	236 102	2 476	1.7
Kyzylorda	131 574	3 000	3.4	183 894	3 124	2.3
Mangystau	190 571	2 551	2.4	213 861	2 349	1.5
Pavlodar	193 085	3 541	2.8	247 426	3 741	2.2
Soltustik Kazakhstan	112 253	1 786	2.8	157 288	2 489	3.1
Turkistan	181 460	1 639	4.3	295 525	2 705	3.7
Ulytau	57 243	737	1.5	74 568	627	1.0
Shygys Kazakhstan	182 691	3 077	4.2	233 297	3 082	2.2
Astana city	527 956	4 808	2.2	632 848	5 263	1.6
Almaty city	919 170	4 664	1.3	1 094 089	5 739	1.0

	2022			2023		
	List number of employees, people	The number of employees in "green workplaces", people	The share of the number of employees in "green jobs", in percent	List number of employees, people	The number of employees in "green workplaces", people	The share of the number of employees in "green jobs", in percent
Shymkent city	213 759	1 280	1.6	272 840	1 758	1.0
By the main branches of the economy*						
Agriculture, forestry and fisheries	66 035	390	0.6	63 872	384	0.6
Industry	645 769	43 348	6.7	656 313	44 775	6.8
of these						
Water supply; sewer system. control over the collection and distribution of waste	41 551	41 234	98.5	42 712	42 425	99.3
Other activities	3 142 410	5 157	0.2	3 209 692	5053	0.2

*For medium and large enterprises

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

	Number of objects	Installed capacity, MW	Production, mln.kWh	Number of people employed at renewable energy facilities, pers.	including	
					women	men
On January 1, 2021						
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
On January 1, 2022						
Wind farm	40	683.95	1 776.4	425	77	348
Hydroelectric	40	280.98	799.74	696	108	588
Solar power plant	49	1 037.61	1 641.09	354	50	304
Biogas power plants	5	7.82	3.04	23	-	23
Total for all RES facilities	134	2 010.32	4 220.29	1 498	235	1 263
On January 1, 2023						
Wind farm	46	958	2 411	512	84	428
Hydroelectric	37	280	934	696	108	588
Solar power plant	44	1 148	1 763	429	66	363
Biogas power plants	3	1.77	1.98	23	0	23
Total for all RES facilities	130	2 388	5 110	1 660	258	1 402
On January 1, 2024						
Wind farm	57	1 394.6	3 824.99	607	133	474
Hydroelectric	39	269.605	993.87	713	111	602
Solar power plant	45	1 202.61	1 853.95	451	71	380
Biogas power plants	3	1.77	2.71	23	0	23
Total for all RES facilities	144	2 868.6	6 675	1 794	315	1 479

*According to the Ministry of energy of the Republic 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	2019	2020	2021	2022	2023
Total land in use of the Republic of Kazakhstan	262 860.6	262 918.4	262 930.8	262 930.8	262 930.8
including:					
agricultural land	106 432.6	108 562.7	113 961.4	115 966.2	116 447.8
specific weight, in percent	40.5	41.3	43.3	44.1	44.3
lands of settlements	24 077.2	24 192.2	24 288.7	24 592.8	25 037.4
specific weight, in percent	9.2	9.2	9.2	9.4	9.5
lands of industry, transport, communications, defense and other non-agricultural purposes	2 317.7	2 209.0	2 239.1	2 273.0	2 436.3
specific weight, in percent	0.9	0.8	0.9	0.9	0.9
lands of specially protected natural territories	7 696.7	7 705.7	7 810.7	7 811.3	8 154.3
specific weight, in percent	2.9	2.9	3.0	2.9	3.1
forest land	22 398.2	22 398.3	22 435.3	22 963.5	22 965.0
specific weight, in percent	8.5	8.5	8.5	8.7	8.7
water fund lands	4 222.1	4 208.4	4 206.5	4 209.4	3 907.8
specific weight, in percent	1.6	1.6	1.6	1.6	1.5
reserve lands	95 716.1	93 642.1	87 989.1	85 114.6	83 982.2
specific weight, in percent	36.4	35.6	33.5	32.4	31.9

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

5.2 Agricultural land

thousand hectares

	2019	2020	2021	2022	2023
Agricultural land	106 432.6	108 562.7	113 961.4	115 966.2	116 447.8
including					
lands of citizens for gardening and country building	66.1	36.4	33.5	33.5	33.0
land of citizens for farming	63 676.3	66 207.3	70 184.9	72 792.1	73 796.4
lands of non-state agricultural legal entities	41 379.4	40 282.4	41 605.6	40 945.1	40 665.5
lands of state agricultural legal entities	1 310.8	845.3	882.6	870.1	548.0

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

thousand hectares

	2019	2020	2021	2022	2023
Lands of settlements (cities, towns, and rural settlements)	24 077.2	23 777.95	24 288.7	24 592.8	25 037.4
including:					
cities and villages	2 437.4	3 655.45	4 190.9	4 106.2	4 112.4
rural settlements	21 639.8	20 122.5	20 097.8	20 486.6	20 925.0

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

thousand hectares

	2019	2020	2021	2022	2023
Lands of industry, transport, communications, defense and other non-agricultural purposes	2 317.7	2 209.0	2 239.1	2 273.0	2 436.3
including:					
Industry	1 200.3	1 403.4	1 294.3	1 302.0	1 451.0
Road transport	313.9	304.5	310.9	311.1	300.4
Railway transport	197.7	190.8	187.3	191.4	195.3
Connections	17.1	16.9	19.4	18.5	18.8
Other non-agricultural enterprises	588.7	293.4	427.2	450.0	470.8

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	hayfields	pastures	forest area	swamps	under water	other
2019	272 490.2	26 011.0	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	3 848.0	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
2023	272 491.0	27 089.2	148.0	3 492.6	5 105.9	183 209.0	16 311.4	1 163.1	7 610.2	24 390.9

5.6 Land uptake

1000 km²

	2019	2020	2021	2022	2023
Total area of land withdrawn from productive use	264.0	264.1	265.3	268.6	274.8
Land uptake for mining and quarrying areas	12.0	14.0	13.0	13.0	14.5
Land uptake for productive turnover allocated for technical infrastructure (communications land)	0.2	0.2	0.2	0.2	0.2
Land uptake for productive turnover for transport	5.1	5.1	5.0	5.0	5.1
Land uptake for commercial, financial and public services	5.9	2.9	4.2	4.5	4.6
Land uptake for productive turnover for residential territories, land of localities	240.8	241.9	242.9	245.9	250.4
Land uptake by country area					
Country area	2 724.9	2 724.9	2 724.9	2 724.49	2 724.9
Share of land uptake in the country area, in percent	9.7	9.7	9.7	9.8	10.1

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

on November 1, 2023, thousand hectares

	Total area	Including								
		arable land	perennial plantations	deposits	hayfields	pastures	forest area	swamps	under water	other
Total irrigated area	262 930.8	27 089.3	148.0	3 492.5	4 886.3	178 031.4	16 311.1	1 163.1	7 610.3	20 233.8
including:										
agricultural land	116 447.8	26 526.1	61.8	1 865.0	2 363.5	82 812.6	1.2	122.7	187.5	2 003.1
land of settlements (cities and towns and rural settlements)	25 037.4	390.7	68.0	207.7	225.8	21 561.2	44.4	63.1	260.6	1 031.8
lands of industry, transport and communication, defense and other non-agricultural purposes	2 436.3	15.2	0.2	6.9	2.0	883.2	3.7	4.1	70.5	788.0
lands of specially protected natural areas	8 154.3	2.3	0.7	1.4	126.4	3 655.0	2 140.4	226.4	423.1	1 547.2
lands of the forest fund	22 965.0	93.5	0.5	9.8	230.4	6 488.1	14 028.9	30.4	50.1	1 963.5
lands of the water fund	3 907.8	-	0.2	0.3	30.6	111.4	0.1	38.4	3 584.9	77.5
reserve lands	83 982.2	61.5	16.6	1 401.4	1 907.6	62 519.9	92.4	678.0	3 033.6	12 822.7

* 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, 2023, thousand hectares

	Total area of agricultural land		Including									
	arable land	perennial plantations	deposits	hayfields	pastures	forest area	swamps	under water	other			
Republic of Kazakhstan	27 089.3	148	3 492.5	4 886.3	178 031.4	16 311.1	1 163.1	7 610.3	20 233.8			
Abay	18 571.9	2.8	182.1	598.8	14 730.1	610	71.9	306.3	897.2			
Akmola	1 461.2	6.5	314.4	242	6 331.4	505.1	69.2	382	230			
Aktobe	29 585.1	1.6	485.8	464.8	24 877.1	84.8	19.2	273.8	2 473.5			
Almaty	10 508.9	24.9	63.2	169	5 477.8	2 043.4	106.5	720.9	1 176.7			
Atyrau	11 738.1	0.6	11.7	133	9 504.2	26.2	407.6	95.3	1 380.8			
Batys Kazakhstan	9 785.9	3	70.5	460.8	5 125.2	1 783.3	16	551.8	846.4			
Zhambyl	11 938.2	7.1	0	251.9	6 998.1	2 242.2	29.9	352	992			
Zhetisu	11 848.3	6.5	73.9	288.8	8 100.4	644	77.5	651	1 205.3			
Karagandy	13 670.2	2.7	970.9	1 022.2	10 145.7	159.8	34.6	147.1	426.4			
Kostanay	22 013.1	2.1	275.3	274.8	17 922.3	149.6	18.9	486.2	1 219.3			
Kyzylorda	24 110.8	2.3	74.4	108.2	11 412.9	5 993.4	10.8	2 366.1	3 747.7			
Mangystau	19 600.1	11.1	192.4	328.3	11 054.4	334.2	163.8	398.3	368.2			
Pavlodar	16 564.2	0.5	0.3	0.3	12 632.6	143.8	0	3.9	3 634.2			
Soltustik Kazakhstan	12 459.5	3.1	479.6	302.1	8 291.5	370.5	43.2	297.7	348.7			
Turkistan	9 804.3	5.5	82.8	33.2	3 231.2	604	89.8	364.2	100.5			
Ulytau	11 610.3	37.7	119.2	95	8 854.3	589.9	1.7	157.5	635.3			
Shygyz Kazakhstan	14 244.4	0.3	90	111.6	13 309	15.6	2.2	46.7	513.9			
Astana city	68.3	2.7	0	0	1.4	0	0	0.6	9.2			
Almaty city	80.9	0.7	0.3	1.3	8	10.9	0.3	7.5	26.2			
Shymkent city	116.3	6.1	5.7	0.2	23.8	0.4	0	1.4	2.3			

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

on November 1, 2023, thousand hectares

	Total area of agricultural land		Of them									
	uncomplicated with negative symptoms		crushed	saline	salty	eroded	deflated	exposed jointly to water and wind erosion	waterlogged	marshy	other	
	total	of which is certainly suitable										
Republic of Kazakhstan	41 462.1	23 544.1	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	
Abay	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	4 986.8	4 986.8	2 388.7	1 601.9	3 169.5	562.0	9.6	-	164.5	111.6	94.0	
Aktobe	7 872.9	1 447.0	2 137.3	1 483.8	11 453.6	473.1	2 101.1	8.3	269.0	25.9	720.6	
Almaty	1 117.7	286.8	234.3	1 634.7	302.8	612.7	2 050.5	-	133.4	149.4	0.6	
Atyrau	9 659.8	538.2	136.9	2 282.6	3 396.0	-	3 133.9	-	45.7	3.1	123.4	
Batys Kazakhstan	6 331.8	406.9	3 721.9	365.7	242.4	232.9	216.7	1.5	191.1	33.0	43.8	
Zhambyl	8 096.2	333.8	2 800.1	1 358.1	406.3	222.7	2 414.0	-	124.0	87.0	14.4	
Zhetisu	9 023.6	494.3	2 341.5	1 362.0	271.0	202.8	2 901.9	-	66.3	38.2	36.9	

Continuation

	Total area of agricultural land	Of them										
		uncomplicated with negative symptoms		crushed	saline	salty	eroded	deflated	exposed jointly to water and wind erosion	waterlogged	marshy	other
		total	of which is certainly suitable									
Karagandy	12 758.9	1 528.3	1 073.2	300.4	1 343.2	7 109.5	274.5	1 409.5	191.9	326.4	72.5	202.7
Kostanay	19 855.3	1 893.3	1 019.0	8 770.5	1 709.3	6 250.2	198.2	128.7	-	430.6	48.3	426.2
Kyzylorda	18 011.2	5 896.7	5 403.4	589.8	3 133.1	6 846.5	158.7	611.2	-	294.5	183.6	297.1
Mangystau	11 789.0	1 127.2	4.3	263.8	6 609.7	641.6	2.9	2 846.7	-	94.5	79.1	123.5
Pavlodar	12 634.5	1 600.9	0.2	925.7	6 870.0	1 635.4	800.0	656.3	-	-	-	146.2
Soltustik Kazakhstan	11 157.4	1 605.7	1 596.5	2 917.7	775.6	3 943.8	0.9	1 296.3	-	57.9	34.8	524.7
Turkistan	8 395.6	4 176.5	4 176.5	410.2	573.2	2 790.4	56.0	-	-	144.5	115.6	129.2
Ulytau	10 042.4	1 584.1	1 093.5	1 060.1	2 215.6	1 007.5	933.7	3 112.9	-	112.3	7.7	8.5
Shygyz Kazakhstan	13 567.0	1 760.1	155.2	4 742.5	895.3	5 193.5	2.2	631.0	-	144.0	13.5	184.9
Astana city	81.0	44.6	45.0	3.2	10.0	-	23.2	-	-	-	-	-
Almaty city	27.0	23.7	0.6	2.9	-	-	0.1	-	-	0.3	-	-
Shymkent city	14.1	2.7	3.0	0.4	4.6	3.0	-	-	-	2.0	1.4	-

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

5.10 Area of eroded land as a percent of agricultural land to the total land area

1000 ha

	2020		2021		2022		2023	
	Area	as a percent to the total land area	Area	as a percent to the total land area	Area	as a percent to the total land area	Area	as a percent to the total land area
Areas affected by water erosion								
Total agricultural area	214 349.8		214 191.9		213 702.6		213 647.5	
	of which							
Low affect	2 848.1	1.33	2 848.1	1.33	2 848.1	1.33	2 848.1	1.33
Average affect	1 893.0	0.88	1 893.0	0.88	1 893.0	0.88	1 893.0	0.88
Strong affect	209.2	0.10	209.2	0.1	209.2	0.1	209.2	0.1
Total affect	4 950.3	2.31	4 950.3	2.31	4 950.3	2.3	4 950.3	2.3
Areas affected by wind erosion								
Total agricultural area	214 349.8		214 191.9		213 702.6		213 647.5	
	of which							
Low affect	2 168.1	1.01	2 168.1	1.01	2 200	1.03	2 200	1.03
Average affect	4 900	2.29	4 900	2.29	4 900	2.3	4 900	2.3
Strong affect	17 100	7.98	17 100	7.98	17 100	8	17 100	8.00
Total affect	24 168.1	11.28	24 168.1	11.28	24 168.1	11.3	24 168.1	11.3
Areas subject to joint water and wind erosion								
Total agricultural area	214 349.8		214 191.9		213 702.6		213 647.5	
	of which							
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, processed and reclaimed lands

ha

	2019	2020	2021	2022	2023
Disturbed lands	248 028.7	243 381.8	245 259.2	245 758.0	245 667.1
Worked out of disturbed lands	50 056.5	55 831.3	55 753.9	55 754.0	53 889.7
Recultivated	5 911.0	5 826.9	61.1	61.0	-
of them under:					
arable land	-	-	-	-	-
other farmland	5 910.0	5 826.9	19.0	19.0	-
forest shrubs	-	-	-	-	-
ponds and other purposes	1.0	-	37.0	37.0	-

5.12 Disturbed and processed lands

ha

	At the beginning of 2019		At the beginning of 2020	
	disturbed lands	processed disturbed lands	disturbed lands	processed disturbed lands
Republic of Kazakhstan	248 028.7	50 056.5	248 060	50 151.8
Akmola	19 586	7288	19 720	7 288
Aktobe	13 475.8	660.7	13 475.8	660.7
Almaty	6 804	995	7 373	971
Atyrau	2 329	59	2 242	59
Batys Kazakhstan	3 334	392	4 424	392
Zhambyl	6 605	1 983	6 605	1 983
Karagandy	45 149	10 679	45 242	10 679
Kostanay	37 792.6	13 748	38 298.6	13 848.5
Kyzylorda	2 700	711	2 700	711
Mangystau	78 574	3 592	76 300	3 592
Pavlodar	3 933	3 701	3 933	3 701
Soltustik Kazakhstan	12 146	1232	12 146	1 232
Turkistan	2 378	-	2 378	-
Shygyz Kazakhstan	12 719.1	4 869.4	12 719.1	4 869.4
Astana city	168.2	146.4	335	-
Almaty city	-	-	-	-
Shymkent city	335	-	168.5	147.4

Continuation

	At the beginning of 2021		At the beginning of 2022		At the beginning of 2023	
	disturbed lands	processed disturbed lands	disturbed lands	processed disturbed lands	disturbed lands	processed disturbed lands
Republic of Kazakhstan	233 257.8	52 130.3	241 334.3	55 316.9	245 667.1	53 889.7
Abay	-	-	-	-	7 173.0	-
Akmola	20 374.0	7 288.0	20 927.0	7 288.0	20 927.0	7 288.0
Aktobe	13 475.8	660.7	13 475.8	660.7	13 475.8	1 574.6
Almaty	7 436.0	971.0	4 141.0	881.0	4 141.0	881.0
Atyrau	2 242.0	59.0	2 238.0	63.0	2 238.0	63.0
Batys Kazakhstan	4 424.0	392.0	6 205.0	1 938.0	4 424.0	392.0
Zhambyl	6 205.0	1 983.0	2 739.0	90	6 205.0	1 983.0
Zhetisu	-	-	-	-	2 739.0	90.0
Karagandy	45 355.0	10 679.0	45 862.0	10 679.0	33 138.9	8 530.6
Kostanay	38 298.6	13 848.5	40 435.6	13 749.5	40 435.6	13 749.5
Kyzylorda	2.7	711.0	3 019.0	711.0	3 019.0	711.0
Mangystau	70 477.0	9 415.0	70 477.0	9 415.0	70 477.0	9 415.0
Pavlodar	3 933	3 701	3 933	3 701	12 146.0	1 232.0
Soltustik Kazakhstan	12 146.0	1 232.0	12 146.0	1 232.0	3 933.0	3 701.0
Turkistan	2 378.0	-	2 378.0	-	2 359.0	-
Ulytau	-	-	-	-	13 251.0	2 156.0
Shygys Kazakhstan	12 821.7	4 891.1	12 832.4	4 908.7	5 584.8	2 123.0
Astana city	168.5	-	168.5	-	-	-
Almaty city	-	-	-	-	-	-
Shymkent city	357.0	-	357	-	-	-

5.13 Availability of irrigated land by categories

on November 1, in thousand hectares

	2019	2020	2021	2022	2023
Total irrigated area	2 224.6	2 251.1	2 271.9	2 302.7	2 333.8
including:					
agricultural land	1 779.4	1 809.9	1 826.0	1 890.4	1 920.8
land of settlements (cities and towns and rural settlements)	180.4	200.7	205.1	205.1	206.3
lands of industry, transport and communication, defense and other non-agricultural purposes	3.0	2.5	2.6	2.6	2.5
lands of specially protected natural areas	1.1	0.6	0.6	0.6	0.8
lands of the forest fund	7.4	7.7	7.7	15.5	16.3
lands of the water fund	0.2	0.5	0.6	0.7	0.3
reserve lands	253.1	229.2	229.3	187.8	186.8

5.14 Availability of irrigated land

thousand ha

	2019		2020	
	total area	of them arable land	total area	total area
Republic of Kazakhstan	2 224.6	1 665	2 251.1	1 714.9
Akmola	31.6	16.9	31.6	17
Aktobe	30.3	12.3	30.3	12.3
Almaty	583.5	481.2	584.3	476.5
Atyrau	21.8	6.8	21.8	9.2
Batys Kazakhstan	55.8	15.3	55.8	16
Zhambyl	230.9	204.9	230.9	205
Karagandy	93.1	57.9	93.1	57.6
Kostanay	32.3	5.7	32.3	6.3
Kyzylorda	251	174.2	252	188
Mangystau	2.3	0.6	2.3	1
Pavlodar	102.2	76.7	126.8	102.6
Soltustik Kazakhstan	17.0	11.4	17	11.4
Turkistan	548.5	453.5	548.5	456.9
Shygys Kazakhstan	195.8	125.6	195.9	133.1
Astana city	0.3	0.1	0.3	0.1
Almaty city	2.9	2.3	2.9	2.3
Shymkent city	25.3	19.6	25.3	19.6

Continuation

	2021		2022		2023	
	total area	of them arable land	total area	of them arable land	total area	total area
Republic of Kazakhstan	2 271.8	1 736.2	2 302.7	1 778.9	2 333.8	1 815.7
Abay	-	-	112.3	75.5	113.2	74.7
Akmola	31.9	17.2	31.9	17.2	32.6	18.0
Aktobe	30.3	12.3	30.3	12.3	30.6	12.9
Almaty	584.6	478	327.2	263.8	328.6	270.5
Atyrau	21.8	9.1	21.8	9.1	23.2	9.4
Batys Kazakhstan	57.2	17.8	58.6	27.4	59.6	28.4
Zhambyl	230.9	205	232.2	206.3	232.4	207.1
Zhetisu	-	-	258.4	215.2	260.6	215.7
Karagandy	96.5	63.6	89.7	66.3	91.9	68.8
Kostanay	32.3	6.3	29.6	9.1	29.8	9.6
Kyzylorda	254.1	192.2	265.3	187.0	268.0	191.2
Mangystau	2.3	0.8	2.3	0.8	1.9	0.8
Pavlodar	137.1	111.4	150.2	130.0	166.9	146.1
Soltustik Kazakhstan	17.2	11.7	19.1	13.6	23.0	17.5
Turkistan	550.5	456.9	551.1	458.8	552.3	459.8
Ulytau	-	-	9.7	1.3	9.5	1.2
Shygys Kazakhstan	196.7	132.6	84.6	64.1	81.8	62.8
Astana city	0.3	0.1	0.3	0.1	0.3	0.1
Almaty city	2.9	1.6	2.9	1.6	2.3	1.6
Shymkent city	25.3	19.6	25.2	19.4	25.3	19.5

5.15 About irrigated lands and irrigation methods

1000 ha

	2019	2020	2021	2022	2023
Availability of irrigated land regular irrigation	2 224.6	2 234.2	2 243.4	2 302.7	2 333.8
Irrigated area	1 486.0	1 451.4	1 557.6	1 612.8	1 472.5
including irrigation methods :					
furrow irrigation	1 275.4	1 229.9	1 298.8	1 333.2	1 160.2
drip irrigation	49.8	60.4	73.0	79.5	84.9
sprinkling	160.8	161.1	185.8	200.1	227.4
Land area of estuary irrigation	864.2	864.2	864.2	864.5	858.9

* 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

1000 ha

	2019		2020		2021		2022		2023	
	sprink-ling	drip irrigation	sprink-ling	drip irrigation	sprink-ling	drip irrigation	sprink-ling	drip irrigation	sprink-ling	drip irrigation
Republic of Kazakhstan	160.8	49.8	161.1	60.4	185.8	73.0	200.1	79.5	227.4	84.9
Abay	-	-	-	-	-	-	8.5	1.3	9.1	2.7
Akmola	24.1	0.1	23.9	0.2	29.4	0.1	21.8	0.1	23.1	0.1
Aktobe	5.9	0.6	5.9	0.6	20.9	0.6	20.5	0.6	20.5	0.6
Almaty	6.7	10.3	6.4	10.8	10.1	10.6	10.1	7.6	10.9	9.6
Atyrau	0.6	2.8	0.7	3.0	0.9	3.2	1.3	3.2	2.0	3.8
Batys Kazakhstan	1.5	0.6	2.6	0.9	4.3	0.9	5.3	0.7	6.8	1.1
Zhambyl	6.2	14.2	7.4	22.3	12.3	28.3	16.1	34.8	18.1	39.1
Zhetisu	-	-	-	-	-	-	5.9	2.0	6.7	2.5
Karagandy	22.6	0.2	21.9	0	22.9	0.0	26.3	0.08	28.7	0.6
Kostanay	3.9	0.3	3.9	0.3	5.8	0.3	6.2	0.3	6.5	0.2
Kyzylorda	0.0	0.1	0	0.6	0.1	0.2	0.5	0.3	1.8	0.3
Mangystau	0.0	0.7	0	0.7	0.1	0.9	0.06	0.9	0.1	0.9
Pavlodar	76.3	0.6	76.3	0.6	63.4	0.7	65.5	1.0	72.8	0.5
Soltustik Kazakhstan	2.5	0.2	2.0	0.2	1.6	0.3	2.4	0.2	4.2	0.5
Turkistan	0.6	18.1	0.9	19.3	4.2	26.1	4.1	26.1	10.4	21.9
Ulytau	-	-	-	-	-	-	-	-	0	0
Shygys Kazakhstan	9.8	1.0	9.2	0.8	9.9	0.9	5.4	0.02	5.5	0.3
Astana city	-	-	-	-	-	-	-	-	-	-
Almaty city	-	-	-	-	-	-	-	-	-	-
Shymkent city	-	-	-	-	-	-	-	-	-	-

5.17 Application of organic fertilizers by all categories of farms

thousand tons

	2019	2020	2021	2022	2023
Republic of Kazakhstan	619.5	1 214.1	995.2	515.5	260.0
Abay	-	-	-	2.1	1.6
Akmola	55.4	69.3	83.4	13.5	0.7
Aktobe	54.8	54.9	12.3	14.0	14.4
Almaty	35.0	24.7	32.2	9.0	2.9
Atyrau	-	67.0	-	-	-
Batys Kazakhstan	3.6	0.4	0.4	0.4	1.0
Zhambyl	117.0	621.4	511.3	170.1	41.2
Zhetisu	-	-	-	28.7	4.9
Karagandy	48.9	85.3	29.6	55.7	66.9
Kostanay	64.2	58.4	67.2	65.1	13.6
Kyzylorda	-	0.5	-	0.1	-
Mangystau	51.8	2.2	1.7	0.0	0.0
Pavlodar	13.7	51.6	11.9	10.0	2.8
Soltustik Kazakhstan	71.8	66.3	41.1	35.4	63.8
Turkistan	27.5	3.3	41.6	5.2	4.3
Ulytau	-	-	-	6.9	-
Shygys Kazakhstan	75.5	108.7	162.5	99.0	41.8
Astana city	0.1	-	-	-	-
Almaty city	0.0	0.0	0.0	0.0	0.0
Shymkent city	0.4	0.1	0.0	0.0	0.0

5.18 Application of mineral fertilizers by all categories of farms

in terms of 100% nutrients, thousand tons

	2019	2020	2021	2022	2023
Republic of Kazakhstan	86.5	165.5	133.2	115.8	116.3
Abay	-	-	-	0.4	0.4
Akmola	9.6	71.8	24.8	16.7	20.3
Aktobe	0.3	0.3	0.7	0.6	0.7
Almaty	1.3	1.6	1.8	1.4	1.2
Atyrau	0.0	0.1	0.0	0.0	0.0
Batys Kazakhstan	0.2	0.2	0.2	0.3	1.2
Zhambyl	3.7	3.8	3.7	4.0	1.2
Zhetisu	-	-	-	0.5	0.7
Karagandy	1.7	3.4	5.3	5.6	4.9
Kostanay	9.8	11.3	13.1	9.8	10.1
Kyzylorda	13.1	15.0	14.5	8.5	11.0
Mangystau	0.0	0.0	0.0	0.0	0.0
Pavlodar	1.7	1.7	2.5	3.8	3.3
Soltustik Kazakhstan	30.3	39.5	41.8	37.7	35.8
Turkistan	10.2	10.2	17.9	20.7	17.6
Ulytau	-	-	-	-	-
Shygys Kazakhstan	4.3	6.5	6.9	5.5	7.9
Astana city	0.0	0.0	0.0	-	-
Almaty city	-	-	-	-	-
Shymkent city	0.0	0.1	0.1	0.1	0.0

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

kg/ha

	2019	2020	2021	2022	2023
	Mineral				
Republic of Kazakhstan	32.5	54.1	35.0	34.8	32.6
Abay	-	-	-	19.9	21.4
Akmola	19.2	139.4	25.6	22.9	29.0
Aktobe	20.6	12.1	10.8	21.1	25.0
Almaty	47.9	52.4	51.8	71.7	77.5
Atyrau	84.3	189.2	58.3	61.7	37.1
Batys Kazakhstan	87.1	98.0	87.0	23.7	40.9
Zhambyl	129.4	129.6	284.5	271.0	72.5
Zhetisu	-	-	-	33.6	19.1
Karagandy	39.2	41.5	44.3	39.9	34.0
Kostanay	16.2	16.7	18.4	17.7	14.2

Continuation

	2019	2020	2021	2022	2023
Kyzylorda	169.3	181.1	173.3	146.6	154.1
Mangystau	86.9	12.4	13.1	16.7	28.5
Pavlodar	33.7	34.8	63.1	89.6	107.9
Soltustik Kazakhstan	33.1	33.7	30.2	32.1	28.1
Turkistan	38.5	41.9	75.9	59.6	54.4
Ulytau	-	-	-	-	-
Shygys Kazakhstan	33.8	43.7	43.5	33.2	47.4
Astana city	14.5	18.5	3.9	-	-
Almaty city	-	-	-	-	-
Shymkent city	37.8	41.8	57.5	-	104.8
		Organic			
Republic of Kazakhstan	6 495.1	14 579.1	8 878.2	5 946.9	2 720.3
Abay	-	-	-	2 977.7	1 498.9
Akmola	1 727.7	2 131.0	2 982.9	1 110.5	37.0
Aktobe	7 606.8	9 711.3	1 569.5	2 179.1	1 681.3
Almaty	11 747.7	16 247.4	10 703.4	4 068.4	2 816.9
Atyrau	-	-	-	-	-
Batys Kazakhstan	4 002.6	896.4	869.2	920.3	195.8
Zhambyl	49 014.2	277 374.5	277 256.7	126 560.8	25 881.3
Zhetisu	-	-	-	52 010.9	2 309.5
Karagandy	24 258.4	24 894.1	12 559.0	21 720.7	8 889.7
Kostanay	8 386.6	11 637.9	21 667.5	56 955.0	1 258.7
Kyzylorda	-	1 004.2	-	10 000.0	-
Mangystau	144 384.1	5 715.5	5 007.6	48.9	34.4
Pavlodar	1 894.6	66 116.5	35 162.1	2 039.1	2 862.0
Soltustik Kazakhstan	3 998.4	2 916.4	795.3	849.7	2 138.3
Turkistan	3 057.2	1 204.2	6 493.9	1 214.3	977.7
Ulytau	-	-	-	15 676.2	-
Shygys Kazakhstan	14 824.9	20 295.1	24 150.1	14 470.4	11 918.3
Astana city	56 666.7	-	-	-	-
Almaty city	33 000.0	-	-	9 800.0	-
Shymkent city	682.8	-	-	-	36 000.0

5.20 Application of pesticides*

	2019	2020	2021	2022	2023
Agricultural area, thousand ha	21 539.4	22 656.24	22 925.72	21 658.3	22 854.2
Application of insecticides, tons	455.84	601.3	1 117.3	738.6	2 939.2
Application of insecticides per unit of agricultural area, kg/ha	0.02	0.03	0.05	0.15	0.12
Application of herbicides and desiccants, tons	11 344.07	12 866.01	15 779.4	7 093.5	11 108.2
Application herbicides and desiccants per unit of agricultural area, kg/ha	0.53	0.57	0.69	2.66	0.48
Application of Fungicides and bactericides, tons	1 269.60	1 021.6	1 325.2	868.5	985.1
Application of Fungicides and bactericides per unit of agricultural area, kg/ha	0.06	0.045	0.058	0.055	0.04
Application of Plant regulators, tons	31.51	3.13	101.7	109.8	4.5
Application of Plant regulators per unit of agricultural area, kg/ha	0.00	0.00014	0.004	0.44	0.0
Application of Rodenticides, tons	1.38	-	-	0.2	-
Application of Rodenticides per unit of agricultural area, kg/ha	0.00	-	-	2.0	-
Application of other pesticides (e.g. mineral oils), tons	0.00	-	-	-	2.5
Application of other pesticides (e.g. mineral oils) per unit of agricultural area, kg/ha	0.00	-	-	-	-
Total Application of pesticides, tons	13 102.4	14 492.04	18 323.6	8 810.6	15 039.5
Application of pesticides per unit of agricultural area, kg/ha	0.61	0.64	0.8	0.4	0.7

* 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

thousand tenge

	2019	2020	2021	2022	2023
Republic of Kazakhstan	4 990.9	6 048.7	6 772.4	8 383.2	6 667.7
Abay	-	-	-	5 487.9	4 753.4
Akmola	4 509.7	6 233.0	6 802.2	10 039.0	6 465.2
Aktobe	2 577.9	2 885.5	3 025.0	3 520.2	2 766.5
Almaty	10 697.3	11 756.2	12 790.5	18 113.0	15 665.9
Atyrau	2 746.7	3 168.3	3 856.4	4 354.3	3 724.7
Batys Kazakhstan	2 449.7	2 739.9	3 143.0	3 830.0	3 698.4
Zhambyl	7 259.5	8 560.7	10 490.2	12 751.9	11 517.5
Zhetisu	-	-	-	11 018.0	10 218.8
Karagandy	2 264.2	2 396.0	2 805.9	4 143.8	3 723.0
Kostanay	3 820.1	5 743.0	5 656.1	9 393.6	5 854.8
Kyzylorda	5 892.7	6 357.0	7 211.2	7 965.4	9 049.7
Mangystau	470.7	692.8	744.7	1 071.4	1 246.5
Pavlodar	3 860.9	5 172.6	6 088.5	7 087.9	5 182.0
Soltustik Kazakhstan	8 750.3	10 987.7	12 762.3	16 681.2	10 820.7
Turkistan	14 847.2	17 977.2	21 361.1	23 894.0	22 140.4
Ulytau	-	-	-	1 571.1	1 027.8
Shygys Kazakhstan	5 419.6	5 966.2	7 300.1	16 790.3	13 704.1

6. Water resources

6.1 The main characteristics of large rivers²⁾

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		2023	Medium-perennial
Irtys	4 248	1 700	210 (16430)	26.3 (Semiyaarka)	23.0 ³⁾
Ishim	2 450	1 400	113 (155)	2.22 (Petropavlovsk)	1.88
Tobol	1 591	800	130 (395)	0.88 (Kostanay)	0.27
Nura	978	978	55.1	0.29 (s. R. Koshkarbaev)	0.91
Ural	2 428	1 082	72.5 (231)	8.45 (Kushum with channel)	9.81
Syr Darya	2 212	1 400	219 (462)	11.2 (Shardara Reservoir)	14.6
Chu	1 186	800	62.5 (148)	1.43 (Kainar)	1.73
Talas ¹⁾	661	227	52.7	- (total)	
Ili	1 001	815	68.4 (131)	9.11 (164 km)	14.1

¹⁾ Data for 2023 after primary processing, the hydrological post of the Talas river - Zhasorken village in 2021 was transferred from the balance sheet of the RSE to the municipal property of the Zhambyl region, observations were not carried out.

²⁾ Source: reference book "Hydrological study" 1970.

³⁾ Information has been updated.

6.2 Main characteristics of the largest lakes*

Name of the lakes	Water surface area (mirror), 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

* Source – reference book «Hydrological knowledge» 1970.

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

* Source – reference book «Hydrological knowledge» 1970.

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

	Comprehensive Water Pollution Index		Comprehensive Water Pollution Index		Comprehensive Water Pollution Index	
	2020	2021	2022	2023		
	Water quality grade	Water quality grade	Water quality grade	Water quality grade	Water quality grade	Water quality grade
Irtys (EKR)	4 grade	1 grade	1 grade	2 grade		
Irtys (Pavlodar)	1 grade	1 grade	1 grade	1 grade		
Ural (Atyrau)	Not rated (>5 grade)	4 grade	3 grade	4 grade		
Ural (WKR)	4 grade	Not rated (>3 grade)	3 grade	2 grade		
Syr Darya (SKR)	Not rated (>5 grade)	Not rated (>5 grade)	4 grade	4 grade		
Syr Darya (Kyzylorda)	4 grade	4 grade	4 grade	4 grade		
Nura (Akmola)	4 grade	Not rated (>5 grade)	Not rated (>5 grade)	Not rated (>5 grade)		
Nura (Karagand)	4 grade	4 grade	Not rated (>5 grade)	Not rated (>5 grade)		
Ili	1 grade	3 grade	3 grade	3 grade		
Ishim (NKR)	Not rated (>3 grade)	4 grade	4 grade	Not rated (>3 grade)		
Ishim (Akmola)	Not rated (>5 grade)	Not rated (>4 grade)	4 grade	4 grade		
Chu	Not rated (>3 grade)	Not rated (>3 grade)	4 grade	3 grade		
Talas	Not rated (>5 grade)	Not rated (>5 grade)	3 grade	3 grade		
Tobol	Not rated (>5 grade)	Not rated (>5 grade)	Not rated (>5 grade)	Not rated (>5 grade)		
Balkhash (Karagand)	*	*	*	*		
Balkhash (Almaty)	*	*	*	*		

* 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 2023

Name of the water body	Water quality grade	Name of the physical and chemical substance	Units	Physical and chemical substance content
Bukhtarma (Shygys Kazakhstan)	2 grade	manganese	mg/dm ³	0.013
Breksa (Shygys Kazakhstan)	2 grade	nitrites	mg/dm ³	0.16
		manganese	mg/dm ³	0.024
Tikhaya (Shygys Kazakhstan)	3 grade	ammonium ions	mg/dm ³	0.63
		cadmium	mg/dm ³	0.0017
Ulba (Shygys Kazakhstan)	3 grade	cadmium	mg/dm ³	0.0012
Glubochanka (Shygys Kazakhstan)	3 grade	magnesium	mg/dm ³	25.3
Krasnoyarka (Shygys Kazakhstan)	3 grade	cadmium	mg/dm ³	0.0012
		magnesium	mg/dm ³	22.5
Oba (Shygys Kazakhstan)	2 grade	manganese	mg/dm ³	0.020
Emil (Shygys Kazakhstan)	4 grade	magnesium	mg/dm ³	36.7
Ayakoz (Shygys Kazakhstan)	5 grade	suspended solids	mg/dm ³	14.3
Zhayyq (Atyrau)	4 grade	magnesium	mg/dm ³	34.3
Sharonova (Atyrau)	4 grade	magnesium	mg/dm ³	34.1
Kigash (Atyrau)	Not rated (>5 grade)	suspended solids	mg/dm ³	155.3
Embi (Atyrau)	4 grade	magnesium	mg/dm ³	34.5
Zhayyq (Batys Kazakhstan)	2 grade	suspended solids	mg/dm ³	21.0
pr. Pheretaska (Atyrau)	4 grade	magnesium	mg/dm ³	37.0
Yaik (Atyrau)	4 grade	magnesium	mg/dm ³	37.7
Chagan (Batys Kazakhstan)	1 grade	-	mg/dm ³	-
Derkol (Batys Kazakhstan)	1 grade	-	mg/dm ³	-
Karaozen (Batys Kazakhstan)	3 grade	suspended solids	mg/dm ³	22.8
		magnesium	mg/dm ³	22.5
Saryozen (Batys Kazakhstan)	4 grade	suspended solids	mg/dm ³	22.9
Kushum channel (Batys Kazakhstan)	4 grade	suspended solids	mg/dm ³	21.3
Ilek (Batys Kazakhstan)	2 grade	chlorides	mg/dm ³	306.5
Shyngyrlau (Batys Kazakhstan)	Not rated (>5 grade)	chlorides	mg/dm ³	409.44
		ammonium ions	mg/dm ³	1.108
Ilek (Aktobe)	4 grade	chromium (6+)	mg/dm ³	0.059
		phenols	mg/dm ³	0.0016
Or (Aktobe)	4 grade	ammonium ions	mg/dm ³	1.169
		phenols	mg/dm ³	0.0018
Yrgyz (Aktobe)	4 grade	ammonium ions	mg/dm ³	1.23
		phenols	mg/dm ³	0.0014
Emba (Aktobe)	4 grade	ammonium ions	mg/dm ³	1.251
		phenols	mg/dm ³	0.0017
Kargaly (Aktobe)	4 grade	ammonium ions	mg/dm ³	1.139
		phenols	mg/dm ³	0.0015
		ammonium ions	mg/dm ³	1.257
Koksestek (Aktobe)	4 grade	phenols	mg/dm ³	0.0016
		magnesium	mg/dm ³	30.33
Aktasty (Aktobe)	4 grade	ammonium ions	mg/dm ³	1.337
		phenols	mg/dm ³	0.0018
Oiyl (Aktobe)	4 grade	ammonium ions	mg/dm ³	1.188
		phenols	mg/dm ³	0.0019
		ammonium ions	mg/dm ³	1.346
Ulken Kobda (Aktobe)	4 grade	phenols	mg/dm ³	0.0017
		magnesium	mg/dm ³	30.4
		ammonium ions	mg/dm ³	1.384
Kara Kobda (Aktobe)	4 grade	phenols	mg/dm ³	0.0016
		magnesium	mg/dm ³	30.4
		ammonium ions	mg/dm ³	1.175
Temir (Aktobe)	4 grade	phenols	mg/dm ³	0.0017
		chlorides	mg/dm ³	742
Tobol (Kostanay)	Not rated (>5 grade)	magnesium	mg/dm ³	122.283
		mineralisation	mg/dm ³	2 408.947
		suspended solids	mg/dm ³	36.185
Ayet (Kostanay)	4 grade	suspended solids	mg/dm ³	25.783
		magnesium	mg/dm ³	52.5
Togyzak (Kostanay)	4 grade	suspended solids	mg/dm ³	31.079
		magnesium	mg/dm ³	63.308

Name of the water body	Water quality grade	Name of the physical and chemical substance	Units	Physical and chemical substance content
Ubagan (Kostanay)	Not rated (>5 grade)	chlorides	mg/dm ³	1 559.442
		magnesium	mg/dm ³	244.225
		mineralisation	mg/dm ³	5 425.567
		calcium	mg/dm ³	195.3
		suspended solids	mg/dm ³	56.033
Ui (Kostanay)	4 grade	sulfates	mg/dm ³	1694.7
Zhelkuar (Kostanay)	Not rated (>5 grade)	magnesium	mg/dm ³	48.817
Amangeldi (Kostanay)	Not rated (>5 grade)	chlorides	mg/dm ³	375.717
Zhogargy Tobol (Kostanay)	Not rated (>5 grade)	suspended solids	mg/dm ³	44.133
Torgai (Kostanay)	4 grade	suspended solids	mg/dm ³	39.217
Karatomar reservoir (Kostanay)	Not rated (>5 grade)	magnesium	mg/dm ³	42.055
Shortandy (Kostanay)	4 grade	suspended solids	mg/dm ³	51.617
Esil (Soltustik Kazakhstan)	Not rated (>3 grade)	magnesium	mg/dm ³	32.133
Sergeev (Soltustik Kazakhstan)	Not rated (>3 grade)	phenols	mg/dm ³	0.0017
Esil (Akmola)	4 grade	phenols	mg/dm ³	0.0011
		magnesium	mg/dm ³	40.69
Akbulak (Astana city)	Not rated (>5 grade)	phosphorus	mg/dm ³	0.59
		chlorides	mg/dm ³	378.5
Sarybulak (Astana city)	Not rated (>5 grade)	COD	mg/dm ³	37.3
		chlorides	mg/dm ³	559.9
Zhabay (Akmola)	Not rated (>5 grade)	magnesium	mg/dm ³	38.67
Water reserv.Vyacheslavskoe (Akmola)	3 grade	magnesium	mg/dm ³	22.6
Nura-Yesil Channel (Akmola)	4 grade	magnesium	mg/dm ³	49.3
Nura River (Akmola)	Not rated (>5 grade)	iron	mg/dm ³	0.319
		manganese	mg/dm ³	0.122
Nura (Karagandy)	Not rated (>5 grade)	manganese	mg/dm ³	0.119
Slety (Akmola)	3 grade	BOD5	mg/dm ³	3.07
Aksu (Akmola)	Not rated (>5 grade)	chlorides	mg/dm ³	554
		COD	mg/dm ³	36.1
Kylshyky (Akmola)	Not rated (>5 grade)	chlorides	mg/dm ³	1027
		mineralisation	mg/dm ³	3 304
Shagalaly (Akmola)	4 grade	magnesium	mg/dm ³	40.4
		chlorides	mg/dm ³	422
		magnesium	mg/dm ³	114.9
		mineralisation	mg/dm ³	2 135
Kara Kengir (Karagandy)	Not rated (>5 grade)	calcium	mg/dm ³	201
		ammonium ions	mg/dm ³	6.0
		manganese	mg/dm ³	0.196
		ammonium ions	mg/dm ³	3.96
		manganese	mg/dm ³	0.163
Sherubainura (Karagandy)	Not rated (>5 grade)	manganese	mg/dm ³	0.134
Kengirskoe (Karagandy)	Not rated (>5 grade)	manganese	mg/dm ³	0.134
Samarkandskoe (Karagandy)	4 grade	magnesium	mg/dm ³	38.1
K. Satpayev Canal (Karagandy)	4 grade	magnesium	mg/dm ³	33.1
Sokyr (Karagandy)	Not rated (>5 grade)	ammonium ions	mg/dm ³	4.46
		manganese	mg/dm ³	0.159
Tekes (Almaty)	3 grade	magnesium	mg/dm ³	23.856
Temirlik (Almaty)	3 grade	magnesium	mg/dm ³	20.675
Turgenev (Almaty)	2 grade	phosphorus	mg/dm ³	0.115
Sharyn (Almaty)	3 grade	magnesium	mg/dm ³	22.008
Shilik District (Almaty)	2 grade	phosphorus	mg/dm ³	0.128
Korgas (Almaty)	2 grade	phosphorus	mg/dm ³	0.164
Bayancol river (Almaty)	3 grade	phosphorus	mg/dm ³	0.231
River Karkara (Almaty)	3 grade	magnesium	mg/dm ³	22.692
River Esik (Almaty)	4 grade	suspended solids	mg/dm ³	11.833
Kaskelen River (Almaty)	2 grade	phosphorus	mg/dm ³	0.2
		magnesium	mg/dm ³	24.208
Kapshagay (Almaty)	3 grade	ammonium ions	mg/dm ³	0.581
River Lepsi (Almaty)	2 grade	phosphorus	mg/dm ³	0.193
River Aksu (Almaty)	2 grade	phosphorus	mg/dm ³	0.133
River Karatal (Almaty)	2 grade	phosphorus	mg/dm ³	0.169
		nitrites	mg/dm ³	0.171
River Urzhar (Shygys Kazakhstan)	1 grade		mg/dm ³	
River Small Almatinka (Almaty)	3 grade	magnesium	mg/dm ³	29.52
River Yessentai (Almaty)	2 grade	phosphorus	mg/dm ³	0.114
River big Almatinka (Almaty)	2 grade	phosphorus	mg/dm ³	0.134

Continuation

Name of the water body	Water quality grade	Name of the physical and chemical substance	Units	Physical and chemical substance content
River Talas (Zhambyl)	Not rated (>5 grade)	suspended solids	mg/dm ³	54.8
River Shu district (Zhambyl)	3 grade	magnesium	mg/dm ³	27.7
River Assa (Zhambyl)	3 grade	magnesium	mg/dm ³	29.8
River Aksu (Zhambyl)	4 grade	magnesium	mg/dm ³	52.7
		sulfates		370.5
River Karabalta (Zhambyl)	5 grade	sulfates	mg/dm ³	645.1
River Toktash (Zhambyl)	Not rated (>5 grade)	suspended solids	mg/dm ³	95.0
River Sarykau (Zhambyl)	5 grade	sulfates	mg/dm ³	614.0
Water reserv.Tasotkel (Zhambyl)	Not rated (>5 grade)	suspended solids	mg/dm ³	63.5
River Keles (Turkistan)	4 grade	sulfates	mg/dm ³	358.20
River Badam (Turkistan)	3 grade	magnesium	mg/dm ³	22.55
River Arys (Turkistan)	3 grade	magnesium	mg/dm ³	20.6
River Katta-Bugun (Turkistan)	Not rated (>5 grade)	suspended solids	mg/dm ³	44.63
Shardarinskoe (Turkistan)	Not rated (>5 grade)	suspended solids	mg/dm ³	78.7
River Syrdarya (Turkistan)	4 grade	magnesium	mg/dm ³	33.3
River Syrdarya (Kyzylorda)	4 grade	magnesium	mg/dm ³	36.6

¹⁾ 1 grade water «the best quality».

²⁾ 5 grade water «the worst quality».

Substances for this grade are not standardized

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

Rivers	2019	2020	2021	2022	2023
BPK5, mg O₂/l					
Irtys					
1. sample point – Boran	1.88	1.78	1.73	1.65	1.64
2. sample point – Ust-Kamenogorsk	1.1	1.68	1.35	1.4	1.69
3. sample point – Village Prilrytshskoe	1.9	1.78	1.69	1.77	1.61
Ammonium salt, mg/l					
Irtys					
1. sample point – Boran	0.06	0.06	0.04	0.012	0.19
2. sample point – Ust-Kamenogorsk	0.31	0.66	0.20	0.391	0.82
3. sample point – Village Prilrytshskoe	0.24	0.131	0.11	0.255	0.17

6.7 Nutrients in fresh water

	2019	2020	2021	2022	2023
Phosphates, mg/l					
Irtys					
1. sample point – Boran	0.057	0.053	0.07	0.069	0.062
2. sample point – Ust-Kamenogorsk	0.341	0.987	0.0922	0.59	0.51
3. sample point – Village Prilrytshskoe	0.022	0.022	0.0137	0.023	0.025
Total phosphorus content (P), mg/l					
Balkhash Lake					
1. sample point – Balkhash city, 8 km A175 from the shore	0.0025	0.0015	0.006	0.015	0.009
2. sample point – Balkhash city, 20 km A175 from the shore	0.002	0.0022	0.005	0.012	0.012
3. sample point – Balkhash city, 38,5 km A175 from the shore	0.003	0.0013	...	...	...
Nitrate nitrogen, mg/l					
Irtys					
1. sample point – Boran	0.828	0.704	0.890	0.995	1.374
2. sample point – Ust-Kamenogorsk	1.267	2.30	1.121	1.176	2.16
3. sample point – Village Prilrytshskoe	0.302	0.24	0.28	0.089	0.55
Balkhash Lake					
1. sample point – Balkhash city, 8 km A175 from the shore	0.068	0.255	0.50	0.235	0.165
2. sample point – Balkhash city, 20 km A175 from the shore	0.085	0.425	0.63	0.207	0.272
3. sample point – Balkhash city, 38,5 km A175 from the shore	0.023	0.167	...	...	...

6.8 Nutrients in coastal waters

	2019	2020	2021	2022	2023
The total phosphorus content (P) - summer mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0.003	0.0143	0.0233	0.008	0.008
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	0.004	0.015	0.08	0.007	0.008
Shalygi-Kulaly, station 1	0.003	0.016	0.07	0.005	0.007
Total nitrogen content (N) - summer, mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	4.333	4.3	-	-	-
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	4.688	4.42	-	-	-
Shalygi-Kulaly, station 1	4.822	4.47	-	-	-
The total phosphorus content (P) - autumn, mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0.006	0.06	0.013	0.006	0.006
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	0.008	0.060	0.007	0.007	0.009
Shalygi-Kulaly, station 1	0.006	0.075	0.0055	0.005	0.007
The total nitrogen content (N) - autumn, mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	5.566	4.36	-	0.001	-
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	5.766	4.18	-	0.003	-
Caspian Sea	5.633	4.3	-	0.008	-
The total phosphorus content (P) - spring mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0.002	0.0023	0.009	-	0.003
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	0.003	0.002	0.006	-	0.004
Caspian Sea	0.005	0.003	0.006	-	0.006
Total nitrogen content (N) - spring mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	2.1	2.9	-	-	-
Caspian (Tengiz), 11th station	-	-	-	-	-
Seaside Ural River, station 4	2.9	3.1	-	-	-
Shalygi-Kulaly, station 1	2.9	3.93	-	-	-

6.9 Renewable Freshwater Resources (annual river flow resources)¹⁾

	2019	2020 ²⁾	2021	2022	2023
cubic meters					
Internal flow	65.1	48.8	43.0	43.8	65.2
Inflow of surface and groundwater	42.5	38.6	33.9	38.9	38.7
Renewable freshwater resources	107.6	87.3	76.8	82.7	103.9

¹⁾ According to The State water cadastre.

²⁾ Calculation of 2020 based on operational data.

6.10 Reserves of underground water resources*

at the end of year million cubic meters

	2019	2020	2021	2022	2023
Reserves of underground water resources	43.0	43.1	43.1	43.06	42.99

* 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*

1000 cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	43 030.893	43 076.865	43 120.557	43 062.46677	42 990.9635
Abay	-	-	-	-	3 280.788
Akmola	505.479	497.806	511.644	517.318	517.3182
Aktobe	1 903.644	1 915.057	1 927.815	1 931.42271	1 931.42271
Almaty	16 706.606	16 732.886	16 736.504	16 743.5631	16 743.5631
Atyrau	262.287	266.286	266.287	266.2867	266.28671
Batys Kazakhstan	334.804	335.912	336.404	336.83784	336.83784
Zhambyl	4 727.88	4 729.65	4 707.593	4 707.5934	4 707.593
Zhetisu	-	-	-	-	-
Karagandy	2 961.141	2 971.389	2 982.876	2 887.5343	2 325.921
Kostanay	1 073.661	1 065.624	1 478.059	1 065.95975	1 058.0440
Kyzylorda	1 476.699	1 477.193	1 068.142	1 478.8333	1 478.83333
Mangystau	398.598	398.598	395.038	401.06894	401.08940
Pavlodar	3 901.907	3 901.907	3 901.907	3 904.0907	3 841.0507
Soltustik Kazakhstan	208.973	209.257	209.727	209.72673	209.72675
Turkistan	2 088.1	2 091.91	2 112.917	2 122.9725	2 122.9726
Ulytau	-	-	-	-	561.6138
Shygys Kazakhstan	6 481.115	6 483.39	6 485.644	6 489.2586	3 207.923

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

6.12 Level of pressure on water resources

	2019	2020 ²⁾	2021	2022	2023
Renewable freshwater resources ¹⁾ (river flow resources) m ³	107 600	87 300	76 800	82 700	103 900
Freshwater abstraction*, million m ³	23 516	24 585	24 518	24 966	24 366
Level of pressure on water resources, in percent	21.9	28.2	34.9	30.2	23.5
Freshwater abstraction per capita, m ³	1 270.2	1 307.8	1 290.4	1 271.5	1 224.4

¹⁾ Data of the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan.

²⁾ Calculation of 2020 based on operational data

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

million cubic meters

	2019	2020	2021	2022	2023
Water intake from natural water sources – total	25 366	24 585	24 517	24 966.7	24 365.8
including :					
from underground horizons	1 071	999	1 064	1 050.9	1 029.8
Water loss during transportation	3 295	3 769	3 670	3 409.1	3 398.9
Water consumption (water use) - total	20 955	20 307	19 999	20 443	20 480
from him :					
for production needs	5 600	5 685	5 752	5 806.3	5 908.4
The volume of the explosive and consistent use of water	9690	9 789	9 891	9 348.4	9 460.7
The share of recycled and about Borum waste water in the total volume of water used, as a percent	38.2	48	49.4	45.7	46.2
Volume of discharge of treated water	319	316	333	327.5	344.5
The volume of discharge of polluted wastewater (without treatment and insufficiently treated)	0.05	0	0.02	0.04	4.6
Including:					
without cleaning	0.05	0	0.02	0.04	4.6

* 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

	2019	2020	2021	2022	2023
Republic of Kazakhstan	25 366	24 585	24 517	24 967	24 366
Abay	-	-	-	155	226
Akmola	55	52	65	55	67

Continuation

	2019	2020	2021	2022	2023
Aktobe	223	181	194	369	540
Almaty	3 343	3 387	3 460	1 862	1 865
Atyrau	288	288	276	299	265
Batys Kazakhstan	287	436	450	637	916
Zhambyl	1 603	1 644	1 504	1 559	1 527
Zhetisu	-	-	-	1 694	1 479
Karagandy	1 626	1 605	1 616	1 547	1 499
Kostanay	120	123	128	132	101
Kyzylorda	5 305	5 331	4 840	4 701	5 095
Mangystau	1 475	1 476	1 472	1 414	1 439
Pavlodar	3 045	3 199	3 395	3 164	2 887
Soltustik Kazakhstan	258	260	246	227	274
Turkistan	6 448	5 373	5 699	5 710	4 925
Ulytau	-	-	-	227	232
Shygys Kazakhstan	665	538	536	371	323
Astana city	108	122	116	108	127
Almaty city	258	263	272	273	285
Shymkent city	259	306	249	463	295

6.15 Water intake from natural sources per capita

thousand cubic meters per capita

	2019	2020	2021	2022	2023
Republic of Kazakhstan	1.4	1.3	1.3	1.3	1.2
Abay	-	-	-	0.3	0,0
Akmola	0.1	0.1	0.1	0.1	0,0
Aktobe	0.3	0.2	0.2	0.4	0,0
Almaty	1.6	1.6	1.7	1.2	0,1
Atyrau	0.5	0.4	0.4	0.4	0,0
Batys Kazakhstan	0.4	0.7	0.7	0.9	0,0
Zhambyl	1.4	1.4	1.3	1.3	0,1
Zhetisu	-	-	-	2.4	0,1
Karagandy	1.2	1.2	1.2	1.4	0,1
Kostanay	0.1	0.1	0.1	0.2	0,0
Kyzylorda	6.6	6.6	5.9	5.7	0,3
Mangystau	2.1	2.1	2.0	1.9	0,1
Pavlodar	4.0	4.3	4.5	4.2	0,1
Soltustik Kazakhstan	0.5	0.5	0.1	0.4	0,0
Turkistan	3.1	2.6	2.9	2.7	0,2
Ulytau	-	-	-	1.0	0,0
Shygys Kazakhstan	0.5	0.4	0.4	0.5	0,0
Astana city	0.1	0.1	0.1	0.1	0,0
Almaty city	0.1	0.1	0.2	0.1	0,0
Shymkent city	0.2	0.3	0.2	0.3	0,0

6.16 Household water use per capita

million cubic meters/year

	2019	2020	2021	2022	2023
Communal water supply					
Municipal water consumption in the country	536.1	573.7	609.1	635.6	671.9
Population connected to public water supply	17.3	17.8	18.6	18.8	19.1
Per capita water consumption per year	31.0	32.2	30.6	33.8	35.2
Self sufficiency					
Population not connected to municipal water supply (self-sustainment)	1.2	1.0	0.4	0.8	0.8
Estimated water consumption per capita	29.0	30.5	32	32.4	33.8
Water consumption in the communal sector in the country – self-sufficiency	34.8	30.5	12.8	25.9	27.0
Total water consumption (public water supply and self-sufficiency)					
Total water consumption	570.9	604.2	621.9	661.5	698.9
Total population	18.5	18.8	19.0	19.6	19.9
Per capita water consumption per year	30.9	32.1	32.7	33.8	35.1

6.17 The loss of water

million cubic meters/year

	2019	2020	2021	2022	2023
Communal water supply					
Collected water	25 366	24 585	24 517	24 966	24 365
Water delivered to end users	20 955	20 307	19 999	20 443	20 480
Water loss	3 295	3 769	3 670	3 409	3 398
Loss of water during transport Percent					
Water loss	13.1	15.3	14.9	13.7	14.0

6.18 The loss of water during transport by region

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	3 295	3 769	3 670	3 409	3 399
Abay	-	-	-	76	18
Akmola	7	6	6	69	6
Aktobe	21	19	7	52	7
Almaty	579	601	618	423	345
Atyrau	38	63	57	111	48
Batys Kazakhstan	55	73	76	129	149
Zhambyl	452	565	560	635	549
Zhetisu	-	-	-	313	253
Karagandy	25	21	21	76	18
Kostanay	8	8	7	67	7
Kyzylorda	958	931	841	883	952
Mangystau	1	1	1	1	0
Pavlodar	24	25	24	9	19
Soltustik Kazakhstan	2	3	3	2	1
Turkistan	1 004	1 332	1 323	286	939
Ulytau	-	-	-	47	6
Shygys Kazakhstan	80	56	52	50	26
Astana city	17	17	19	45	22
Almaty city	12	12	13	38	11
Shymkent city	13	38	43	97	25

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

6.19 The use of water

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	20 955	20 307	19 999	20 443	20 480
Abay	-	-	-	146	211
Akmola	65	49	59	56	61
Aktobe	197	159	183	363	534
Almaty	2 918	2 945	2 843	1 630	1 521
Atyrau	230	205	219	226	199
Batys Kazakhstan	233	363	374	532	766
Zhambyl	1 148	1 078	942	991	978
Zhetisu	-	-	-	1 440	1 226
Karagandy	1 599	1 662	1 573	1 552	1 590
Kostanay	79	87	88	92	95
Kyzylorda	4 346	4 400	3 999	3 886	4 021
Mangystau	1 515	1 512	1 471	1 450	1 444
Pavlodar	3 006	3 099	3 225	3 004	2 669
Soltustik Kazakhstan	250	251	243	217	273
Turkistan	4 300	3 495	3 803	3 798	3 701
Ulytau	-	-	-	218	224
Shygys Kazakhstan	554	455	457	320	295
Astana city	93	105	97	91	105
Almaty city	246	251	259	259	273
Shymkent city	176	189	164	171	295

6.20 Volume of circulating and sequential water supply

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	9 690	9 789	9 891	9 348.4	9 460.7
Abay	-	-	-	13.7	...
Akmola	163	347	145.4	113.2	122.8
Aktobe	178	151	152.7	115.3	165.7
Almaty	159	155	146.5	140.3	178.1
Atyrau	258	299	291.9	298.0	190.7
Batys Kazakhstan	4	0	-	-	...
Zhambyl	192	189	254.4	260.6	359.2
Zhetisu	-	-	-	0.5	...
Karagandy	2 534	2 535	2 267.8	1 927.1	2 334.1
Kostanay	456	152	547.7	390.0	417.5
Kyzylorda	-	0.001	0.11	0.1	0.1
Mangystau	1	1.1	1.1	-	...
Pavlodar	4 051	3 959	4 370.8	4 360.5	4 268.5
Soltustik Kazakhstan	232	232	204.4	22.6	...
Turkistan	5	2.4	249.4	2.6	250.1
Ulytau	-	-	-	243.6	...
Shygys Kazakhstan	510	501	497.0	426.2	418.5
Astana city	411	406	467.6	484.2	478.7
Almaty city	284	296	293.7	275.4	276.6
Shymkent city	252	261	*	274.8	...

* Here the date is included in the Turkistan region.

6.21 Use of fresh water for industrial needs

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	5 600	5685	5 752.6	5 806.3	5 908.4
Abay	-	-	-	16.3	49.3
Akmola	28	24	29.4	17.6	24.6
Aktobe	12	18	17.0	17.6	15.7
Almaty	67	62	54.5	20.7	12.6
Atyrau	96	86	89.0	89.6	79.7
Batys Kazakhstan	11	9	12.5	11.9	10.2
Zhambyl	28	29	32.1	29.2	36.5
Zhetisu	-	-	-	33.8	33.3
Karagandy	1 363	1411	1 310.4	1 320.8	1 366.5
Kostanay	30	38	32.3	34.8	34.8
Kyzylorda	12	12	12.7	12.5	11.4
Mangystau	1 437	1445	1 398.0	1 376.9	1378
Pavlodar	1 970	2020	2 205.7	2 135.1	2 097.2
Soltustik Kazakhstan	228	229	216.9	191.3	245.4
Turkistan	12	6	14.7	5.0	0.9
Ulytau	-	-	-	191	200
Batys Kazakhstan	189	201	208.9	179.9	168.5
Astana city	14	12	22.8	19.4	25.7
Almaty city	81	76	75.0	74.3	81.3
Shymkent city	22	9	20	28.3	37.8

6.22 Use of fresh water for drinking needs

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	792	800	868	1 125.6	908.3
Abay	-	-	-	16.1	20.3
Akmola	25	15	17	33.1	21.9
Aktobe	36	39	36	38	40.7
Almaty	61	42	57	45.8	40.8
Atyrau	34	25	28	27	28.9
Batys Kazakhstan	23	23	23	22.4	23.5
Zhambyl	28	31	32	37.6	34.4
Zhetisu	-	-	-	220.5	23.8
Karagandy	89	90	142	87.8	58.4
Kostanay	33	34	37	36.4	37.1
Kyzylorda	22	22	23	26.7	24.6

Continuation

	2019	2020	2021	2022	2023
Mangystau	36	37	35	36.3	35
Pavlodar	40	44	43	55.1	46.5
Soltustik Kazakhstan	18	18	21	20.4	22.3
Turkistan	24	11	47	44.1	23.8
Ulytau	-	-	-	24.3	20.1
Shygys Kazakhstan	59	60	64	60.2	62.6
Astana city	73	88	69	70.7	78.3
Almaty city	159	175	175	176.6	191.1
Shymkent city	32	49	19	46.4	74.2

6.23 Use of water for household needs per capita

thousand cubic meters per capita

	2019	2020	2021	2022	2023
Republic of Kazakhstan	0.04	0.04	0.05	0.06	0.05
Abay	-	-	-	0.03	0.03
Akmola	0.03	0.02	0.02	0.04	0.03
Aktobe	0.04	0.04	0.04	0.04	0.04
Almaty	0.03	0.02	0.03	0.03	0.03
Atyrau	0.05	0.04	0.04	0.04	0.04
Batys Kazakhstan	0.04	0.03	0.03	0.03	0.03
Zhambyl	0.02	0.03	0.03	0.03	0.03
Zhetisu	-	-	-	0.32	0.03
Karagandy	0.06	0.07	0.10	0.08	0.05
Kostanay	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	0.06	0.06	0.07	0.06
Soltustik Kazakhstan	0.03	0.03	0.04	0.04	0.04
Turkistan	0.01	0.01	0.02	0.02	0.01
Ulytau	-	-	-	0.11	0.09
Shygys Kazakhstan	0.04	0.04	0.05	0.08	0.09
Astana city	0.07	0.08	0.06	0.05	0.06
Almaty city	0.08	0.09	0.09	0.08	0.09
Shymkent city	0.03	0.05	0.02	0.04	0.06

6.24 Used water for irrigation (regular and estuary)

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	10 300	9 684	9 119	9 312.1	9 463.1
Abay	-	-	-	61	105.2
Akmola	7	7	6	2.4	13
Aktobe	18	17	18	26.7	24.8
Almaty	2 751	2 817	2 705	1 551	1 209.4
Atyrau	55	40	50	56.5	40.9
Batys Kazakhstan	19	20	21	27.2	27.4
Zhambyl	685	592	582	627.8	611
Zhetisu	-	-	-	1 185.6	1 419.6
Karagandy	73	68	38	69.7	81.3
Kostanay	14	13	17	20.3	21.4
Kyzylorda	3 314	3 359	2 956	2 839.4	3 003.1
Pavlodar	266	286	270	274	211.2
Soltustik Kazakhstan	2	2	2	1.4	1.6
Turkistan	2 815	2 252	2 245	2 455.4	2 568.6
Ulytau	-	-	-	1.9	3.5
Shygys Kazakhstan	212	134	128	76.7	52.6
Astana city	5	6	5	1	1.3
Almaty city	1	0	1	0.6	0.7
Shymkent city	63	72	66	33.3	66.5

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

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	13 178	12 361	11 742	11 546.3	11 329.5
Abay	-	-	-	113.5	141.1
Akmola	11	10	12	5.1	14
Aktobe	18	17	18	26.7	24.8
Almaty	2 778	2 824	2 706	1 551	1 461
Atyrau	64	54	64	71.5	56.3
Batys Kazakhstan	20	22	21	28.4	29.2
Zhambyl	1 092	1 018	878	923.9	907
Zhetisu	-	-	-	1 185.6	1 168.4
Karagandy	76	70	40	71.4	83.2
Kostanay	16	15	17	20.9	21.9
Kyzylorda	4 305	4 358	3 958	3 841.5	3 979.3
Mangystau	-	0.1	0.1	0.1	0.1
Pavlodar	996	1 019	941	814.1	489.8
Soltustik Kazakhstan	4	5	5	5.4	5.2
Turkistan	3 425	2 676	2 824	2 770.1	2 815.1
Ulytau	-	-	-	2.6	3.8
Shygys Kazakhstan	305	194	183	79.3	60.8
Astana city	5	6	5	1	1.3
Almaty city	-	0	1	0.6	0.7
Shymkent city	63	72	66	33.3	66.5

6.26 Used water on irrigation of pastures

million cubic meters

	2019	2020	2021	2022	2023
Republic of Kazakhstan	105	102	97	103.7	102.3
Abay	-	-	-	7.9	7.2
Akmola	0.5	0.5	0.4	0.6	0.4
Aktobe	-	-	-	-	-
Almaty	1.2	-	-	-	0.08
Atyrau	9.7	15	14	15.0	14.9
Batys Kazakhstan	1.5	2	0.2	1.1	1.7
Zhambyl	-	-	-	-	-
Zhetisu	-	-	-	-	-
Karagandy	-	-	-	-	-
Kostanay	-	-	-	-	-
Kyzylorda	7	7	7	6.8	6.8
Mangystau	-	-	-	-	-
Pavlodar	11	15	13	13.6	14.7
Soltustik Kazakhstan	-	-	-	-	-
Turkistan	56	56	56	56.3	56.3
Ulytau	-	-	-	-	-
Shygys Kazakhstan	18	7	7	2.4	0.2
Astana city	-	-	-	-	-
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	-

6.27 Water use prices

at the end of the period

	2019	2020	2021	2022	2023
Average prices and tariffs for paid services for the population, tenge / cubic meter					
Hot water	232	234	263	260.04	377.31
Cold water	69	69	71	70.64	74.21
Sewerage	48	47	50	50.22	68.19
Acquisition prices for certain types of products for industrial purposes by industrial enterprises					
Steam and hot water (thermal energy), tenge / Gcal	5 600	5 924	6 128	6 636	7 977

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

in percent

	2019	2020	2021	2022	2023
Collection, treatment and distribution of water	-6.7	-7.4	-11.9	-27.3	-9.3
Wastewater collection and treatment	2.6	-0.7	-6.0	7.3	11.5

6.29 Polluted wastewater

	2019	2020	2021	2022	2023
Total volume of wastewater, million cubic meters	5 383	5 426	5 483.0	5 862.8	5 409,0
total amount of wastewater discharged into water bodies that has not been treated, million cubic meters	0.05	-	-	0.0	2,3
proportion of untreated wastewater discharged into water bodies in the total volume of wastewater, in percent	0.001	0	0	0.0	0,04

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

in percent

	2019	2020	2021	2022	2023
The proportion of standard-treated wastewater (with after-treatment) in the total volume of wastewater in the whole country, percent	70.6	65.8	65.2	50.7	61.1
of which in urban areas, percent	72.0	67.2	66.4	51.5	62.3

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

km²

	1955	1990	2006	2014	2022
Uzyn-Kargaly	12.9	10.25 ±0.78	7.90 ±0.68	7.10 ±0.64	5.70 ±0.57
Shamalgan	2.6	1.50 ±0.20	0.70 ±0.13	0.58 ±0.64	0.22 ±0.57
Kaskelen	13.5	10.10 ±0.71	7.60 ±0.55	6.70 ±0.49	5.50 ±0.39
Aksay	13.5	10.90 ±0.79	9.10 ±0.71	8.20 ±0.67	6.60 ±0.58
Kargaly	3.9	2.90 ±0.08	2.20 ±0.07	1.90 ±0.07	1.60 ±0.05
Prohodnaya		4.60 ±0.48	2.90 ±0.33	2.50 ±0.29	1.70 ±0.23
Ulken Almaty	33.9	18.40 ±0.13	15.40 ±0.13	13.80 ±0.12	11.60 ±0.12
Kishi Almaty	9.3	7.18 ±0.56	5.90 ±0.49	5.05 ±0.43	3.95 ±0.36
Sol Talgar		57.50 ±3.62	50.80 ±3.61	46.50 ±2.97	41.20 ±2.76
Orta Talgar	112.5	24.80 ±1.64	22.77 ±1.52	20.90 ±1.55	18.70 ±1.48
On Talgar		3.50 ±0.14	3.25 ±0.23	2.90 ±0.21	2.60 ±0.19
Esik	49.5	37.95 ±2.34	34.24 ±2.60	31.09 ±2.12	28.03 ±1.97
Turgen	35.7	26.60 ±1.66	23.71 ±1.54	21.28 ±1.46	19.50 ±1.34
Total	287.3	216.18 ±14.57	186.47 ±13.79	168.50 ±12.54	146.90 ±11.37

*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

6.32 Reduction of surface water bodies

km³/year

	2019	2020	2021	2022	2023
Aral sea	25.09	21.6	20.1	18.9	20.49

6.33 Adaptation in coastal zones or river basins

	2023
Hydraulic structures	1 502
Satisfactory	998
Unsatisfactory	480
Emergency	24

7. Atmospheric air

7.1 Air quality in urban areas*

	Atmospheric pollution index (API5)				
	2019	2020	2021	2022	2023
Aktau	5.0	4.0	6.0	9.0	5
Aktobe	7.0	7.0	7.0	2.0	2.3
Almaty	8.0	7.0	7.0	5.0	5.9
Astana city	7.0	7.0	7.0	9.0	7
Atyrau	7.0	7.0	7.0	1.0	3.5
Balkhash	7.0	7.0	7.0	2.0	2
Glubokoe village	4.0	5.0	4.0	3.0	2.6
Zhezkazgan	8.0	7.0	6.0	5.0	5.9
Karagandy	8.0	7.0	11.0	13.0	16
Kostanay	3.0	3.0	4.0	8.0	4.6
Kyzylorda	3.0	2.0	3.0	5.0	5.2
Pavlodar	5.0	3.0	3.0	3.0	4
Petropavlovsk	3.0	4.0	3.0	4.0	3.7
Ryder	4.0	5.0	3.0	2.0	2
Semei	5.0	5.0	2.0	5.0	-
Taraz	6.0	4.0	5.0	3.0	4.2
Temirtau	9.0	8.0	8.0	8.0	9.1
Ust-Kamenogorsk	7.0	7.0	7.0	7.0	4.8
Shymkent	7.0	7.0	7.0	5.0	4
Ekibastuz	3.0	2.0	1.0	2.0	1

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

7.2 Air quality in urban areas

	2019	2020	2021	2022	2023
mg/m ³					
Karagandy city					
Dust - Average Daily MPC	0.15	0.15	0.058	0.13	0.13
Dust - the average annual value of the MPC, the MPC multiplicity	0.9	0.33	0.386	0.85	0.89
Dust - Annual Average Concentration	0.135	0.05	1.0	2.00	2.4
Dust - Maximum Daily Average Concentration	0.8	0.7	2.0	4.0	4.8
Dust - the number of cases exceeding more than 1 MPC	52	27	21	106	138
SO₂ - sulfur dioxide					
Average daily MPC	0.05	0.05	0.024	0.02	0.02
Average annual value of the MPC, the rate of excess MPC	0.5	0.47	0.488	0.46	0.40
Annual concentration	0.026	0.02	0.42	1.25	2.68
Maximum daily average concentration	0.14	0.26	0.84	2.5	5.35
NO₂ - nitrogen dioxide					
Average daily MPC	0.04	0.04	0.036	0.05	0.04
Average annual value of the MPC, the rate of excess MPC	1.0	0.8	0.898	1.3	1.0
Annual concentration	0.04	0.03	0.375	1.51	2.22
Maximum daily average concentration	0.313	0.19	1.873	7.5	11.1
The number of cases with excess of more than 1 MPC	14	-	13	4012	1614
NO_x - nitrogen oxides					
Average daily MPC	0.06	0.06	0.009	0.03	0.02
Average annual value of the MPC, the rate of excess MPC	0.1	0.08	0.149	0.42	0.30
Annual concentration	0.011	0.01	0.430	2.22	2.22
Maximum daily average concentration	0.289	0.67	1.075	5.6	5.6
CO - carbon monoxide					
Average daily MPC	3.0	3.0	0.978	1.01	1.17
Average annual value of the MPC, the rate of excess MPC	0.4	0.4	0.326	0.34	0.39
Annual concentration	1.467	1.27	16.6	16.90	20.8
Maximum daily average concentration	19.0	45.19	2.72	3.4	4.2
The number of cases with excess of more than 1 MPC	352	837	477	767	669

7.3 The concentration of ground-level ozone in cities

	mg/m ³				
	2019	2020	2021	2022	2023
Astana city	-	-	0.053	0.09	0.06
Almaty	-	-	0.024	0.01	0.04
Shymkent	0.03	0.014	0.017	0.007	0.009
Kokshetau	-	-	-	-	-
Aktobe	0.0517	0.0450	-	-	-
Taldykorgan	-	-	-	-	-
Atyrau	0.0289	0.043	0.0273	0.0202	0.03
Oral	0.02	0.03	0.017	0.021	0.01
Taraz	0.04	0.02	0.04	0.001	-
Karagandy	0.04	0.03	0.03	0.04	0.02
Balkhash	0.052	0.06	-	-	-
Zheskazgan	0.043	0.01	-	-	-
Temertau	-	-	-	-	-
Kostanay	-	-	-	0.0292	0.0523
Arkalyk	-	-	0.0214	0.0048	0.0031
Rudnyi	-	-	-	-	-
Kyzylorda	-	-	0.0325	0.0537	0.04
Aktau	0.020	0.030	0.07	0.09	0.01
Pavlodar	0.0305	0.0277	0.02	0.02	0.01
Aksu	-	-	-	-	-
Ekibastuz	-	-	-	-	-
Petropavl	0.033	0.037	0.032	0.045	0.0343
Ust-Kamenogorsk	0.029	0.0411	0.06	0.07	0.038
Rydder	0.042	0.0398	-	-	-
Semey	0.033	0.0346	-	-	-
Glubokoe village	0.038	0.0524	-	-	-

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

	mg/m ³				
	2019	2020	2021	2022	2023
Astana city	0.03	0.0599	0.047	0.06	0.04
Almaty	0.050	0.042	0.047	0.04	0.02
Shymkent	0.04	0.076	0.036	0.007	0.0053
Kokshetau	0.003	0.003	0.047	0.03	0.03
Aktobe	0.0390	0.0208	0.098	0.0006	0.0005
Taldykorgan	0.045	0.057	0.041	0.08	0.01
Atyrau	0.0236	0.056	0.0083	0.005	0.02
Uralsk	0.01	0.02	0.010	-	-
Taraz	0.03	0.022	0.035	0.005	-
Karagandy	0.059	0.04	0.16	0.18	0.27
Balkhash	0.049	0.03	0.16	0.00	-
Zhezkazgan	0.018	-	0.09	0.008	0.01
Temirtau	0.044	0.02	0.063	0.04	0.05
Kostanay	0.02	0.03	0.05	0.0682	0.0046
Arkalyk	-	-	0.0146	0.0108	-
Rudny	0.00	0.00	0.0	0.00	0.00
Kyzylorda	0.001	0.001	0.0142	0.0696	0.05
Aktau	0.110	0.105	0.10	0.11	0.20
Pavlodar	0.0411	0.0171	0.04	0.04	0.11
Aksu	-	-	0.02	0.00	0.00
Ekibastuz	0.0782	0.00	0.02	0.03	0.01
Petropavlovsk	0.009	0.007	0.006	0.003	0.002
Ust-Kamenogorsk	0.050	0.0476	0.028	0.038	0.002
Ridder	0.040	0.0498	0.019	0.008	0.002
Semey	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 ³				
	2019	2020	2021	2022	2023
Astana city	0.03	0.05	0.036	0.05	0.03
Almaty	0.030	0.034	0.036	0.03	0.02
Shymkent	0.02	0.048	0.023	0.004	0.0090
Kokshetau	0.002	0.003	0.038	0.02	0.02

Continuation

	2019	2020	2021	2022	2023
Aktobe	0.0168	0.0136	0.1257	0.0016	0.0015
Taldykorgan	-	-	0.06	0.10	0.02
Atyrau	0.0129	0.035	0.088	0.0051	0.02
Uralsk	0.01	0.003	0.004	-	-
Taraz	-	-	0.030	0.002	-
Karagandy	0.056	0.04	0.152	0.18	0.27
Balkhash	0.048	0.03	0.06	0.00	-
Zhezkazgan	0.011	-	-	0.003	-
Temirtau	0.044	0.02	0.036	0.04	0.05
Kostanay	0.03	0.00	0.1	0.0682	0.0105
Arkalyk	-	-	0.0105	0.0057	-
Rudny	-	-	-	-	-
Kyzylorda	0.005	0.001	0.0013	0.0084	0.01
Aktau	0.055	0.013	0.01	0.006	0.004
Pavlodar	0.0072	0.0072	0.01	0.01	0.01
Aksu	-	-	-	-	-
Ekibastuz	-	-	-	-	-
Petropavlovsk	0.012	0.004	0.002	0.002	0.002
Ust-Kamenogorsk	-	-	0.025	0.029	0.002
Ridder	-	-	-	-	-
Semey	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	2019	2020	2021	2022	2023
Aktau					
chemical	5.0	4.0	6	9	5
Aktobe					
ferrous metallurgy, chemical	7.0	7.0	7	2	2.3
Almaty					
energy, automotive industry	8.0	7.0	7	5	5.9
Astana					
energy, automotive industry	7.0	7.0	7	9	7
Atyrau					
oil refining	7.0	7.0	7	1	3.5
Balkhash					
non-ferrous metallurgy, energy	7.0	7.0	7	2	2
Zhezkazgan					
non-ferrous metallurgy, energy	8.0	7.0	6	5	5.9
Karagandy					
energy, coal mining, automotive industry	8.0	7.0	11	13	16
Kostanay					
energy	3.0	3.0	4	8	4.6
Ridder					
non-ferrous metallurgy, energy	4.0	5.0	3	2	2
Pavlodar					
oil refining, energy	5.0	3.0	3	3	4
Petropavl					
energy, instrumentation	3.0	4.0	3	4	3.7
Semey					
energy, construction materials	5.0	5.0	2	5	-
Taraz					
chemical	6.0	4.0	5	3	4.2
Temirtau					
ferrous metallurgy, chemical	9.0	8.0	8	8	9.1
Uralsk					
energy	2.0	2.0	2	2	1.5
Ust-Kamenogorsk					
non-ferrous metallurgy, energy	7.0	7.0	7	7	4.8
Shymkent					
non-ferrous metallurgy, chemical, oil refining	7.0	7.0	7	5	4
Ekibastuz					
energy, coal mining	3.0	2.0	1	2	1

7.7 Pollution of the air basin of cities of Kazakhstan in 2023

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration	
			mg/m3	frequency ratio exceeding the maximum permissible concentration	mg/m3	frequency ratio exceeding the maximum permissible concentration
Aktau	5 Increased	Suspended solids(dust)	0.05	0.33	0.30	0.60
		Suspended solids PM-2.5	0.004	0.11	1.002	6.3
		Suspended solids PM-10	0.20	3.36	1.00	3.34
		Sulfur dioxide	0.01	0.24	0.07	0.14
		Carbon monoxide	0.52	0.17	17.49	3.50
		Nitrogen dioxide	0.02	0.50	0.16	0.79
		Nitric oxide	0.01	0.21	0.30	0.75
		Hydrogen sulfide	0.00	...	0.03	3.75
		Ozone	0.01	0.22	0.08	0.48
		Sulfuric acid	0.02	0.22	0.04	0.13
		Suspended solids(dust)	0.016	0.1071	0.1200	0.2400
		Suspended solids PM-2.5	0.0015	0.0424	0.0123	0.0769
		Suspended solids PM-10	0.0005	0.0090	0.0641	0.2137
Aktobe	2.3 Low	Sulfur dioxide	0.0076	0.1518	0.3370	0.6740
		Carbon monoxide	0.5110	0.1703	11.9850	2.3970
		Nitrogen dioxide	0.0383	0.9576	0.8024	4.0120
		Nitric oxide	0.0354	0.5906	3.4895	8.7238
		Hydrogen sulfide	0.0007	...	0.1080	13.5
		Formaldehyde	0.0035	0.3510	0.0070	0.14
		Chromium	0.0004	0.2404	0.0010	...
		Suspended solids(dust)	0.17	1.2	0.55	1.1
		Suspended solids PM-2.5	0.02	0.50	0.78	4.9
		Suspended solids PM-10	0.02	0.37	0.80	2.7
		Sulfur dioxide	0.03	0.66	3.92	7.8
		Carbon monoxide	1.25	0.42	77.83	15.6
		Nitrogen dioxide	0.06	1.5	1.91	9.6
Nitric oxide	0.06	0.97	1.0	2.5		
Ozone	0.04	1.2	1.51	9.5		
Hydrogen sulfide	0.001	...	0.07	8.3		
Fenol	0.001	0.43	0.006	0.6		
Formaldehyde	0.01	0.88	0.04	0.78		
Benzol	0.005	0.05	0.01	0.03		
Almaty	5.9 Increased	ChlorideBenzol	0.004	...	0.01	0.10
		Ethylbenzene	0.003	...	0.01	0.50
		Benzopyrene	0.0004	0.40	0.004	...
		Paraxylene	0.00	...	0.01	0.05
		Metaxylene	0.00	...	0.01	0.05
		Orthoxylene	0.00	...	0.00	0.00
		Cemene	0.00	...	0.00	0.00
		Cadmium	0.001	...	...	...
		Lead	0.011	...	...	...
		Arsenic	0.001	...	...	...
		Chromium	0.006	...	...	...
		Copper	0.011	...	...	...
		Nickel	0.001	...	...	...
Zinc	0.034	...	...	...

Continuation

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration	
			mg/m3	frequency ratio exceeding the maximum permissible concentration	mg/m3	frequency ratio exceeding the maximum permissible concentration
Astana	7 High	Suspended solids(dust)	0.18	1.2	1.0	2.0
		Suspended solids PM-2.5	0.03	0.9	1.04	6.5
		Suspended solids PM-10	0.04	0.6	1.0	3.3
		Sulfur dioxide	0.01	0.26	0.35	0.7
		Carbon monoxide	0.39	0.13	14.17	2.8
		Nitrogen dioxide	0.05	1.27	0.99	4.9
		Nitric oxide	0.04	0.61	1.0	2.5
		Hydrogen sulfide	0.006	...	0.13	16.3
		Ozone	0.06	2.2	0.29	1.8
		Hydrogen fluoride	0.00041	0.082	0.020	1.0
		Benzopyrene	0.0001	0.07	0.0011	...
		Benzol	0.00	0.00	0.00	0.00
		Ethylbenzene	0.00	...	0.00	0.00
		ChlorideBenzol	0.00	...	0.00	0.00
		Paraxylene	0.00	...	0.00	0.00
		Metaxylene	0.00	...	0.00	0.00
		Cemene	0.00	...	0.00	0.00
		Orthoxylene	0.00	...	0.00	0.00
		Cadmium	0.0001	0.47	...	...
		Copper	0.001	0.43	...	...
		Lead	0.001	0.48	...	...
Zinc	0.01	0.11	...	...
Chromium	0.001	0.62	...	...
Arsenic	0.00	0.00	...	...
Atyrau	3.5 Low	Suspended solids(dust)	0.12	0.78	0.90	1.8
		Suspended solids PM-2.5	0.02	0.57	0.22	1.4
		Suspended solids PM-10	0.02	0.32	0.22	0.75
		Sulfur dioxide	0.01	0.29	0.26	0.53
		Carbon monoxide	0.49	0.16	5.81	1.2
		Nitrogen dioxide	0.03	0.64	0.70	3.5
		Nitric oxide	0.004	0.07	0.40	0.99
		Ozone	0.03	0.95	0.22	1.39
		Hydrogen sulfide	0.004	...	0.03	4.2
		Fenol	0.002	0.70	0.004	0.4
		Ammonium	0.01	0.15	0.09	0.45
		Formaldehyde	0.002	0.21	0.020	0.40
		Benzol	0.0001	0.001	0.001	0.003
		Толуол	0.0001	...	0.001	0.002
		Ethylbenzene	0.0001	0.0	0.001	0.05
		Orthoxylene	0.0001	...	0.001	0.003
		Suspended solids(dust)	0.11	0.71	0.70	1.40
		Sulfur dioxide	0.05	0.94	2.47	4.93
		Carbon monoxide	0.27	0.09	4.43	0.89
		Nitrogen dioxide	0.01	0.25	0.20	1.00
		Nitric oxide	0.00	0.04	0.29	0.72
Hydrogen sulfide	0.001	...	0.045	5.65		
Ammonium	0.002	0.06	0.034	0.17		
Cadmium	0.0000048	0.016	...	...
Lead	0.0000391	0.13	...	...
Arsenic	0.0000242	0.081	...	...
Chromium	0.0000424	0.0283	...	...
Copper	0.0000199	0.01	...	...
Balkhash	2 Low	Suspended solids(dust)	0.056	0.37	0.3	0.6
		Sulfur dioxide	0.064	1.28	0.114	0.23
		Carbon monoxide	0.704	0.23	7.794	1.56
		Nitrogen dioxide	0.024	0.60	0.090	0.45
		Nitric oxide	0.005	0.08	0.123	0.31
		Fenol	0.001	0.42	0.005	0.50
Village Glubokoe	2.6 Low	Suspended solids(dust)	0.056	0.37	0.3	0.6
		Sulfur dioxide	0.064	1.28	0.114	0.23
		Carbon monoxide	0.704	0.23	7.794	1.56
		Nitrogen dioxide	0.024	0.60	0.090	0.45
		Nitric oxide	0.005	0.08	0.123	0.31

Continuation

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration	
			mg/m3	frequency ratio exceeding the maximum permissible concentration	mg/m3	frequency ratio exceeding the maximum permissible concentration
Zhezkazgan	5.9 Increased	Suspended solids(dust)	0.31	2.1	0.7	1.4
		Suspended solids PM-10	0.01	0.16	0.27	0.9
		Sulfur dioxide	0.01	0.25	0.5	1.0
		Carbon monoxide	0.32	0.11	10.0	2.0
		Nitrogen dioxide	0.04	1.08	0.24	1.20
		Nitric oxide	0.01	0.18	0.04	0.10
		Hydrogen sulfide	0.004	...	0.07	9.24
		Fenol	0.010	1.9	0.02	2.0
		Cadmium	0.0000273	0.09	...	...
		Lead	0.000018	0.06	...	...
		Arsenic	0.000019	0.06	...	...
		Chromium	0.0000022	0.01	...	...
		Copper	0.000028	0.01	...	...
		Suspended solids(dust)	0.13	0.89	2.40	4.8
		Suspended solids PM-2.5	0.27	7.6	3.61	22.6
Karagandy	16 Very high	Suspended solids PM-10	0.27	4.5	3.64	12.1
		Sulfur dioxide	0.02	0.40	2.68	5.35
		Carbon monoxide	1.17	0.39	20.8	4.2
		Nitrogen dioxide	0.04	1.0	2.22	11.1
		Nitric oxide	0.02	0.30	2.22	5.6
		Ozone	0.02	0.61	0.32	2.0
		Hydrogen sulfide	0.002	...	0.05	6.6
		Ammonium	0.002	0.04	0.42	2.1
		Fenol	0.004	1.4	0.01	1.3
		Formaldehyde	0.01	0.963	0.03	0.52
		Gamma-ray background	0.11	...	0.20	...
		Arsenic	0.000066	0.22	...	...
		Suspended solids(dust)	0.0	0.0	0.0	0.0
		Suspended solids PM-2.5	0.0105	0.299	0.2403	1.5
		Suspended solids PM-10	0.0046	0.08	0.2403	0.8
Kostanay	4.6 Low	Sulfur dioxide	0.0249	0.5	0.9976	2.0
		Carbon monoxide	0.3227	0.1	14.6892	2.9
		Nitrogen dioxide	0.0447	1.12	0.5387	2.7
		Ozone	0.0523	1.74	0.4001	2.5
		Hydrogen sulfide	0.0006	...	0.0033	0.4
		Nitric oxide	0.0178	0.30	0.2552	0.6
		Suspended solids(dust)	0.04	0.27	0.16	0.32
		Suspended solids PM-2.5	0.01	0.21	0.21	1.33
		Suspended solids PM-10	0.05	0.89	0.30	1.0
		Sulfur dioxide	0.05	1.01	0.21	0.42
Kyzylorda	5.22 Increased	Carbon monoxide	0.51	0.17	4.94	0.99
		Nitrogen dioxide	0.04	0.99	0.20	1.0
		Nitric oxide	0.01	0.15	0.39	0.97
		Ozone	0.04	1.23	0.16	1.0
		Suspended solids(dust)	0.11	0.72	0.90	1.80
		Suspended solids PM-2.5	0.01	0.20	0.20	1.27
		Suspended solids PM-10	0.11	1.77	0.49	1.64
		Sulfur dioxide	0.01	0.12	0.49	0.99
		Carbon monoxide	0.39	0.13	37.79	7.56
		Nitrogen dioxide	0.02	0.57	0.49	2.47
Pavlodar	4 Low	Nitric oxide	0.01	0.18	0.49	1.24
		Ozone	0.01	0.44	0.16	1.0
		Hydrogen sulfide	0.001	...	0.03	3.73
		Fenol	0.0012	0.40	0.01	0.80
		Chloride	0.003	0.10	0.03	0.30
		Hydrogen chloride	0.06	0.59	0.29	1.45
		Ammonium	0.01	0.19	0.10	0.51

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration			
			mg/m3	frequency ratio exceeding the maximum permissible concentration	mg/m3	frequency ratio exceeding the maximum permissible concentration		
Petropavlovsk		Suspended solids(dust)	0.0	0.0	0.0	0.0		
		Suspended solids PM-2.5	0.002	0.06	0.04	0.24		
		Suspended solids PM-10	0.002	0.03	0.04	0.14		
		Sulfur dioxide	0.01	0.13	0.27	0.54		
		Carbon monoxide	0.39	0.13	7.07	1.4		
		Nitrogen dioxide	0.03	0.72	0.68	3.4		
		Nitric oxide	0.02	0.29	1.0	2.49		
		Hydrogen sulfide	0.002	...	0.08	9.7		
		Ozone	0.0343	1.14	0.158	0.99		
		Fenol	0.002	0.67	0.010	1.0		
		Formaldehyde	0.01	0.96	0.11	2.1		
		Suspended solids(dust)	0.057	0.38	0.2	0.4		
		Fenol	0.001	0.46	0.004	0.4		
		Formaldehyde	0.002	0.22	0.009	0.18		
		Suspended solids PM-10	0.002	0.03	0.164	0.55		
		Nitrogen dioxide	0.040	1.0	0.580	2.90		
		Ridder	2 Low	Sulfur dioxide	0.022	0.44	3.230	6.46
Carbon monoxide	0.368			0.12	19.2	3.84		
Hydrogen sulfide	0.003			...	0.069	8.63		
Nitric oxide	0.003			0.05	0.272	0.68		
Lead	0.00147			0.5	...	...
Cadmium	0.000028			0.1	...	...
Zinc	0.000431			0.01	...	...
Copper	0.000020			0.01	...	...
Beryllium	0.00			0.01	...	...
Sulfur dioxide	0.021			0.42	2.362	4.72		
Carbon monoxide	0.560			0.19	13.01	2.60		
Nitrogen dioxide	0.060			1.50	0.381	1.91		
Nitric oxide	0.007			0.12	0.734	1.84		
Hydrogen sulfide	0.003			...	0.030	4.13		
Suspended solids(dust)	0.12			0.80	0.40	0.80		
Sulfur dioxide	0.012			0.24	0.283	0.57		
Semey	-			Carbon monoxide	1.09	0.36	20.2	4.04
		Nitrogen dioxide	0.06	1.60	0.32	1.59		
		Nitric oxide	0.03	0.58	0.68	1.70		
		Hydrogen fluoride	0.002	0.37	0.020	1.0		
		Formaldehyde	0.007	0.65	0.034	0.68		
		Hydrogen sulfide	0.002	...	0.54	...		
		Benzopyrene	0.0001	0.14	0.0006	...		
		Lead	0.000018	0.061	0.000089	...		
		Manganese	0.000051	0.051	0.000261	...		
		Cadmium	0	0	0	...		
		Cobalt	0	0	0	...		
		Suspended solids(dust)	0.25	1.7	0.60	1.2		
		Suspended solids PM-2.5	0.05	1.5	0.27	1.7		
		Suspended solids PM-10	0.05	0.9	0.27	0.9		
		Sulfur dioxide	0.01	0.3	0.15	0.3		
		Carbon monoxide	0.31	0.1	20.42	4.1		
		Nitrogen dioxide	0.05	1.1	1.0	5.0		
Nitric oxide	0.02	0.4	1.0	2.5				
Taraz	4.2 Low	Hydrogen sulfide	0.002	...	0.043	5.4		
		Fenol	0.008	2.8	0.043	4.3		
		Ammonium	0.04	1.0	0.18	0.9		
		Mercury	0.00	0.0	0.00	...		
		Cadmium	0.000021	0.07	...	...
		Lead	0.000014	0.05	...	...
		Arsenic	0.000015	0.05	...	...
		Chromium	0.000016	0.01	...	...
		Copper	0.000027	0.01	...	...
		Temirtau	9.1 High	Suspended solids(dust)	0.25	1.7	0.60	1.2
				Suspended solids PM-2.5	0.05	1.5	0.27	1.7
				Suspended solids PM-10	0.05	0.9	0.27	0.9
				Sulfur dioxide	0.01	0.3	0.15	0.3
				Carbon monoxide	0.31	0.1	20.42	4.1
				Nitrogen dioxide	0.05	1.1	1.0	5.0
				Nitric oxide	0.02	0.4	1.0	2.5
				Hydrogen sulfide	0.002	...	0.043	5.4
Fenol	0.008			2.8	0.043	4.3		
Ammonium	0.04			1.0	0.18	0.9		
Mercury	0.00			0.0	0.00	...		
Cadmium	0.000021			0.07	...	...
Lead	0.000014			0.05	...	...
Arsenic	0.000015			0.05	...	...
Chromium	0.000016			0.01	...	...
Copper	0.000027			0.01	...	...

Continuation

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration	
			mg/m3	frequency ratio exceeding the maximum permissible concentration	mg/m3	frequency ratio exceeding the maximum permissible concentration
Ust-Kamenogorsk	4.8 Increased	Suspended solids PM-2.5	0.002	0.05	0.123	0.77
		Suspended solids PM-10	0.002	0.03	0.109	0.36
		Sulfur dioxide	0.026	0.52	3.467	6.93
		Carbon monoxide	0.463	0.15	12.94	2.59
		Nitrogen dioxide	0.053	1.33	0.443	2.22
		Nitric oxide	0.008	0.13	0.478	1.19
		Ozone	0.038	1.27	0.132	0.82
		Hydrogen sulfide	0.003	...	0.042	5.28
		Fenol	0.002	0.61	0.022	0.45
		Formaldehyde	0.001	0.09	0.010	0.20
		Sulfuric acid	0.006	0.06	0.030	0.10
		Hydrogen fluoride	0.005	0.92	0.027	1.35
		Chloride	0.014	0.47	0.09	0.9
		Hydrogen chloride	0.05	0.5	0.4	2.0
		Benzopyrene	0.006	0.59	...	...
		Lead	0.00177	0.6	...	...
		Cadmium	0.000034	0.1	...	...
		Zinc	0.000507	0.01	...	...
		Copper	0.000023	0.01	...	...
		Beryllium	0.00	0.01	...	...
		Suspended solids(dust)	0.2117	1.411	0.4000	0.800
Shymkent	4 Low	Suspended solids PM-2.5	0.0090	0.256	0.0547	0.342
		Suspended solids PM-10	0.0053	0.088	0.0817	0.272
		Sulfur dioxide	0.0123	0.246	1.6150	3.230
		Carbon monoxide	1.7797	0.593	14.0	2.8
		Nitrogen dioxide	0.0545	1.362	0.0375	1.838
		Nitric oxide	0.0200	0.333	0.8101	2.025
		Ozone	0.0093	0.310	0.0514	0.321
		Hydrogen sulfide	0.0117	...	0.0395	4.938
		Ammonium	0.0180	0.450	0.08	0.4
		Formaldehyde	0.0190	1.904	0.0290	0.580
		Benzopyrene	0.0002	0.2	...	...
		Cadmium	0.000018	0.089	0.000032	...
		Copper	0.000024	0.014	0.000032	...
		Arsenic	0.000011	0.005	0.000018	...
		Lead	0.000022	0.085	0.000030	...
Chromium	0.000001	0.001	0.000002	...		
Ekibastuz	1 Low	Suspended solids(dust)	0.10	0.64	0.40	0.80
		Suspended solids PM-10	0.01	0.12	0.44	1.47
		Sulfur dioxide	0.01	0.13	0.42	0.84
		Carbon monoxide	0.29	0.10	5.97	1.19
		Nitrogen dioxide	0.02	0.38	0.39	1.93
Nitric oxide	0.005	0.08	0.37	0.93		

7.8 Atmospheric precipitation

mm

	2019	2020	2021	2022	2023
Republic of Kazakhstan					
Average long - term annual precipitation for the period 1961-1990 .			317.7		
Annual precipitation	297.4	270.7	271.5	311.2	359.4
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990, as a percent	-6.4	-14.8	-14.5	-2.0	13.1
Largest monthly amount of precipitation	38.1	34.2	44.3	51.2	46.1
Smallest monthly amount of precipitation	18.1	10.2	12.9	10.2	18.3
Astana					
Average long - term annual precipitation for the period 1961-1990.			318.7		
Annual precipitation	331.9	460.6	332.3	268.5	370.8

Continuation

	2019	2020	2021	2022	2023
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990, as a percent	4.1	44.5	4.3	-15.8	16.3
Largest monthly amount of precipitation	63.7	96.3	52.6	47.0	63.8
Smallest monthly amount of precipitation	10.4	7.3	4.3	7.1	0.6
Almaty					
Average long - term annual precipitation for the period 1961-1990 .			661.6		
Annual precipitation	660.1	510.0	488.0	640.3	575.4
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990, as a percent	-0.2	-22.9	-26.2	-3.2	-13.0
Largest monthly amount of precipitation	167.3	138.8	111.6	165.7	67.8
Smallest monthly amount of precipitation	21.6	8.7	1.6	2.8	2.8
Terrain (region) with the largest long-term average amount of precipitation for the period 1961 - 1990: Southern region, Almaty region, Mynzhilki station (3 017 m above sea level)					
Average long - term annual precipitation for the period 1961-1990 .			874.4		
Annual precipitation	827.8	671.7	722.0	853.5	963.3
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990, as a percent	-5.3	-23.2	-17.4	-2.4	10.2
Largest monthly amount of precipitation	207.1	134.2	125.5	163.9	151.4
Smallest monthly amount of precipitation	15.6	1.8	6.5	8.2	14.2
Terrain (region) with the Lowest long-term average amount of precipitation for the period 1961 - 1990: Southern region, Kyzylorda region, Ciric-Rabat station (88 m above sea level)					
Average long - term annual precipitation for the period 1961-1990 .			118.6		
Annual precipitation	83.6	66.4	59.4	72.2	62.4
Deviation of the annual amount of precipitation from the long-term average value for the period 1961 - 1990, as a percent	-29.5	-44.0	-49.9	-39.1	-47.4
Largest monthly amount of precipitation	23.4	20.0	22.3	15.0	11.4
Smallest monthly amount of precipitation	0.6	0	0	0	0

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

in percent

	2019	2020	2021	2022	2023
Republic of Kazakhstan	93.6	85.2	85.5	98.0	113.1
Abay	-	-	-	83.6	118.9
Akmola	116.4	103.5	88.0	106.0	125.3
Aktobe	73.0	81.0	86.1	111.2	128.5
Almaty	99.0	72.3	80.0	102.8	97.7
Atyrau	130.2	64.0	71.1	114.9	150.1
Batys Kazakhstan	81.4	73.3	101.2	122.3	130.7
Zhambyl	82.0	66.4	80.0	111.4	85.2
Zhetisu	-	-	-	103.1	103.8
Karagandy	96.4	91.8	84.6	78.0	119.6
Kostanay	86.6	107.1	70.6	87.3	126.2
Kyzylorda	102.0	86.3	64.1	77.7	87.3
Mangystau	56.8	64.5	29.9	108.3	115.8
Pavlodar	91.0	104.2	105.2	78.7	109.9
Soltustik Kazakhstan	101.7	93.2	84.5	87.3	116.9
Turkistan	86.9	84.0	77.4	111.6	98
Ulytau	-	-	-	86.5	106.5
Shygys Kazakhstan	104.8	90.4	92.0	80.6	121.75
Astana city	104.1	144.5	104.3	84.2	116.3
Almaty city	99.8	77.1	73.8	96.8	87.0
Shymkent city	86.6	93.1	83.8	129.5	106.8

7.10 Monthly precipitation in 2023

mm

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Aktau	0.8	18.8	4.0	15.0	24.5	2.4	4	2.5	11.7	13.2	12.8	21.7
Aktobe	44.2	39.5	35.2	27.8	28.2	23.1	44.9	28.0	38.2	60.4	33.2	38.8

Continuation

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Astana	27.3	19.6	20.2	48.9	0.6	24.0	18.3	27.9	63.8	23	35.4	61.8
Almaty	36.9	32.6	56.8	63.7	41.9	2.8	29.7	64.2	49.1	67.8	66.5	63.4
Atyrau	6.0	49.0	3.1	25.9	10.5	8.3	18.1	3.8	14.8	56.9	20.2	20.0
Zhambyl	26.9	72.4	42.5	22.2	20.3	0	3.0	37.7	8.2	27.1	9.7	50.9
Karagandy	34.4	20.4	35.4	12.8	13.0	20.9	2.6	90.0	90.0	66.7	36.1	42.2
Kokshetau	13.2	11.4	22.9	2.6	11.8	18.9	41.1	62.4	71.3	35.0	35.7	32.2
Kostanay	15.0	18.2	19.6	0.5	19.4	47.3	43	102.4	27.2	63.6	55.2	35.8
Kyzylorda	21.1	20.8	15.8	9.7	5.4	4.2	0.9	3.0	0.9	22.1	8.9	7.0
Uralsk	19.9	42.5	6.3	21.3	32.0	7.0	152.1	3.0	12.2	56.0	62.8	43.9
Ust-												
Kamenogorsk	22.1	39.7	31.7	27.2	37.6	6.1	35.9	76.9	75.6	107.6	63.9	46.5
Pavlodar	22.7	8.8	20.9	28.3	1.1	14.9	57.9	34.1	36.7	41.5	34.2	45.4
Petropavlovsk	16.8	26.2	19.6	1.0	20.1	86.2	26.2	43.4	48.1	44.7	33.7	58.4
Taldykorgan	28.5	35.5	43.8	35.9	31.1	22.1	11.7	49.4	38.2	86.8	23.1	62.2
Shymkent	76.0	96.0	55.9	36.1	10.3	2.1	7.0	81.3	5.7	59.3	66.2	112.1

7.11 Annual precipitation per year by region

mm

	2019	2020	2021	2022	2023
Republic of Kazakhstan	297	271	272	311	359
Abay	-	-	-	240	342
Akmola	378	337	286	345	407
Aktobe	192	214	227	293	339
Almaty	476	348	385	494	470
Atyrau	196	96	107	173	225
Batys Kazakhstan	229	206	285	344	368
Zhambyl	250	202	244	339	260
Zhetisu	-	-	-	396	398
Karagandy	245	234	215	199	304
Kostanay	251	310	205	253	366
Kyzylorda	144	122	91	110	123
Mangystau	81	92	43	155	165
Pavlodar	266	305	308	230	322
Soltustik Kazakhstan	358	328	298	308	412
Turkistan	379	366	338	487	427
Ulytau	-	-	-	187	230
Shygys Kazakhstan	413	356	363	318	480
Astana city	332	461	332	269	371
Almaty city	660	510	488	640	575
Shymkent city	493	530	477	737	608

7.12 Snow cover height by region

cm

	2019	2020	2021	2022	2023
Republic of Kazakhstan	20	24	30	23	32
Abay	-	-	-	23	41
Akmola	25	55	52	53	47
Aktobe	17	24	32	32	31
Almaty	29	24	38	26	41
Atyrau	3	4	11	7	19
Batys Kazakhstan	33	17	31	27	24
Zhambyl	10	12	24	8	22
Zhetisu	-	-	-	19	34
Karagandy	28	34	33	23	42
Kostanay	27	38	38	38	40
Kyzylorda	7	7	10	6	6
Mangystau	2	1	2	2	5
Pavlodar	26	28	36	26	28
Soltustik Kazakhstan	32	29	48	36	45
Turkistan	9	15	22	14	30
Ulytau	-	-	-	15	22
Shygys Kazakhstan	32	43	42	43	60
Astana city	31	33	46	44	39
Almaty city	13	21	21	14	29
Shymkent city	11	13	22	12	35

7.13 Air temperature

°C

	2019	2020	2021	2022	2023
Republic of Kazakhstan					
Average long-term annual temperature for the period 1961-1990			5.4		
Average annual temperature	6.9	7.4	7.0	7.2	8.0
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990	1.5	1.9	1.6	1.8	2.6
Highest average monthly temperature	24.2	23.8	24.2	23.4	25.1
Lowest monthly average temperature	-10.1	-12.7	-12.9	-11.9	-11.9
Astana					
Average long-term annual temperature for the period 1961-1990			2.7		
Average annual temperature	4.9	5.6	4.3	5.0	6.2
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990	2.2	2.9	1.6	2.3	3.5
Highest average monthly temperature	23.3	22.1	21.7	21.9	24.9
Lowest monthly average temperature	-13.0	-15.7	-16.0	-15.3	-14.0
Almaty					
Average long-term annual temperature for the period 1961-1990			9.1		
Average annual temperature	11.6	10.7	11.5	12.0	12.0
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990	2.5	1.6	2.4	2.9	2.9
Highest average monthly temperature	27.2	24.3	27.2	26.4	27.2
Lowest monthly average temperature	-1.9	-6.3	-5.7	-4.5	-6.6
Terrain (region) with the highest long-term average temperature of 1961 - 1990: Southern region, South Kazakhstan region, Shardara station (271m above sea level)					
Average long-term annual temperature for the period 1961-1990			13.6		
Average annual temperature	15.7	14.5	15.5	15.2	16.0
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990	2.1	0.9	1.9	1.6	2.4
Highest average monthly temperature	31.3	29.4	30.8	30.4	31.4
Lowest monthly average temperature	3.6	-2.3	-0.4	-8.0	-6.3
Terrain (region) with the lowest long-term average temperature of 1961 - 1990: Southern region, Almaty region, Mynzhilki station (3017m above sea level)					
Average long-term annual temperature for the period 1961-1990			-1.8		
Average annual temperature	-0.7	-1.0	-0.5	-0.3	0.0
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990	1.1	0.8	1.3	1.5	1.8
Highest average monthly temperature	10.7	8.1	10.3	9.6	10.5
Lowest monthly average temperature	-10.3	-11.1	-9.5	-10.9	-12.0

7.14 Average annual air temperature (average by region)

°C

	2019	2020	2021	2022	2023
Republic of Kazakhstan	7.6	7.4	7.0	7.2	8.0
Abay	-	-	-	5.4	6.0
Akmola	2.9	4.5	3.1	3.3	4.7
Aktobe	6.9	7.5	7.4	6.9	8.2
Almaty	8.1	7.7	8.2	8.8	8.9
Atyrau	10.9	11.4	11.7	11.4	12.1
Batys Kazakhstan	7.9	8.9	8.9	8.5	9.3
Zhambyl	11.4	10.6	11.2	12.0	11.9
Zhetisu	-	-	-	8.5	8.7
Karagandy	4.9	5.1	5.0	5.0	6.1
Kostanay	4.0	5.5	4.6	4.2	5.6
Kyzylorda	11.9	11.0	11.6	11.7	12.7

Continuation

	2019	2020	2021	2022	2023
Mangystau	13.5	13.6	13.8	14.0	14.3
Pavlodar	3.5	5.4	3.3	3.6	5.0
Soltustik Kazakhstan	2.9	5.0	2.8	3.2	4.4
Turkistan	13.4	12.3	13.6	13.7	14.0
Ulytau	-	-	-	6.5	7.5
Shygys Kazakhstan	4.7	5.2	4.4	4.5	5.2
Astana city	4.9	5.6	4.3	5.0	6.2
Almaty city	11.6	10.7	11.5	12.0	12.0
Shymkent city	14.2	13.1	14.6	14.5	14.9

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

°C

	2019	2020	2021	2022	2023
Republic of Kazakhstan	1.3	1.1	1.6	1.8	2.6
Abay	-	-	-	1.8	2.4
Akmola	0.9	2.5	1.0	1.3	2.7
Aktobe	1.5	2.1	2.1	1.6	2.9
Almaty	1.3	0.9	1.5	2.0	2.1
Atyrau	1.6	2.1	2.6	2.3	3.0
Batys Kazakhstan	1.3	2.3	2.5	2.1	2.9
Zhambyl	1.8	1.0	1.6	2.3	2.3
Zhetisu	-	-	-	1.9	2.1
Karagandy	0.9	1.1	1.2	1.5	2.5
Kostanay	1.1	2.6	1.6	1.3	2.6
Kyzylorda	2.0	1.1	2.3	2.4	3.5
Mangystau	1.6	1.7	2.0	2.2	2.5
Pavlodar	0.8	2.7	0.9	1.2	2.6
Soltustik Kazakhstan	0.9	3.0	1.0	1.3	2.6
Turkistan	1.6	0.5	1.9	2.0	2.4
Ulytau	-	-	-	2.1	3.1
Shygys Kazakhstan	1.2	1.7	1.2	1.8	2.5
Astana city	2.0	2.7	1.6	2.3	3.5
Almaty city	2.2	1.3	2.4	2.9	2.9
Shymkent city	1.6	0.5	2.1	2.0	2.4

7.16 Average monthly air temperature by city in 2023

°C

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Aktau	-1.7	1.7	9.9	13.7	17.9	23.5	26.2	27.0	20.1	14.4	11.5	3.0
Aktobe	-15.6	-10.8	1.5	10.2	17.1	21.8	24.5	22.1	14.7	7.0	3.0	-7.2
Almaty	-6.6	0.1	8.5	11.9	17.2	24.6	27.2	24.5	17.5	13.4	6.8	-0.8
Atyrau	-5.9	-4.2	8.6	15.0	21.9	25.7	28.2	27.6	19.1	11.2	6.9	-1.6
Astana	-14.0	-12.3	-1.4	5.8	15.8	21.2	24.9	20.6	13.3	7.5	2.2	-8.9
Zhambyl	-8.5	0.9	8.9	12.8	18.2	25.2	27.8	24.0	17.5	13.3	8.0	-1.1
Karagandy	-12.8	-10.7	-2.5	6.2	14.4	19.8	23.9	19.2	12.0	7.0	2.5	-8.6
Kokshetau	-11.6	-12.3	-1.9	5.7	14.8	19.8	24.1	18.7	12.9	6.5	0.1	-11.7
Kostanay	-13.8	-13.0	-1.9	8.0	16.3	19.6	24.0	18.9	13.0	6.5	0.6	-11.0
Kyzylorda	-5.8	-1.2	9.5	15.8	22.8	28.2	31.0	26.8	18.7	12.9	7.8	-1.9
Uralsk	-13.0	-8.3	4.4	10.8	18.9	20.7	23.8	22.8	15.5	7.6	2.8	-4.9
Ust-Kamenogorsk	-10.6	-8.4	0.3	5.3	13.3	21.1	22.7	20.3	13.6	8.8	0.9	-10.4
Pavlodar	-11.7	-15.2	-0.5	3.7	14.1	21.2	23.5	19.9	13.7	6.5	0.0	-11.7
Petropavlovsk	-13.3	-13.4	-2.5	5.6	14.6	18.7	23.2	18.0	12.9	6.2	-1.2	-13.7
Taldykorgan	-11.2	-4.0	5.5	10.2	15.5	22.8	25.9	23.0	15.7	11.3	4.1	-6.2
Shymkent	-5.0	3.8	13.3	15.4	20.4	27.5	30.0	25.9	19.5	15.1	10.8	2.5

7.17 Average annual wind speed (average by region)

m/s

	2019	2020	2021	2022	2023
Republic of Kazakhstan	3.0	3.2	3.1	2.7	2.9
Abay	-	-	-	2.2	2.6
Akmola	3.2	3.8	3.5	3.8	3.5

Continuation

	2019	2020	2021	2022	2023
Aktobe	3.3	3.3	3.4	3.2	3.4
Almaty	1.7	1.7	1.7	1.9	2.0
Atyrau	3.6	3.9	4.2	3.9	4.3
Batys Kazakhstan	3.0	3.2	3.2	3.1	3.3
Zhambyl	2.0	2.2	2.2	2.0	2.4
Zhetisu	-	-	-	1.9	1.6
Karagandy	2.7	2.9	3.1	3.1	2.9
Kostanay	4.0	3.7	3.7	3.7	3.5
Kyzylorda	2.8	3.5	2.7	3.1	3.5
Mangystau	4.2	4.6	4.8	4.3	4.4
Pavlodar	2.9	3.3	3.3	3.2	3.6
Soltustik Kazakhstan	3.5	3.9	3.7	3.9	3.7
Turkistan	2.0	2	2.1	2.1	2.0
Ulytau	-	-	-	3.4	3.9
Shygys Kazakhstan	2.4	2.5	2.6	2.3	2.7
Astana city	1.8	1.9	1.8	1.6	1.7
Almaty city	0.4	0.4	0.6	0.6	0.6
Shymkent city	1.3	1.5	1.8	1.6	1.8

7.18 Average annual air humidity (average by region)

in percent

	2019	2020	2021	2022	2023
Republic of Kazakhstan	63	61	60	62	62
Abay	-	-	-	62	64
Akmola	70	68	66	66	67
Aktobe	61	61	59	64	62
Almaty	61	60	57	61	59
Atyrau	63	59	62	62	62
Batys Kazakhstan	63	61	62	67	64
Zhambyl	57	54	54	59	57
Zhetisu	-	-	-	59	60
Karagandy	63	63	61	61	61
Kostanay	66	67	63	65	67
Kyzylorda	53	52	50	53	52
Mangystau	66	58	62	60	64
Pavlodar	66	66	66	65	65
Soltustik Kazakhstan	71	71	68	68	67
Turkistan	57	55	52	57	52
Ulytau	-	-	-	60	62
Shygys Kazakhstan	65	64	63	62	65
Astana city	65	64	63	64	65
Almaty city	61	58	55	59	60
Shymkent city	56	56	51	57	53

7.19 Average annual atmospheric pressure (average by region)

gPa

	2019	2020	2021	2022	2023
Republic of Kazakhstan	981	983	982	972	969
Abay	-	-	-	966	964
Akmola	978	981	979	977	980
Aktobe	992	995	993	993	992
Almaty	913	911	911	882	895
Atyrau	1 021	1 022	1 020	1 018	1 019
Batys Kazakhstan	1 014	1 015	1 014	1 013	1 013
Zhambyl	941	948	947	951	946
Zhetisu	-	-	-	939	933
Karagandy	953	954	954	952	946
Kostanay	994	996	997	994	996
Kyzylorda	1 004	1 007	1 006	1 006	1 005
Mangystau	1 020	1 021	1 020	1 013	1 019
Pavlodar	997	997	997	1 001	996
Soltustik Kazakhstan	997	997	998	998	997
Turkistan	951	951	951	963	951
Ulytau	-	-	-	968	972
Shygys Kazakhstan	961	962	962	958	958

Continuation

	2019	2020	2021	2022	2023
Astana city	977	978	978	977	977
Almaty city	920	921	921	920	920
Shymkent city	946	947	946	946	946

7.20 Average annual total solar radiation (average by region)

kcal/cm²

	2019	2020	2021	2022	2023
Republic of Kazakhstan	152.349	211.68	271.208	269.749	517.485
Abay	-	-	-	-	-
Akmola	132.058	117.483	178.102	279.344	708.205
Aktobe	130.553	156.382	149.980	109.546	341.499
Almaty	155.441	141.033	278.486	218.502	593.619
Atyrau	-	-	-	-	-
Batys Kazakhstan	134.112	12.981	131.284	209.504	558.252
Zhambyl	102.489	119.468	113.780	98.435	330.155
Zhetisu	-	-	-	161.805	701.021
Karagandy	197.727	171.133	249.375	225.879	703.273
Kostanay	-	-	171.843	97.030	24.386
Kyzylorda	224.826	236.259	208.863	185.847	769.491
Mangystau	129.382	164.870	163.986	236.631	731.119
Pavlodar	126.636	147.465	139.699	92.404	569.931
Soltustik Kazakhstan	142.018	77.940	121.359	97.979	346.073
Turkistan	155.202	-	147.824	113.819	728.345
Ulytau	-	-	-	-	-
Shygys Kazakhstan	197.741	225.787	229.837	300.987	717.962
Astana city	129.192	125.421	125.067	81.833	319.396
Almaty city	222.604	227.269	175.870	80.505	291.411
Shymkent city	124.654	126.043	126.741	102.699	363.112

7.21 Greenhouse gas emissions*

	2018	2019	2020	2021	2022
Carbon monoxide, million tons/year	327.7	289.5	263.5	257.7	-
Nitrous oxide (N ₂ O), MMT/year	18.9	19.2	20.1	20.4	-
Methane (CH ₄), mln.t / year	55.6	56.1	56.0	60.0	-
HFC, 1000t / year	2119.50	2258.36	2529.75	2706.49	-
PFC, 1000t / year	127.78	12.67	10.75	9.65	-
Sulfur hexafluoride (SF ₆), 1 000 tons / year	2.15	2.32	2.31	2.37	-
Cumulative emissions (in CO ₂ equivalent), mln.t / year	404.5	367.1	342.1	340.8	-
GHG absorption trends in land use, land use change and forestry (LULUCF)	20.67	14.37	8.13	2.71	-
Sum of cumulative GHG emissions minus LULUCF (in CO ₂ equivalent), mln.t / year	383.8	352.7	334.0	338.1	-
Energy (total), million tons / year	316.2	282.4	259.5	261.9	-
of them:					
combustion in stationary sources	249.84	218.05	205.35	196.28	-
combustion in mobile sources	26.43	26.90	19.34	25.17	-
non-combustion emissions	39.89	37.43	34.81	40.48	-
Industrial processes and use of products, mln.t / year	24.54	25.79	27.03	27.08	-
Agriculture, mln.t / year	37.86	39.10	41.42	42.85	-
Land use and forestry, mln.t / year	20.67	14.37	8.13	2.71	-
Waste, mln.t / year	5.28	5.42	6.02	6.26	-
The population of the country, mln man	18.3	18.5	18.8	19.0	-
Total greenhouse gas emissions per capita, t CO ₂ - eq / per capita	22.1	19.8	18.2	17.9	-
Area of the country, 1 000 km ²	2 725	2 725	2 725	2 725	-
Cumulative greenhouse gas emissions per country area, 1000 tons of CO ₂ - eq / km ²	0.15	0.13	0.13	0.13	-
GDP in constant 2017 prices (PPP), billion international dollars	466.7	487.9	475.6	496.1	-
GDP in constant prices in 2021 (PPP), billion international dollars	639.6	623.7	650.5	671.3	705.5
Total greenhouse gas emissions per unit of GDP, tons of CO ₂ - eq/thousand dollars	0.87	0.75	0.72	0.69	-

* According of Zhasyl Damu JSC under the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan.
Data for 2022 will be generated at the end of 2024.

7.22 Greenhouse gas emissions from all types of transport¹⁾

million tons of CO₂ per year equivalent

	2018	2019	2020	2021	2022 ²⁾
From road transport	21.88	22.37	16.12	21.36	-
From off-road transport	0.46	0.48	0.77	0.66	-
From railway transport	1.61	1.60	1.12	1.19	-
From water transport	0.01	0.01	0.00	0.00	-
From pipeline transport	1.38	1.25	1.23	1.76	-
From air transport	1.08	1.19	0.11	0.19	-

¹⁾ According to the data of Zhasyl Damu JSC under the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan.

²⁾ Data for 2022 will be generated at the end of 2024.

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

National plan for allocation of quotas for greenhouse gas emissions	2020	2021	2022	2023
The bidding period, year	2020	2021	2022	2023
Number of transactions, units	6	39	46	49
Volume of transactions, tons of CO ₂	1 591 000	4 560 397	2 500 559	4 483 309
Volume of transactions, tenge	810 920 000	2 281 191 800	1 347 948 489	4 306 829 702
Average price per 1 ton of CO ₂ , tenge	510	500.2	539	960.64

* Data of Zhasyl Damu JSC under the Ministry of ecology 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	2019		2020		2021		2022**		2023	
	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	-	0.0	-	0.0	-	0.0
Halons	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Other fully halogenated CFCs	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Carbon tetrachloride	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Methyl chloroform	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
HCFCs	-	5.0	-	0.67	-	0.23	-	4.5	-	4.5
HBFCs	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Bromochloromethane	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Methyl bromide	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
Total	-	5.0	-	0.67	-	0.023	-	4.5	-	4.5

*According to the Ministry of Ecology 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, thousand tons	Contaminated and neutralized pollutants	
			thousand tons	as a percent of total waste pollutants from stationary sources
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
2023	32 385.7	2 257.5	30 256.4	93.4

7.26 Emissions of air pollutants from stationary sources

thousand tons

	2019	2020	2021	2022	2023
Republic of Kazakhstan	2 483.1	2 441.0	2 407.5	2 314.8	2 257.5
Abay	40.2	40.7	40.9	39.0	38.5
Akmola	76.7	77.2	77.3	69.5	69.8
Aktobe	136.6	135.1	137.4	136.5	112.1
Almaty	29.1	26.3	30.3	28.8	28.4
Atyrau	164.5	153.9	160.3	132.1	140.1

Continuation

	2019	2020	2021	2022	2023
Batys Kazakhstan	41.2	30.7	26.0	25.8	34.4
Zhambyl	55.8	55.0	55.8	52.9	51.2
Zhetisu	19.1	20.0	17.7	13.1	14.8
Karagandy	522.9	519.0	488.0	469.0	455.0
Kostanay	130.5	123.4	137.9	121.4	118.3
Kyzylorda	24.4	28.3	29.2	23.4	25.3
Mangystau	64.5	72.4	75.2	78.7	86.2
Pavlodar	721.5	723.0	736.2	724.2	694.2
Soltustik Kazakhstan	74.7	76.0	61.2	52.6	58.9
Turkistan	33.5	28.2	29.0	25.2	26.7
Ulytau	118.3	108.7	81.7	105.1	103.1
Shygys Kazakhstan	88.5	86.5	87.2	83.3	80.9
Astana city	65.1	62.4	62.2	57.7	46.4
Almaty city	46.1	44.5	40.8	41.4	44.0
Shymkent city	29.8	29.5	33.2	35.0	29.3

7.27 Atmospheric pollutants emissions from stationary sources, per capita

kg

	2019	2020	2021	2022	2023
Republic of Kazakhstan	134	130	127	118	113
Abay	-	-	-	64	63
Akmola	104	105	105	88	89
Aktobe	156	152	153	148	120
Almaty	23	22	22	19	19
Atyrau	257	236	242	192	201
Batys Kazakhstan	63	47	39	38	50
Zhambyl	49	48	49	44	42
Zhetisu	-	-	-	19	21
Karagandy	465	456	415	413	401
Kostanay	150	142	160	146	142
Kyzylorda	31	35	35	28	30
Mangystau	94	102	103	104	111
Pavlodar	958	962	983	958	920
Soltustik Kazakhstan	135	139	113	98	111
Turkistan	17	14	14	12	13
Ulytau	-	-	-	475	466
Shygys Kazakhstan	94	93	94	114	111
Astana city	59	54	51	44	33
Almaty city	24	23	20	19	20
Shymkent city	29	28	30	30	24

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

thousand tons

	2019	2020	2021	2022	2023
Kokshetau	8.8	8.5	7.9	11.5	11.3
Aktobe	30.3	31.3	31.5	30.7	30.1
Taldykorgan	7.2	7.1	6.7	4.2	4.6
Atyrau	66.0	56.8	30.5	26.1	26.0
Uralsk	9.9	7.6	7.8	8.4	9.5
Taraz	28.3	30.4	29.2	28.5	24.8
Karagandy	56.1	57.2	49.8	46.0	41.6
Balkhash	86.7	91.5	75.4	76.3	74.1
Zhezkazgan	90.5	83.7	58.2	79.1	80.4
Temirtau	239.0	232.8	227.7	221.1	218.1
Kostanay	17.0	15.2	15.9	15.3	16.0
Arkalyk	1.7	1.9	1.1	1.7	1.9
Rudnyi	57.3	54.4	67.9	67.0	63.1
Kyzylorda	4.8	5.1	7.8	5.5	5.9
Aktau	3.0	2.5	2.6	3.0	3.9
Pavlodar	198.5	197.7	188.1	189.4	176.3
Aksu	200.5	201.4	194.5	188.4	179.4
Ekibastuz	233.8	237.9	256.8	259.5	251.7
Petropavlovsk	44.8	44.7	30.3	23.0	30.0
Turkistan	2.3	1.7	1.6	1.3	1.1

Continuation

	2019	2020	2021	2022	2023
Kentau	0.1	0.1	0.1	0.1	0.1
Ust-Kamenogorsk	54.2	53.9	53.1	50.3	48.8
Ridder	7.2	6.9	6.1	6.8	6.3
Semey	20.9	21.9	22.1	22.0	20.6
Glubokoe village	0.6	0.7	0.7	0.2	0.7

7.29 Emissions of the most common air pollutants from stationary sources

thousand tons

	2019	2020	2021	2022	2023
Total, thousand tons	2 483.1	2 441.0	2 407.5	2 314.8	2 257.5
including:					
solids	507.7	500.3	491.7	446.3	436.3
gaseous and liquid substances	1 975.4	1 940.7	1 915.8	1 868.5	1 821.1
of them:					
sulfurous anhydride	885.7	868.1	835.4	821.6	798.5
carbon monoxide	487.9	486.5	473.2	447.9	436.7
nitrogen oxides	313.9	311.4	322.0	311.6	303.7
Hydrocarbons (without volatile compound forms)	128.5	123.7	133.2	134.0	151.7
	158.7	146.2	146.5	156.8	126.6

7.30 Emissions of main pollutants per capita

kg/per

	2019	2020	2021	2022	2023
Population, million people	18.5	18.8	19.0	19.6	19.9
Sulfur dioxide	47.9	46.3	43.9	41.8	40.1
Nitrogen oxides	17.0	16.6	16.9	15.9	15.3
NMVOG	8.6	7.8	7.7	8.0	6.4
Ammonia	0.1	0.1	0.1	0.1	0.1
Carbon monoxide	26.4	25.9	24.9	22.8	21.9
Hydrocarbons	6.9	6.6	7.0	6.8	7.6

7.31 Emissions of main pollutants per unit area of the country

t/km²

	2019	2020	2021	2022	2023
The area of the country, 1000km ²	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	0.01	0.05	0.05	0.06	0.05
Ammonia	0.001	0.001	0.001	0.001	0.001
Carbon monoxide	0.2	0.2	0.2	0.2	0.2
Hydrocarbony	0.047	0.045	0.045	0.058	0.056

7.32 Emissions of main pollutants per unit of GDP

kg/1000 dollars USA

	2019	2020	2021	2022	2023
GDP at constant prices in 2021 (PPP), billion. intern. dollars	639.6	623.7	650.5	671.3	705.5
Sulfur dioxide	1.38	1.39	1.28	1.22	1.13
Nitrogen oxides	0.49	0.50	0.50	0.46	0.43
Ammonia	0.004	0.004	0.004	0.004	0.004
Carbon monoxide	0.76	0.78	0.73	0.67	0.62
Hydrocarbons	0.20	0.20	0.20	0.20	0.22

7.33 Emissions of pollutants and established standards for pollutant emissions in 2023

tons

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year. tons / year
Total	2 257 453.184	3 759 208.703
Sulfur dioxide (SO ₂)	798 479.507	1 137 547.793

Continuation

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year. tons / year
Hydrogen sulfide (H ₂ S)	1 713.674	3 810.366
Carbon monoxide (CO)	436 708.409	674 516.170
Nitrogen dioxide (NO ₂)	252 158.213	422 345.255
Ammonia (NH ₃)	2 775.064	4 781.767
Barium carbonate (in terms of barium)	1.769	1.769
Beryllium and its compounds (in terms of beryllium)	0.003	0.029
DiVanadium pentoxide (dust) (Vanadium pentoxide)	1.620	4.699
Cadmium and its compounds (in terms of cadmium)	1.309	2.145
Magnesium oxide	12.020	34.242
Manganese and its compounds (in terms of manganese dioxide)	71.274	205.982
Copper oxide (in terms of copper)	109.055	133.391
Sodium chloride	59.457	84.375
Nickel metal	0.158	0.697
Mercury and its compounds (in terms of mercury)	0.166	0.240
Lead and its inorganic compounds (in terms of lead)	243.476	289.545
Chromium hexavalent (in terms of chromium trioxide)	8.284	16.508
Zinc diacetate (in terms of zinc) (Zinc acetate)	0.244	4.206
Barium and its salts (acetate, nitrate, nitrite, chloride) in terms of barium	28.006	38.131
Nitric acid	10.028	18.234
Ammonium nitrate	5.985	457.915
Arsine (Arsenic hydrogen)	36.907	37.012
Hydrochloride (Hydrochloric acid, Hydrogen chloride)	185.943	242.194
Hydrocyanide (Prussic acid, Formic acid nitrile, Hydrogen cyanide)	125.255	210.721
Sulfuric acid (per H ₂ SO ₄ molecule)	383.986	627.894
Arsenic, inorganic compounds (in terms of arsenic)	51.416	68.500
Ozone	6.215	6.885
Carbon (Soot, carbon black)	4 193.564	10 277.218
Selenium dioxide (in terms of selenium) (Selenium (IV) oxide)	1.020	1.079
Carbon disulfide	152.209	221.588
Fluoride gaseous compounds (in terms of fluorine)	267.794	494.479
Inorganic fluorides, poorly soluble (aluminum fluoride, calcium fluoride, sodium hexafluoroaluminate)	190.914	246.918
Chlorine (Cl)	46.704	51.277
Butane (C ₄ H ₁₀)	1 804.241	2 998.165
Polyethene(polyethylene)	19.184	38.185
Cyclohexane (C ₆ H ₁₂)	0.058	0.059
Benzene (C ₆ H ₆)	934.752	1 434.507
Xylene (mixture of o-, m-, p- isomers) (Dimethylbenzene (mixture of o-, m-p-isomers)	2 767.581	5 485.224
Vinylbenzene (Styrene, Ethynylbenzene)	18.003	24.593
Toluene (C ₇ H ₈)	2 174.033	4 512.721
1,2,4-Trimethylbenzene (pseudocumene)	163.016	163.850
Ethylbenzene (C ₈ H ₁₀)	122.843	184.529
Benz/a/pyrene (3,4-Benzopyrene)	11.886	15.136
Naphthalene (Platidiam, Cisplatin)	48.228	51.734
1,2-Dichloroethane (Dichloroethane)	0.717	0.717
1,2-Dichloropropane	0.383	0.385
Trichlorethylene (C ₂ HCl ₃)	8.859	9.358
Carbon tetrachloride (Carbon tetrachloride, Carbon tetrachloride)	3.381	3.420
Propan-2-ol (Isopropyl alcohol)	108.395	426.923
Methanol (Methyl alcohol) (CH ₄ O)	494.132	544.378
Hydroxymethylbenzene (mixture of o-, m-, p- isomers) (Tricresol)	9.259	9.281
Phenol	44.220	86.205
Butyl acetate (Acetic acid butyl ester)	322.993	829.708
Propyl acetate (Acetic acid propyl ester)	3.185	6.945
Cyan-(3-phenoxyphenyl) methyl-4-chloro-a-(1-methylethyl) phenylacetate (Sumicidin, Fenvalerate, 1-Isopropyl-4-chlorophenyl acetic acid 3-phenoxy-1-cyanobenzyl ester)	X	x
Ethyl acetate (C ₄ H ₈ O ₂)	104.905	184.937

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year. tons / year
Ethylprop-2-enoate (Acrylic acid ethyl ester, Ethyl acrylate)	0.731	0.731
Ethyl pentanoate (Ethyl valerate, Pentanoic acid ethyl ester)	0.037	0.037
Prop-2-en-1-al (Acrolein, Acrylaldehyde)	49.607	139.499
Benzaldehyde (Benzoic aldehyde)	0.465	0.588
Formaldehyde (Methanal)	223.114	815.336
Propan-2-one (Acetone)	295.638	1 096.406
1-Phenylethanol	3.256	3.335
Pentan-3-one (Diethylketone)	2.400	2.400
4-Methylpentan-2-one (Methyl isobutyl ketone) (C6H12O)	7.495	8.125
Cyclohexanone	17.131	31.166
1,3-Isobenzofurandione (Phthalic anhydride)	0.180	0.624
e-Caprolactam (Hexahydro-2H-azepin-2-one)	0.140	0.200
1,4-Benzenedicarboxylic acid (terephthalic acid)	0.045	0.213
Acetic acid (Ethanoic acid)	331.117	573.515
Methanethiol (methyl mercaptan)	10.672	11.730
Ethanethiol	1.866	21.860
Ammophos (a mixture of mono- and diammonium phosphate with an admixture of ammonium sulfate)	354.402	592.043
Gasoline (petroleum, low sulfur) in terms of carbon	738.226	1 068.412
Gasoline fraction of light tar from high-speed pyrolysis of brown coals (in terms of carbon)	9.833	9.833
Epoxy powder paint	0.136	0.136
Mineral petroleum oil (spindle, machine, etc.)	329.153	528.123
Phenolic fraction of light tar from high-speed pyrolysis of brown coal	0.263	0.263
Suspended solids	8 937.856	14 528.396
Fuel oil ash (in terms of vanadium)	93.071	273.287
Inorganic dust containing silicon dioxide in % > 70	10 688.341	18 298.300
Inorganic dust containing silicon dioxide in%: 70-20 (fireclay, cement, dust, cement production - clay, shale, blast furnace slag, sand, clinker, silica ash, coal ash from Kazakhstan deposits)	299 270.590	472 373.338
Dry carbamide glue dust	0.041	0.402
Feed dust (in terms of protein)	330.830	427.750
Dust (inorganic) of gypsum binder from phosphogypsum with cement	794.927	1 709.816
Fiberglass dust	5.804	6.107
Cotton dust (Linseed dust)	118.520	328.294
Cement production dust (calcium oxide content 60%)	21.827	30.673
Coal ash from thermal power plants (with a calcium oxide content of 35-40%, dispersion up to 3 microns and below at least 97%)	9 366.273	12 092.726
Aluminosilicates (zeolites, zeolite tuffs)	49.104	77.433
Wood dust	1 387.122	2 569.696
Calcium oxide (quicklime)	2 550.428	3 073.608
Cobalt (Cobalt metal)	0.000	0.000
Zinc manganese ferrite (in terms of manganese)	0.014	0.070
Zinc carbonate (in terms of zinc)	9.631	14.148
But-1-ene (Butylene)	16.015	16.036
Benzoyl chloride (benzoyl chloride)	0.058	0.086
Propan-1-ol (Propyl alcohol)	44.532	98.273
Wood alcohol solvent grade A (acetone ether) / for acetone /	0.178	0.178
Acrylic (propenoic) acid	0.663	4.854
Dimethylamine	11.887	13.441
Prop-2-enitrile	8.255	8.732
Formamide (Formic acid amide)	0.121	0.244
0,0-Dimethyl-0-(3-methyl-4-nitrophenyl)phosphate (Methylnitrophos)	3.145	3.150
Pyridine	0.000	0.000
Furan-2-aldehyde(Furfural,2-Furaldehyde,Furfural,2-Furfuraldehyde)	0.473	0.725
2-(2-1 Hydroxy-5-methylphenyl)-benzotriazole (Hydroxymethylbenzene (mixture of o-, m-, p-) Tricresol isomers)	0.400	0.418
Butylformant solvent (according to the total acetates) (BEF)	0.084	0.106

Continuation

	Specific pollutants released into the atmosphere in the reporting year	Established maximum permissible emission (MPV) of pollutants for the reporting year. tons / year
Turpentine (in terms of carbon)	2.981	4.896
Activated rosin flux (rosin control) (FKT, Activated rosin flux)	0.001	0.002
Meliorant (mixture: calcium carbonate, chloride, sulfate - 79%, silicon dioxide - 10-13%, magnesium oxide - 3.5%, iron oxide - 1.6%, etc.)	28.047	45.263
Bone meal dust (calculated as protein)	26.132	35.155
Fiberglass dust	4.561	7.327
Grain dust/for mushroom storage/	6 036.042	10 631.214
Hexane	88.784	570.603
Inorganic dust containing silicon dioxide in%: less than 20 (dolomite, cement production dust - limestone, chalk, cinders, raw material mixture, rotary kiln dust, bauxite)	84 080.947	154 268.332
Abrasive dust	293.822	731.350
Alkanes C12-19/in terms of C/ (Saturated hydrocarbons C12-C19 (in terms of C); Solvent RPK-265P)	26 197.060	48 866.009
Iron (II, III) oxides (in terms of iron) (diliron trioxide, Iron oxide)	1 900.302	3 066.291
Propanal (propionaldehyde, Propionic aldehyde, methylacetic aldehyde) (C3H6O)	25.314	33.646
Nitric oxide (NO)	49 823.029	87 471.409
Mixture of saturated hydrocarbons C1H4-C5H12	64 629.725	103 692.621
Mixture of saturated hydrocarbons C6H14-C10H22	19 011.828	29 037.396
Pentane	76.295	107.423
Pentylenes (amylenes - a mixture of isomers)	562.071	788.627
1,3-butadiene (divinyl)	40.265	50.567
Heptene	0.006	0.006
2-Methylbuta-1,3-diene	0.077	0.104
Propylene	25.144	47.053
Ethylene_	2.992	4.843
Ethine (Acetylene)	9.931	9.939
Divinylbenzene technical (a mixture of divinylbenzene with ethylstyrene) (for ethylstyrene)	0.125	0.244
Isopropylbenzene (cumene)	5.478	5.629
2-Methylpropylbenzene (Isobutylbenzene)	14.687	30.875
Furniture solvent (AMP-3) (toluene control)	0.158	0.158
alpha methylstyrene	0.024	0.024
1,2,4,5-Tetramethylbenzene	1.105	1.595
1,3,5 - Trimethylbenzene (mesitylene) 2,6 - Dimethylphenol (2,6 - xylenol)	91.221	91.316
Methane	150 728.765	491 945.926
Chloromethylbenzene (Benzyl chloride)	1.917	1.925
Benzenesulfonyl chloride	0.003	0.003
1-Bromobutane (butyl bromide)	-	0.000
Butyl chloride	0.993	0.993
Hexafluorobenzene	0.000	0.000
Dibromobenzene	1.732	1.732
Dichlorodifluoromethane (Freon 12)	0.774	1.314
Dichlorofluoromethane (Freon 21)	X	x
Difluorochloromethane (Freon 22)	4.053	4.458
Methylene iodide (methylene iodide)	0.023	0.023
Methylene chloride	5.544	6.087
Tetrachlorethylene (perchlorethylene)_	13.068	14.599
Tetrafluoroethylene	0.010	0.014
Trichloromethane (chloroform)	0.036	0.066
Trichlorofluoromethane (Freon 11)	0.491	0.749
Chlorobenzene	0.010	0.010
Chloroprene	0.041	0.048
Epichlorohydrin	0.677	1.598
Chloroethane (ethyl chloride, ethyl chloride)	0.254	1.103
2,6 - Dimethylphenol (2,6 xylenol)	0.013	0.013
Flour dust	642.496	1 070.386
Amyl alcohol	20.188	20.196
Benzylcarbinol (benzyl alcohol)	0.003	0.003
Butyl alcohol	165.924	465.526
Isobutyl alcohol	5.339	8.926
Isooctyl alcohol	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
Ethanol	544.845	1 117.988
Dioxolane -1,3 (formalglycol)	X	x
Cyclohexanol	0.464	0.603
2-Chloroethanol	0.855	2.517
2,2-Oxybis (propane), diisopropyl ether	0.015	0.015
Diethyl ether	1.342	2.007
Ethylene glycol monoisobutyl ether (butylcellosol)	2.365	2.805
Ethylene glycol monoisopropyl ether (propyl cellosoles)	0.366	0.507
2-Ethoxyethanol (ethylene glycol ether, ethyl cellosolve)	90.018	309.478
Vinyl acetate (Ethenylacetate)	3.145	7.788
Dibutyl phthalate (phthalic acid dibutyl ether)	0.898	2.109
Methyl acrylate	0.018	0.018
Methyl methacrylate	0.022	0.113
2-Ethoxyethyl acetate (acetic acid 2-ethoxyethyl ester, cellosol vacetate)	0.519	0.840
Acetaldehyde_	8.534	11.988
Methyl ethyl ketone	0.162	0.406
Maleic anhydride (vapor, aerosol)	0.037	0.279
Acetic anhydride	0.107	0.449
Valeric acid	2.098	3.367
Dimethylformamide	1.921	1.964
Nylon acid	18.879	23.462
Formic acid_	2.537	3.012
Propionic acid	0.054	0.054
4-Methylpentanoic acid (isocaproic acid)	0.000	0.001
L-2-Hydroxypropanoic acid (lactic acid)	0.000	0.000
Isopropylbenzene hydroperoxide (cumene hydroperoxide)	0.050	0.096
4,4-Dimethyldioxane -1,3-dioxane	X	x
Propylene oxide	2.303	2.405
Ethylene oxide	1.727	1.916
Mixture of natural mercaptans (in terms of ethyl mercaptan)	15.573	1 354.692
Aliphatic amines C15-C20	0.049	0.073
2-Amino-1,3,5-trimethylbenzene (mesidine)	0.114	0.116
Dimethylaniline	0.004	0.006
Cyclohexylamine	0.380	0.420
Diethylamine	0.036	0.036
beta-diethylaminoethyl mercaptan	0.006	0.037
Monomethylaniline	0.030	0.239
Monomethylamine	7.238	9.283
Monoethylamine	0.080	0.849
Triethylamine	X	x
Di(2-hydroxyethyl)amine (diethanolamine)	51.933	54.712
Diphenylmethanedine isodianate	0.000	0.000
Nitriles of carboxylic acids C17-C20	0.068	0.068
Toluene diisocyanate	0.025	0.047
Tetrahydrofuran_	X	x
Thiophene (thiofuran)	X	x
Shale gasoline (in terms of carbon)	0.020	0.020
Solvent_	167.952	303.762
White Spirit_	956.904	2 446.387
Other substances	7 716.699	15 740.734

7.34 Emissions of the most common air pollutants from stationary sources in 2023

thousand tons

	Total	Including						
		solids	gaseous and liquid - total	of them				sulfurous anhydride
				sulfurous anhydride	carbon monoxide	nitrogen oxides	hydrocarbons (excluding VOC)	
Republic of Kazakhstan	2 257.5	436.3	1 821.2	798.5	436.7	303.7	151.7	126.6
Abay	38.5	13.5	25.0	5.7	13.2	4.7	0.8	0.8
Akmola	69.8	25.3	44.5	18.4	17.2	4.5	2.6	1.1

Continuation

	Total	Including						
		solids	gaseous and liquid - total	of them				sulfurous anhydride
				sulfurous anhydride	carbon monoxide	nitrogen oxides	hydrocarbons (excluding VOC)	
Aktobe	112.1	18.3	93.8	24.2	31.6	15.9	7.2	13.2
Almaty	28.4	3.5	24.9	6.1	5.8	5.2	4.8	2.3
Atyrau	140.1	3.6	136.5	29.5	41.1	18.4	25.0	22.1
Batys Kazakhstan	34.3	2.5	31.8	2.5	6.4	4.0	13.3	5.7
Zhambyl	51.1	11.8	39.3	2.6	4.5	6.8	23.0	1.9
Zhetisu	14.8	4.5	10.3	2.5	4.1	3.0	0.0	0.7
Karagandy	455.0	89.2	365.8	173.0	141.6	41.0	6.5	2.3
Kostanay	118.4	38.8	79.6	33.4	10.3	7.5	26.4	1.7
Kyzylorda	25.2	1.8	23.4	1.5	8.5	6.1	5.3	2.2
Mangystau	86.3	2.3	84.0	2.0	11.6	13.7	19.9	36.7
Pavlodar	694.2	147.1	547.1	322.0	82.2	125.0	1.7	19.1
Soltustik Kazakhstan	59.0	20.1	38.8	18.8	9.9	5.6	3.1	1.0
Turkistan	26.6	6.6	20.0	2.3	7.5	2.8	6.1	1.6
Ulytau	103.1	16.5	86.6	75.1	3.2	2.7	0.6	5.0
Shygys Kazakhstan	80.9	13.4	67.5	33.8	16.3	12.0	3.4	1.9
Astana city	46.4	8.7	37.7	22.2	3.3	10.1	0.5	1.5
Almaty city	44.0	7.0	37.0	20.2	5.7	8.7	0.0	1.1
Shymkent city	29.3	1.8	27.5	2.6	12.7	6.0	1.5	4.6

7.35 Capturing and recycling of air pollutants emitted from stationary sources in 2023

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percent of total waste pollutants from stationary sources	actually, thousand tons	as a percent of the total captured and neutralized pollutants
Republic of Kazakhstan	30 256.4	93.4	7 229.7	23.9
Abay	152.8	82.9	29.4	19.2
Akmola	469.1	90.5	4.8	1.0
Aktobe	216.0	66.8	213.1	98.7
Almaty	362.3	93.5	30.8	8.5
Atyrau	0.0	0.0	-	-
Batys Kazakhstan	18.6	36.1	0.7	3.9
Zhambyl	124.3	71.6	17.2	13.8
Zhetisu	312.5	95.7	290.1	92.8
Karagandy	5 965.0	93.1	1 098.0	18.4
Kostanay	593.1	84.2	6.1	1.0
Kyzylorda	0.1	0.2	-	-
Mangystau	10.2	10.8	-	-
Pavlodar	16 888.1	96.1	4 071.7	24.1
Soltustik Kazakhstan	828.3	96.1	8.5	1.0
Turkistan	29.6	53.3	21.8	73.5
Ulytau	506.5	84.0	57.9	11.4
Shygys Kazakhstan	1 605.9	95.6	1 300.6	80.9
Astana city	1 152.5	96.6	-	-
Almaty city	927.6	95.6	2.9	0.3
Shymkent city	93.8	76.9	76.1	81.1

7.36 Capturing and recycling of air pollutants emitted from stationary sources in the individual cities in 2023

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percent of total waste pollutants from stationary sources	actually, thousand tons	as a percent of the total captured and neutralized pollutants
Kokshetau	123.8	92.1	-	-
Aktobe	194.6	87.5	194.1	99.7
Taldykorgan	1.7	28.6	1.7	99.3
Atyrau	-	-	-	-
Uralsk	10.3	53.7	0.0	0.0
Taraz	119.8	83.3	13.1	10.9
Karagandy	1 431.8	97.5	8.4	0.6
Balkhash	949.8	92.8	519.0	54.6
Zhezkazgan	505.6	86.3	57.0	11.3

Continuation

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percent of total waste pollutants from stationary sources	actually, thousand tons	as a percent of the total captured and neutralized pollutants
Temirtau	1 481.0	87.2	103.6	6.9
Kostanay	24.6	63.1	0.1	0.3
Arkalyk	1.2	40.2	-	-
Rudnyi	556.1	89.8	0.7	0.1
Kyzylorda	0.0	0.0	-	-
Aktau	0.0	0.0	-	-
Pavlodar	6 396.5	97.4	3 685.6	57.6
Aksu	3 789.0	95.5	366.8	9.7
Ekibastuz	5 270.1	95.4	-	-
Petropavl	820.7	96.7	2.3	0.3
Turkistan	5.6	84.8	5.6	100
Kentau	0.0	41.1	0.0	100
Ust-Kamenogorsk	734.6	94.1	446.4	60.8
Ridder	174.9	96.6	174.8	99.9
Semey	121.1	86.6	0.6	0.5
Glubokoe village	1.3	66.8	-	-

7.37 Capturing and recycling of air pollutants emitted from stationary sources, by type of activity in 2023

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percent of total waste pollutants from stationary sources	actually, thousand tons	as a percent of total waste pollutants from stationary sources
Agriculture and Fisheries	5.7	25.8	1.9	33.7
Industry	30 193.3	93.9	7 222.2	23.9
Mining and quarrying	647.5	65.6	66.3	10.2
Manufacturing industry	10 560.5	93.7	7 099.2	67.2
Electricity, gas, steam and air conditioning	18 979.3	95.7	52.3	0.3
Water supply; sewage system, control over the collection and distribution of waste	5.9	12.7	4.3	73.7
Building	28.4	70.3	2.0	7.2
Wholesale and retail trade; car and motorcycle repair	1.8	33.4	0.5	27.6
Transportation and warehousing	14.7	12.5	1.3	8.6
Accommodation and Food Services	x	1.5	-	-
Information and communication	-	-	-	-
Financial and insurance activities	-	-	-	-
Real estate transaction	10.3	75.5	1.1	10.6
Professional, scientific and technical activities	0.2	4.2	0.0	18.9
Administrative and support services	0.0	0.6	-	-
Public administration and Boromona; compulsory social security	0.6	4.4	0.2	39.2
Education	0.2	1.2	-	-
Health and social services	1.1	22.5	0.4	39.6
Arts, entertainment and recreation	0.0	0.0	0.0	100
Provision of other services	0.0	1.3	x	1.0

7.38 Number of permits for emissions into the environment*

units

	2019	2020	2021	2022	2023
Number of permits for emissions into the environment	1 997	1 289	577	556	557

8. Wastes

8.1 Industrial waste generation and level of processing*

thousand tons

	2019	2020	2021	2022	2023
Industrial waste generation	839 646	759 905	871 147	888 131	917 993
Processing and recycling of industrial waste	266 309	273 718	333 080	360 720	278 518
Share recycling of industrial waste, in percent	34.0	36.02	38.23	40.03	30.38
Industrial waste per GDP unit, kg/international dollars at comparable prices in 2021 year	1.3	1.2	1.3	1.3	1.3
Industrial waste generation per capita, ton	45.3	40.5	45.8	45.3	45.8

* Data from the Ministry of ecology and natural resources of the Republic of Kazakhstan.

8.2 Solid waste generation and recycling rate*

thousand tons

	2019	2020	2021	2022	2023
Generation of solid waste	4 736.6	4 551.7	4 214.1	4 340.6	4 352.1
Processing and recycling of solid waste	705.2	868.9	985.3	1 103.1	1 029.6
Share recycling of solid waste, in percent	14.9	18.6	21.1	25.4	24.0
Solid waste generation per capita, kg/ per capita	255.8	242.7	221.8	222.1	221.8

* Data from the Ministry of ecology 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

	2020		2021		2022		2023	
	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
Republic of Kazakhstan	4 551.755	868.983	4 214.1	985.247	4 340.6	1 103.1	4 352.2	1 029.6
Abay	-	-	-	-	89.2	1.4	51.6	9.2
Akmola	243.000	37.555	124.0	10.800	155.5	12.3	183.4	18.6
Aktobe	305.700	30.591	299.764	32.117	300.9	45.2	303.7	56.8
Almaty	600.000	102.000	694.8	122.300	429.2	73.5	439.0	92.6
Atyrau	233.642	45.680	190.74	40.190	232.6	63.8	179.7	50.7
Batys Kazakhstan	107.000	12.031	80.4	9.341	114.2	17.3	124.6	23.2
Zhambyl	76.550	9.688	65.323	8.325	47.2	7.6	56.5	10.7
Zhetisu	-	-	-	-	220.0	39.1	225.8	44.5
Karagandy	655.000	190.000	465.3	134.910	328.2	179.2	343.5	192.4
Kostanay	229.802	27.410	190.682	33.828	210.8	38.4	274.2	57.0
Kyzylorda	117.000	21.000	116.0	22.800	164.0	40.2	166.0	45.7
Mangystau	110.520	39.013	102.102	28.938	207.8	66.7	199.7	63.0
Pavlodar	647.000	142.340	648.0	154.224	292.8	79.9	296.1	91.2
Soltustik Kazakhstan	86.539	11.290	76.4	11.480	82.8	15.2	87.1	17.4
Turkistan	122.771	15.962	110.031	17.600	92.7	17.6	103.2	23.7
Ulytau	-	-	-	-	268.4	0.2	143.4	0.002
Shygys Kazakhstan	171.576	30.873	180.628	20.407	110.8	17.7	146.5	32.3
Astana city	198.601	59.085	335.0	47.000	316.8	238.2	304.8	53.0
Almaty city	438.000	42.000	304.389	228.292	451.8	81.3	482.8	65.7
Shymkent city	209.054	52.465	230.497	62.695	225.0	68.1	240.7	81.9

8.4 Municipal waste generation

thousand tons

	2019	2020	2021	2022	2023
Total amount of municipal waste	2 913.8	2 812.2	3 188.9	3 071.9	3 298.4
of which household waste	2 060.5	2 009.3	2 091.7	2 035.9	2 062.7
Volume of buried waste	2 521.1	2 523.2	2 586.5	2 597.5	2 899.9

8.5 Municipal waste generation

thousand tons

	2019	2020	2021	2022	2023
Republic of Kazakhstan	2 913.8	2 812.2	3 188.9	3 071.9	3 298.4
Abay	67.2	64.2	65.4	59.5	54.2
Akmola	89.1	96.6	118.7	134.9	140.5
Aktobe	145.1	163.0	165.4	154.2	127.1
Almaty	131.9	114.0	126.7	123.8	186.6
Atyrau	85.0	62.5	61.0	79.7	113.1
Batys Kazakhstan	71.4	107.5	118.9	127.4	111.9
Zhambyl	55.7	62.0	62.1	65.3	66.2
Zhetisu	44.2	43.9	30.1	25.5	29.4
Karagandy	309.3	307.6	330.5	336.8	321.1
Kostanay	160.8	153.6	144.2	171.2	196.2
Kyzylorda	60.4	58.8	66.0	87.3	105.8
Mangystau	132.6	135.8	143.0	176.1	120.2
Pavlodar	185.4	164.2	380.8	217.7	222.5
Soltustik Kazakhstan	74.2	75.7	78.2	69.3	74.1
Turkistan	151.8	157.5	161.2	156.8	172.0
Ulytau	55.9	56.5	53.3	82.7	64.4
Shygys Kazakhstan	103.1	104.1	107.2	107.6	148.2
Astana city	308.9	298.8	296.5	210.4	230.1
Almaty city	489.9	414.4	480.4	480.2	568.2
Shymkent city	191.9	171.5	199.3	205.4	246.6

8.6 Generation of hazardous wastes and their level of processing

thousand tons

	2019	2020	2021	2022	2023
Hazardous waste generation, thousand tons	180 506.7	137 828.0	42 090.0	46 487.8	43 867.9
Processing, recycling of hazardous waste (including incineration), thousand tons	36 645.3	30 711.8	4 924.0	3 388.7	2 796.7
The share of processing, recycling of hazardous waste, percent	20.3	22.3	11.7	7.3	6.3
Hazardous waste generation per unit of GDP, kg / thousand international dollars in 2021 prices	282.2	221.0	64.7	69.3	62.2
Hazardous waste generation (all hazard levels) per capita (SDG 12.4.2), kg / per capita of us.	9 750	7 349	2 215.3	2 367.6	2 193.4

8.7 Formation of hazardous waste and the level of its processing

thousand tons

	2019		2020		2021		2022		2023	
	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*
Republic of Kazakhstan	180 506.7	36 087.4	137 828.0	30 269.0	42 090.2	4 411.6	46 487.8	2 735.2	43 867.9	2 796.7
Abyai	-	-	-	-	-	-	3727.8	104.8	-	-
Akmola	9 433.2	858.1	9 595.3	1 369.4	5 192.1	121.7	15 261.2	52.9	15 372.3	10.80
Aktobe	1 916.4	3 309.2	1 434.6	1 217.4	5 423.4	391.1	5 262.2	325.1	5 426.4	254.7
Almaty	629.6	41.6	657.2	43.2	37.3	33.6	9.1	0.06	2.105	0.04
Atyrau	469.1	299.1	296.3	157.4	274.5	65.1	212.8	18.6	218.9	64.9
Batys Kazakhstan	173.8	90.2	129.2	2 187.3	94.6	18.2	73.8	22.8	53.3	29.3
Zhambyl	582.3	185.4	325.6	235.1	143.3	132.0	155.8	144.6	121.2	113.8
Zhetisu	-	-	-	-	-	-	0.9	0.02	-	-
Karagandy	13 885.0	4 129.1	11 836.5	3 963.5	11 498.5	639.4	1 133.3	15.8	1 814.9	249.8
Kostanay	111 311.2	16 393.2	76 415.0	13 250.6	4 043.0	288.2	8 722.6	292.0	8 488.9	294.22
Kyzylorda	249.4	25.1	161.4	18.4	54.4	19.0	40.9	8.3	56.9	27.1
Mangystau	368.0	442.0	405.8	627.7	217.9	88.0	331.1	125.2	501.5	172.9
Pavlodar	32 724.2	8154.8	29 102.8	4 661.3	4 122.2	1 879.2	209.7	79.8	197.5	61.0
Soltustik Kazakhstan	2 465.6	746.5	2 108.4	513.7	949.4	1.1	9.9	3.7	331.6	1.3
Turkistan	124.4	53.2	127.4	36.8	10.1	0.004	8.8	30.6	7.5	0.06
Ulytau	-	-	-	-	-	-	0.7	0.03	-	-
Shygyz Kazakhstan	3 178.0	724.7	2 399.0	622.4	7 738.4	365.9	11 167.8	1 500.6	5 143.8	1 438.1
Astana city	1 706.3	147.1	1 698.5	826.8	1 818.8	0.3	15.7	0.3	18.6	1.4
Almaty city	1 163.1	310.9	1 095.6	290.0	453.9	331.6	123.4	0.1	2.749	0.1
Shymkent city	127.1	177.2	39.4	248.2	18.4	37.2	20.3	10.7	37.7	0.05

8.8 Generation, the use and disposal of hazardous waste products*

thousand tons / year

	Generation of hazardous waste	Use of hazardous waste in enterprises	Hazardous waste disposal
2019	180 506.7	36 645.3	305.0
2020	137 828.0	30 711.8	299.0
2021	42 090.0	4 924.0	393.0
2022	46 487.8	3 388.7	212.3
2023	43 867.9	2 796.7	491.7

* Hereinafter, according to the Ministry of Ecology 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

	2019	2020	2021	2022	2023
Republic of Kazakhstan	2 658 354.9	2 757 951.9	480 234.6	840 851.2	889 530.5
Abay	-	-	-	10 940.0	-
Akmola	25 998.8	33 867.1	26 054.7	131 974.2	226 172.5
Aktobe	6 230.0	6 212.9	59 930.7	65 803.2	67 232.1
Almaty	5 573.7	6 001.2	38.6	2.3	2.6
Atyrau	658.8	826.8	22.5	16.2	17.4
Batys Kazakhstan	375.5	408.9	87.1	78.6	54.9
Zhambyl	12 673.7	12 773.5	5 224.5	4 677.4	365.8
Zhetisu	-	-	-	8.7	-
Karagandy	739 539.3	745 730.3	54 894.2	23 649.4	819.7
Kostanay	1 156 195.5	1 219 162.0	191 106.5	257 345.4	254 875.7
Kyzylorda	942.7	107.6	3.5	11.2	9.7
Mangystau	203.8	228.2	23.4	260.5	62.4
Pavlodar	608 570.9	632 762.8	75 450.2	2 828.3	2 893.9
Soltustik Kazakhstan	38 397.6	39 586.0	2 188.1	5.7	536.5
Turkistan	1 341.3	1 340.6	644.1	648.4	649.7
Ulytau	-	-	-	0.1	-
Shygys Kazakhstan	25 024.7	19 535.2	32 155.3	342 585.6	335 819.9
Astana city	29 092.2	30 719.9	32 363.1	1.2	2.7
Almaty city	7 086.1	8 057.5	25.0	4.1	0.06
Shymkent city	450.3	631.4	23.1	10.7	15.0

8.10 Volume of hazardous waste

thousand tons

	2019	2020	2021	2022	2023
Generated hazardous waste during the year	180 506.7	137 828.0	42 090.2	46 487.8	43 867.9
Incoming hazardous waste of these: imported hazardous waste	8 700.7	16 063.9	1 006.3	1 568.9	1 163.9
Used (disposed) waste	36 645.3	30 711.8	512.4	3 388.7	2 796.7
Neutralized waste	305.0	299.0	393.0	212.3	491.7
Transferred to the industrial recycling	13 374.8	15 143.1	2 051.2	2 221.9	2 377.5
Including: exported hazardous waste directed: to places organized warehousing and burials	0.3	1.7	0	1.0	2.0
on authorized landfills and landfills solid household waste	332 459.1	115 443.6	35 185.9	6 028.8	4 871.2
Volume of hazardous waste at the end of the year	1 478.4	834.2	-	-	-
	2 658 354.9	2 757 951.9	480 234.6	840 851.2	908 869.2

8.11 Generation of hazardous waste by type of economic activity

thousand tons/year

	2019	2020	2021	2022	2023
Hazardous waste including:	180 506.7	137 828.0	42 090.2	46 487.8	46 868.0
Agriculture, forestry and fishing	2 420.0	2 144.4	1 052.7	766.8	1 143.3
Mining industry and quarry development	131 203.7	91 189.6	25 501.2	31 820.1	28 077.9
Manufacturing industry	21 619.9	20 979.1	6 121.0	8 396.6	8 644.0
Supply of electricity, gas, steam	20 501.2	19 784.5	4 606.1	554.3	147.3
Construction	363.7	220.6	30.7	152.3	4.1
Other types of economic activities	4 398.2	3 509.8	4 778.5	4 797.7	8 851.4

8.12 E-waste generation in 2023

tons

	2023
Electrical and electronic equipment parts, of which:	115.98
Transformers and capacitors containing polychlorinated onphenyls	55.557
Decommissioned equipment containing or contaminated with polychlorinated biphenyls, except as mentioned	-
Decommissioned equipment containing hazardous components of components 2, with the exception of those mentioned	19.184
Decommissioned equipment, except as mentioned	0.631
Hazardous components recovered from decommissioned equipment	3.111
Components extracted from decommissioned equipment except as mentioned	37.498

8.13 Production and consumption waste generation*

thousand tons/year

	2019	2020	2021	2022	2023
Total waste generated	515 958.1	457 931.1	777 764.9	1 052 134.9	1 033 856.6
Including:					
Agriculture, forestry and fishing	2 450.5	2 168.7	3 132.9	3 039.6	3 302.6
Mining industry and quarrying	449 887.2	392 534.4	495 400.1	744 017.6	717 736.6
Manufacturing industry	31 583.1	33 262.5	129 091.7	180 735.3	163 112.3
Electricity, gas, steam	20 527.3	19 806.8	21 143.6	17 881.7	19 612.8
Construction	477.1	358.8	498.4	634.6	180.6
Other types of economic activities	11 032.9	9 799.9	128 498.2	105 826.1	129 911.7

* According to the RSE "Information and analytical center for environmental protection" of the Ministry of ecology 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

	2019	2020	2021	2022	2023
Total amount of waste managed	335 451.40	320 103.1	735 674.6	1 005 647.1	986 988.6
Recycled, reused, incinerated during the reporting year	89 944.60	94 027.4	108 679.8	149 420.1	104 476.5
Neutralized during the accounting year	0.2	0.3	-	-	-
Placed on its own waste disposal facilities	200 210.70	175 477.0	439 185.1	827 298.7	330 009.0
Transferred to third-party organizations and businesses	2 782.90	3 191.5	5 452.2	6 293.8	8 359.3

8.15 Medical waste

ton

	2019	2020	2021	2022	2023
Formed by medical organizations from them:					
Waste of class "A" m3	121 799.607	21 827 557.0	344 957 067.0	159 290 910.8	19 397 051.21
Waste of class "B"	112 282.231	39 820 555	15 995 684.7	58 991 247.06	88 323 825.6
Waste of class "B"	11 292.802	13 363 611.2	1 575 257 521.4	4 988 414.71	2 440 724.68

Continuation

	2019	2020	2021	2022	2023
Formed by medical organizations					
Waste of class "G"					
Pcs	24 085	70 933	101 789	39 267.8	31 117.19
Kg	5 774.3	349 834.6	11 685.5	715 178.97	750 173.8
l	9.2	2 899.5	296.5	1 583.61	6 532.75
Waste of class "D"	0.376	3 229.6	1 628.4	223.04	416.96
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	2 135 752.2
Waste of class "B"	1 252.6	6 524 847.3	83 970.6	22 710.3	11 445.3
Waste of class "G", liter	5.0	206.16	1 989.6	4 039.85	133.12
Waste of class "D"	-	-	-	-	-
Buried					
Waste of class "A"	-	-	-	-	-
Waste of class "B"	387.788	389.05	88.7	803.5	487.0
Waste of class "B"	0.000	42.52	4.0	251.5	0.000
Waste of class "G"	-	-	-	-	-
Waste of class "D"	0.000	0.000	0.000	0.000	0.000

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

million tons

	2019		2020		2021		2022		2023	
	Generated (including those received from other persons)	Recycled and reused	Generated (including those received from other persons)	Recycled and reused	Generated (including those received from other persons)	Recycled and reused	Generated (including those received from other persons)	Recycled and reused	Generated (including those received from other persons)	Recycled and reused
Total waste generated	526.7	126.0	475.3	124.2	782.3	97.3	1 057.4	114.1	1 036.6	107.3
including:										
Agriculture, forestry and fishing	2.5	1.6	2.2	1.4	3.2	1.2	3.1	1.2	3.4	1.1
Mining and quarrying	449.9	106.7	392.5	106.2	495.4	70.8	744	92.6	717.7	86.7
Manufacturing industry	33.1	10.1	34.5	9.3	129.8	15.9	182.1	14.5	164.4	15.0
Supply of electricity, gas, steam	20.5	0.02	19.8	0.02	21.2	0.08	17.9	0.1	19.6	0.07
Construction	2.3	1.8	1.8	1.4	0.5	0.09	0.6	0.1	0.2	0.07
Transport and warehousing	0.3	0.01	0.2	0.00	0.2	0.003	0.2	0.01	0.2	0.003
Other types of economic activity	18.1	5.8	24.3	5.8	132.0	9.2	109.5	5.6	131.0	4.4

9. Forest resources

9.1 Main indicators of the forest fund*

at the end of the year

	2019	2020	2021	2022	2023
Forest area (including forests transferred for temporary use), million hectares	30.0	30.0	30.6	30.9	30.9
Forest land, million hectares	13.1	13.3	13.6	13.7	13.7
Total stock of standing timber, million cubic meters	443.0	446.3	455.1	453.9	440.7
Forest cover of the territory, as a percent of the total area of the country	4.8	4.9	5.0	5.0	5.0

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

9.2 Forest Fund

January 1, 2023

	Total forest area, thousand hectares	Forest land, thousand hectares	Total standing timber, million cubic meters	Percent of forest land
Republic of Kazakhstan	30 970.5	13 697.2	440.7	5.0
Abay	852.8	376.4	38.0	2.0
Akmola	1 058.7	445.3	50.6	3.0
Aktobe	1 406.9	59.5	1.3	0.2
Almaty	3 239.3	1 575.1	39.8	15.0
Atyrau	169.2	18.8	0.5	0.2
Batys Kazakhstan	568.3	90.2	8.6	0.6
Zhambyl	4 430.6	2 314.5	4.5	16.0
Zhetisu	2 197.3	445.8	16.1	3.7
Karagandy	536.1	137.3	5.5	0.6
Kostanay	1 148.6	236.9	17.1	1.2
Kyzylorda	7 173.0	3 834.1	10.6	17.0
Mangystau	476.6	125.9	0.8	0.8
Pavlodar	478.7	275.6	30.2	2.2
Soltustik Kazakhstan	688.4	518.5	48.7	5.3
Turkistan	3 472.9	1 587.6	3.4	13.5
Ulytau	82.3	14.2	0.4	0.1
Shygys Kazakhstan	2 990.8	1 641.5	165.6	16.8

9.3 Forests and other wooded land*

1000 ha

	2019	2020	2021	2022	2023
Country area	272 490.2	272 490.2	272 490.2	272 490.2	272 490.2
Total forest area	30 058.1	30 047.7	30 552.5	30 941.7	30 970.5
Share of forests in country area, in percent	11.0	11.0	11.2	11.4	11.4
Total area of other wooded land	13 121.8	13 316.9	13 635.3	13 673.5	13 697.2
Share of other wooded land in country area, in percent	4.8	4.9	5.0	5.0	5.0
Primary and planted forest					
Total forest area	30 058.1	30 047.7	30 552.5	30 941.7	30 970.5
Primary forests,	1 611.4	1 613.7	1 613.7	1 613.7	1 613.7
Primary forests, in percent	5.4	5.4	5.3	5.2	5.2
Other naturally regenerated forest	27 507.9	27 670.0	28 179.5	30 140.2	28 526.1
Other naturally regenerated forest, in percent	91.5	92.1	92.2	97.4	92.1
Planted forest	938.8	764.0	759.3	812.2	830.7
Planted forest, in percent	3.1	2.5	2.5	2.6	2.7
Forest area designated for production					
Total forest area	30 058.1	30 047.7	30 552.5	30 941.7	30 970.5
of which					
Production forest	449.9	446.3	455.1	453.9	440.7
Production forest, in percent	1.5	1.5	1.5	1.5	1.4
Forest area designated for protection of protected areas and places for biodiversity conservation					
Total forest area	30 058.1	30 047.7	30 552.5	30 941.7	30 970.5
of which					
Forest area within protected areas (SPNT)	8 328.2	10 891.8	10 950.7	11 294.7	11 294.7

Continuation

	2019	2020	2021	2022	2023
Forest area within protected areas, in percent	27.7	36.2	35.8	36	36
Forest reserves and composition:					
coniferous, thousand cubic meters	274 501.1	281 591.4	285 537.7	286 819.6	276 131.4
deciduous, thousand cubic meters	140 961.3	146 962.8	145 191.8	140 998	142 492.7
standing forest stocks of 10 most common species:	431 710.9	441 460.1	450 035.5	453 927	440 738.4
pine, thousand cubic meters	113 264.4	118 140.9	119 967.3	119 437.4	113 548.5
the fir, thousand cubic m	46 162.8	47 072.7	47 973.5	48 832.4	49 142.0
fir, thousand cubic meters	65 972.8	66 805.9	67 639.0	68 211.5	63 075.2
larch, thousand cubic meters	35 719.5	36 045.8	36 345.2	36 631.4	36 628.3
cedar, thousand cubic meters	13 140.5	13 233.5	13 326.0	13 417.5	13 445.4
birch, thousand cubic meters	89 444.1	91 102.2	92 519.9	89 300.1	89 143.7
aspen, thousand cubic meters	36 079.2	35 951.4	36 818.4	35 424.4	31 720.0
poplar, thousand cubic meters	10 843.6	10 926.6	11 142.7	11 442.6	11 269.7
willow, thousand cubic meters	4 335.4	4 360.6	4 442.3	4 557.7	4 504.1
saxaul, thousand cubic meters	16 748.6	17 790.5	19 861.2	20 952.2	22 114.3
other, thousand cubic meters	110 958.0	4 884.6	5 045.9	5 719.8	6 147.2
Reforestation area, thousand hectares	46.1	74.8	50.2	66.9	53.3
Forest plantations, thousand hectares	2.0	1.9	1.8	1.9	1.8

*Committee of forestry and wildlife of the Ministry of ecology and natural resources of the Republic of Kazakhstan (MENR).

9.4 Distribution of areas of the main forest-forming species of the state forest fund in 2024

thousand hectares

	Area	Of these, the main prevailing breeds			
		coniferous	hardwood	softwood	saxaul
Republic of Kazakhstan	10 581.9	1 754.7	147.0	1 566.6	7 113.6
Abay	318.4	270.7	5.8	41.9	-
Akmola	419.5	200.8	41.9	176.9	-
Aktobe	35.8	1.4	22.8	5.2	6.4
Almaty	1 261.6	151.9	4.2	11.3	1 094.3
Atyrau	5.5	-	0.4	5.0	0.2
Batys Kazakhstan	74.6	65.7	21.5	52.4	-
Zhambyl	1 204.6	3.6	7.3	0.5	1 193.2
Zhetisu	258.8	-	3.1	33.6	156.4
Karagandy	59.3	30.6	5.9	22.7	0.1
Kostanay	188.1	54.6	5.2	128.3	-
Kyzylorda	-	-	-	0.1	3 480.7
Mangystau	19.2	-	-	-	19.2
Pavlodar	258.0	165.1	12.0	80.8	-
Soltustik Kazakhstan	500.9	38.5	5.1	457.2	-
Turkistan	1 181.8	11.3	6.2	1.3	1 163.0
Ulytau	6.6	0.2	1.7	4.7	-
Shygys Kazakhstan	1 308.3	759.7	3.9	544.7	-

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	
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
2023	218.9	218.9	100

9.6 Reforestation in state forests

thousand hectares

	2019	2020	2021	2022	2023
Republic of Kazakhstan	63.9	51.3	53.8	138.5	218.9
Abay	-	-	-	4.1	2.5
Akmola	6.5	3.6	5.1	5.9	6.0
Aktobe	0.9	1.0	1.0	3.2	4.7
Almaty	0.5	0.7	0.6	1.3	3.8
Atyrau	0.2	0.3	0.3	0.5	0.5
Batys Kazakhstan	0.8	0.8	0.8	1.2	2.0
Zhambyl	5.1	5.2	5.6	9.2	13.9
Zhetisu	-	-	-	0.3	2.4
Karagandy	0.5	0.5	0.6	0.4	0.4
Kostanay	1.6	1.2	0.8	2.5	2.1
Kyzylorda	20.1	13.4	12.9	84.6	156.6
Mangystau	0.3	0.3	0.3	0.3	0.9
Pavlodar	3.0	3.3	3.1	3.1	2.0
Soltustik Kazakhstan	1.2	1.2	1.9	1.2	2.4
Turkistan	18.2	14.6	15.5	20	17.4
Ulytau	-	-	-	-	0.1
Shygys Kazakhstan	5.0	5.0	5.1	0.7	1.2

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
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
2023	810	77 760	163,2	2,0

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

thousand hectares

	2019	2020	2021	2022	2023
Republic of Kazakhstan	1.0	1.0	-	-	-
Akmola	-	-	-	-	-
Atyrau	0.2	0.2	-	-	-
Batys Kazakhstan	0.8	0.8	-	-	-
Kyzylorda	-	-	-	-	-

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

thousand hectares

	2019	2020	2021	2022	2023
Republic of Kazakhstan	36.1	62.2	50.2	66.9	53.3
Abay	-	-	-	2.7	2.8
Akmola	1.3	1.8	1.7	1.8	0.9
Aktobe	0.8	0.8	0.7	0.6	0.8
Almaty	4.6	1.3	0.5	10.1	8.1
Atyrau	-	-	-	-	-
Batys Kazakhstan	0.3	0.2	0.3	0.2	0.2
Zhambyl	3.0	2.8	18.8	13.3	5.6
Zhetisu	-	-	-	0.1	0.3
Karagandy	-	0.3	0.2	0.1	0.2
Kostanay	3.4	2.9	1.2	1.9	1.4
Kyzylorda	5.6	16.3	3.1	9.4	10.9
Mangystau	-	0.1	0.1	0.1	0.2
Pavlodar	6.2	3.4	2.4	1.8	1.6
Soltustik Kazakhstan	7.7	6.8	7.2	5.2	4.6
Turkistan	3.2	17.6	6.6	18.1	12.6
Ulytau	-	-	-	0.2	-
Shygys Kazakhstan	-	7.8	7.5	1.2	3.1

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 industrial
2019	50 161.4	130.4	124.1	11.9
2020	18 018.24	401.213	392.462	3.85
2021	47 892.1	203.1	196.7	36.6
2022	14 293.04	325.5	319.2	36.5
2023	5 628.9	61 377.0	56 973.1	6 997.0

9.11 Thinning and selective-sanitary felling in 2023

	The area of felling, total, hectares	Felled timber, th. solid cubic meters		
		total	of them liquid	of them industrial
Republic of Kazakhstan	5 628.9	61 377.0	56 973.1	6 997.0
Abay	810.0	6 439.0	6 439.0	...
Akmola	430.2	8.6	8.3	0.9
Aktobe	28.1	1 016.3	1 016.3	...
Almaty	32.0	1 562.0	1 221.0	240.0
Atyrau	48.2	745.0	745.0	...
Batys Kazakhstan	180.0	5.8	5.2	0.5
Zhambyl	...	...	...	...
Zhetisu	22.4	0.5	0.4	0.3
Karagandy	121.2	1 331.0	222.1	21.0
Kostanay	1 060.7	22 481.0	22 481.0	3 009.0
Kyzylorda	...	...	...	...
Mangystau	1 704.1	24 577.0	22 017.0	3 722.0
Pavlodar	278.1	2 583.0	2 583.0	...
Soltustik Kazakhstan	19.4	194.0	194.0	...
Turkistan	67.5	418.0	25.0	...
Ulytau	827.0	15.8	15.8	3.4

10. Specially protected natural areas

10.1 Protected areas *

hectares

	2019	2020	2021	2022	2023
Country area, thousand ha	272 490	272 490	272 490	272 490	272 490
Total areas under protection	26 489 900	26 548 900	26 288 400	29 363 400	29 495 100
state nature reserve	1 613 700	1 613 700	1 613 700	1 613 700	1 613 700
state national natural parks	2 668 300	2 727 300	2 727 300	2 727 300	2 727 300
state nature reserve	3 122 082	3 122 082	3 122 082	3 465 100	3 467 300
state natural monuments of national significance	272	272	272	272	272
state natural monuments of local significance	1767	1767	1767	1767	1767
state nature reserves of republican significance	6 076 300	6 076 300	5 815 800	8 547 800	8 547 800
state nature reserves of local importance	1 505 600	1 505 600	1 505 600	1 505 600	1 637 300
state protected areas	11 311 900	11 311 900	11 311 900	11 311 900	11 311 900
state botanical gardens of republican significance	470	470	470	470	470
state arboretum of republican significance	400	400	400	400	400
state arboretum of local importance	-	-	-	0	0
state (regional) natural parks	189 100	189 100	189 100	189 100	189 100
state Zoological parks of local significance	77	77	77	77	77
Share of total protected areas in the country area, in percent	9.7	9.7	9.6	10.7	10.8

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

Continuation

	2019	2020	2021	2022	2023
Of which the protected species, the number of species	57	57	57	57	57
Fish					
Total number of species, number of	156	156	156	170	...
Of which endangered species, the number of species, including	16	16	16	15	...
critically endangered species, number of species	9	9	9	9	...
endangered species (threatened with extinction), number of species	6	6	6	6	...
vulnerable species, number of species	1	1	1	0	...
Of which the protected species, the number of species	18	18	18	17	...
Vascular plants					
Total number of species, number of	6 000	6 000	6 000	6 000	6 000
Of which endangered species, the number of species, including	370	370	370	370	370
critically endangered species, number of species	327	327	327	327	327
endangered species (threatened with extinction), number of species	41	41	41	41	41
vulnerable species, number of species	2	2	2	2	2.
Of which the protected species, the number of species	370	370	370	370	370
Mosses					
Total number of species, number of	500	500	500	500	500
Of which endangered species, the number of species, including	3	3	3	3	3
critically endangered species, number of species	3	3	3	3	3
Of which the protected species, the number of species	3	3	3	3	3
Lichens					
Total number of species, number of	500	500	500	500	500
Of which endangered species, the number of species, including	1	1	1	1	1
critically endangered species, number of species	1	1	1	1	1
Of which the protected species, the number of species	1	1	1	1	1
Mushrooms					
Total number of species, number of	5 000	5 000	5 000	5 000	5 000
Of which endangered species, the number of species, including	5	5	5	5	5
critically endangered species, number of species	1	1	1	1	1
endangered species (threatened with extinction), number of species	2	2	2	2	2
vulnerable species, number of species	2	2	2	2	2
Of which the protected species, the number of species	10	10	10	10	10
Seaweed					
Total number of species, number of	2 000	2 000	2 000	2 000	2 000
Of which the protected species, the number of species	0	0	0	0	0

11.4 Types of endangered and protected species*

heads

	2019	2020	2021	2022	2023
Class mammals					
Little shrew baby	...	...	...	...	...
Muskkrat	...	...	...	...	...
Asian wide	...	...	...	...	...
Kozhanok Bobrinsky	...	...	...	...	...
Tien Shan Brown Bear	544	3 007	599	489	...
Stone marten	918	...	...	741 910	503

Continuation

	2019	2020	2021	2022	2023
Pine marten	4 622	...	...	...	923
European mink	...	9 134	...	...	...
Porbeagle	76	...	77	32	...
Central Asian River Otter	...	351	355	...	43
Dune cat	40	...	...	...	358
Manul	94	...	...	30	...
Caracal	84	...	...	...	35
Central Asian or Turkistan region lynx	...	...	177	359	...
Snow Leopard	130	150	170	180	362
Turkmen Kulan	4 197	4 255	4 337	4 413	183
Tugai Deer	878	914	976	1 052	4 493
Jeyran	14 391	14 656	14 894	15 089	1 147
Ustyurk mountain sheep	2 100	2 374	2 412	3 301	15 411
Kazakhstan mountain sheep	12 632	12 818	13 083	13 259	3 605
Tien Shan mountain sheep	2 574	2 611	2 657	2 705	13 543
Karatau mountain sheep:	643	657	711	747	2 405
The Menzbier Marmot	14 699	...	14 703	12 268	763
Indian Porcupine	112	...	113	247	13 114
Lick	...	...	...	...	263
Five-toed dwarf jerboa	...	...	...	...	...
Pale dwarf jerboa	...	...	...	...	...
Fatty dwarf jerboa	...	...	...	...	...
Giant mole rat	...	...	975	975	963
		Bird class			
Pink Pelican	4 341	...	4 353	4 380	...
Curly pelican	4 384	...	3 042	3 079	4 401
Little Egret	120	...	123	130	3 095
Spoonbill	269	...	240	246	133
Loaf	560	...	570	275	264
Turkistan White Stork	...	...	...	...	321
Black stork	269	...	269	273	...
Flamingo	4 958	...	4 965	4 984	288
Goose squirrel	32 121	...	...	...	5 011
Red-breasted Goose	8 980	...	...	...	...
Whooper swan	3 269	...	3 274	3 281	...
Marbled Teal	78	...	90	92	3 413
White-eyed blacken	693	...	780	784	94
Savka	8 527	...	8 532	8 541	787
Osprey	57	...	52	56	8 552
Snake eater	64	...	71	72	58
Eagle dwarf	44	...	51	56	75
Steppe eagle	504	...	148	151	57
Burial ground	680	...	260	270	143
Golden eagle	377	...	383	387	267
Long-tailed eagle	37	...	38	41	390
White-tailed eagle	119	...	131	138	43
Borumodach	...	...	78	82	141
Vulture	60	...	88	92	83
Kumai	...	...	111	113	97
Krechet	...	...	...	...	114
Saker	317	...	150	160	...
Shahin	...	...	...	...	163
Sapsan	114	...	...	...	...
Altai Ular	721	9 458	9 458	9 462	...
Sterh	...	...	...	...	9 469
Gray Crane	899	...	907	910	...
Crane belle	6 399	...	6 412	6 418	917
Sultanka	...	...	...	...	6 432
Bustard	435	...	430	445	...
Strepeta	956	...	1 050	1 090	453
Jack	1 564	...	2 030	2 044	1 096
Krechatka	502	...	506	508	2 123
Serpoklyuv	...	...	16	19	515
Curlew-baby	...	...	...	...	21
Curly Curlew	...	...	...	...	...
Asian Snipe Spin	...	...	...	...	...
Black-headed Laugh	14 715	...	15 100	15 123	...

Continuation

	2019	2020	2021	2022	2023
Relic gull		...	...	...	15 132
Black-bellied speck	1 939	...	2 021	2 032	...
White-tailed Grouse		...	360	365	2 042
Saja	483	...	491	497	369
Brown dove	798	...	803	815	442
Owl	384	...	389	394	811
Ili saxaul jay	...	...	...	...	392
Blue bird	...	...	169	175	...
Big lentils	...	...	...	...	168

* 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

	2019	2020	2021	2022	2023
Saiga tatarika	334 400	-	842 000	1 318 000	1 915 000
Ovis ammon	17 954	18 465	18 863	19 730	20 316
Species of International Importance: Cervus elaphus bactrianus,	878	914	976	1 052	1 147
Bustard-beauty	9 854	11 767	12 030	14 405	15 337
Most important species: Endemic species: Gazella subgutturosa	14 391	14 656	14 894	15 089	15 411
Other species: Kulan/Equus hemionus	4 197	4 255	4 337	4 413	4 493

11.6 Main indicators for hunting*

thousand ha

	2019	2020	2021	2022	2023
Total area of hunting grounds	180 758.8	273 365.9	273 365.9	273 365.9	273 365.9
Area of the fixed hunting lands for hunting	111 269.0	187 264	187 264.9	187 264.9	108 532.6
Area of fixed hunting grounds covered by on-farm hunting	101 413.1	970 017	970 017	970 017	-
Area of hunting grounds, where the number of wild animals is recorded	119 468.6	117 658	117 658	117 658	117 658
Ungulates, fur-bearing animals and feathered game, heads were extracted*	498 432.0	478 236	490 091	489 090	474 081
Ungulata	7 778.0	7 125	7 812	7 715	7 324
Fur animal	128 990.0	132 665	142 413	143 561	141 352
Feathered game	619 458.0	598 360	602 378	598 370	596 281

* Data has been provided by the Forestry and wildlife Committee under the Ministry of Ecology 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

	2019	2020	2021	2022	2023
Income from hunting activities – total, thousand tenge	1 105 694.3	1 890 081	1 205 112	343 729	385 191.7
of them:					
from a foreign hunter	141 270.2	699 983.7	699 932.7	63 698	95 020.8
from the sale of permits to citizens for hunting in fixed hunting grounds	1 081 981.3	981 981.3	1 102 734	967 767	290 170.9
from services rendered to citizens during the production of hunting payments to the budget for the use of wildlife were transferred	97 706.2	71 728.5	86 307	-	-
	201 412.1	699 932	711 527	343 729	385 191.7

12. Energy

12.1 Total primary energy supply

ktoe

	2019	2020	2021	2022	2023
Production of energy	166 941	159 030	157 399	160 265	162 923
Imports of energy	15 592	13 026	3 858	2 718	3 500
Exports of energy	-108 832	-105 539	-94 241	-89 800	-89 849
International marine and aviation bunkers	-639	-328	-505	-465	-527
Stock changes	114	-442	2 167	-1 349	-2 670
Total primary energy supply	73 176	65 748	68 679	71 369	73 378
of which					
Coal	34 473	32 613	33 533	35 986	36 416
Crude oil	22 729	17 085	20 548	21 572	18 871
Oil products	- 5 177	-5 164	-3 434	-5 581	-2 972
Natural gas	20 122	20 173	16 966	18 069	19 606
Hydropower	859	831	792	791	757
Geothermal and solar energy, etc.	132	217	290	363	487
Biofuels and waste	79	58	32	44	35
Electricity	-42	-65	-49	125	178
Heat	...	...	...	...	...

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

million toe

	2019	2020	2021	2022*	2023
Total primary fuel and energy consumption	73.2	65.7	68.7	69.9	73.4
including the main sectors of the economy:					
Agriculture, forestry and fisheries	0.9	...	...	1.1	0.8
Industry	13.1	...	...	12.3	11.4
Transport and warehousing	5.9	...	...	8.6	10.1
Accommodation and food services	4.6	...	...	...	...

12.3 Final energy consumption

ktoe

	2019	2020	2021	2022	2023
Total final energy consumption	38 327.6	40 331.9	43 261.7	43 402.4	43 432.5
Industry	13 137.1	12 558.8	13 107.4	12 251.4	11 449.1
Transport	5 914.7	7 443.5	8 045.7	8 608.9	10 060.1
Households	11 856.4	13 490.2	14 713.3	13 388.2	13 897.6
Services sector	4 606.7	3 972.2	5 529.9	6 930.4	5 975.2
Agriculture, forestry and fishery	871.9	832.9	982.4	1 069.2	781.1
Other activity	1 671.9	1 671.9	73.7	...	...
Non-energy use of energy	268.9	362.4	809.3	1 154.4	1 269.5

* Preliminary data. The final data will be generated at the end of 2024.

12.4 GDP energy intensity*

mln. kW h

	2019	2020	2021	2022	2023
Energy intensity of GDP, tne/thousand us dollars in 2015 prices	0.347	0.319	0.320	0.315	0.316

* Preliminary data. The final data will be generated at the end of 2024.

12.5 Production of electricity

mln. kW h

	2019	2020	2021	2022	2023
Republic of Kazakhstan	106 483.2	108 628.4	115 079.2	113 453.2	113 585.5
Abay	1 861.9	1 845.5	1 754.6	1 778.4	2 110.9
Akmola	1 080.6	1 312.1	1 529.9	1 308.0	1 869.6
Aktobe	4 176.6	4 102.9	4 042.7	3 925.8	4 344.0

Continuation

	2019	2020	2021	2022	2023
Almaty	3 222.9	3 375.7	3 092.8	3 430.5	3 506.5
Atyrau	6 113.3	6 567.5	7 356.8	7 523.0	7 334.7
Batys Kazakhstan	2 048.7	2 162.0	2 411.8	2 317.9	2 252.4
Zhambyl	2 393.9	2 545.3	3 229.9	4 899.3	4 356.5
Zhetisu	520.3	467.6	492.5	576.6	840.3
Karagandy	13 804.4	13 704.6	13 466.7	11 995.2	12 229.3
Kostanay	945.0	1 082.9	995.0	1 066.7	1 087.1
Kyzylorda	1 555.7	1 770.6	1 781.3	1 832.9	1 646.7
Mangystau	5 179.5	4 748.8	4 843.8	4 785.5	5 050.8
Pavlodar	42 731.5	44 340.2	49 916.9	49 090.6	48 324.7
Soltustik Kazakhstan	3 494.4	3 355.0	2 724.5	1 625.9	2 328.8
Turkistan	522.6	766.6	802.5	944.8	1 004.5
Ulytau	1 659.1	1 510.8	1 274.8	1 193.7	925.2
Shygys Kazakhstan	7 826.1	7 636.3	7 497.1	7 049.0	6 314.6
Astana city	3 400.5	3 321.8	3 901.4	4 070.2	3 990.7
Almaty city	3 250.5	3 230.5	3 085.4	3 144.1	3 172.1
Shymkent city	695.4	781.7	878.8	894.9	896.2

12.6 Electricity generation by renewable energy sources

1000 kWh

	2019	2020	2021	2022	2023
Electricity production, taking into account small hydroelectric power plants, total	106 878.0	110 890.3	115 079.2	113 552.1	113 585.5
Of which, generated by renewable energy sources					
produced by small hydroelectric power plants	459.3	558.1	602.2	817.9	949.1
produced by wind farms	707.1	1 028.7	1 747.5	2 318.7	3 786.4
produced by solar power plants	830.8	1 490.4	1 629.1	1 899.6	1 872.8
using biogas	5.0	6.5	2.6	2.9	5.1

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

in percent

	2019	2020	2021	2022	2023
The share of electricity generated from renewable energy sources in the total amount of electricity generated	10.79	10.99	10.94	11.82	12.74
including by type of RES					
hydroelectric power stations	9.4	8.7	8.0	8.1	7.8
wind farms	0.7	0.9	1.5	2.0	3.3
solar power plants	0.8	1.3	1.4	1.7	1.6
biogas use	0.0	0.0	0.0	0.0	0.0
of the total volume of electricity generated by RES					
hydroelectric power stations	86.6	79.3	73.2	68.6	60.9
wind farms	6.1	8.4	13.9	17.3	26.2
solar power plants	7.2	12.2	12.9	14.2	12.9
biogas use	0.0	0.1	0.0	0.0	0.0

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

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

at the end of the period

	2019	2020	2021	2022	2023
Steam coal, tenge / ton	4 862	5 242	5 664	5 575	9 057
Crude oil (natural mixture of hydrocarbons), including oil derived from bituminous minerals, tenge / ton	65 089	41 907	81 909	95 025	107 076
Natural gas (natural) in a gaseous state, tenge / thousand cube m	14 044	16 614	14 031	18 878	24 145

Continuation

	2019	2020	2021	2022	2023
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	135 348	118 865	152 046	141 593	165 599
Gas oils (diesel fuel), tenge / ton	169 245	152 732	174 724	168 351	219 427
Fuel oil, tenge / ton	88 817	56 649	103 710	109 838	118 149
Electricity, taking into account the services for its distribution, tenge / 1 000 kWh	8 294	9 292	11 144	12 377	15 878

12.9 Average prices and tariffs for consumer goods and services

at the end of the period

	2019	2020	2021	2022	2023
Gas transported through distribution networks					
natural	19	19	26.36	26.76	30.16
liquefied	155	154	162.16	166.82	176.31
LPG, tenge / 50 liter bottle	2 680	2 853	4 487	3 524	3 866
Electricity depending on the volume of consumption, for the population using electric stoves					
1st level, tenge / 100 kW hour	1 123	1 199	1 452	1 569	1 903
2nd level, tenge / 100 kW hour	1 474	1 575	1 885	2 059	2 503
3rd level, tenge / 100 kW hour	1 818	1 943	2 347	2 558	3 103
Electricity depending on the volume of consumption, for the population not using electric stoves					
1st level, tenge / 100 kW hour	1 140	1 217	1 475	1 569	1 928
2nd level, tenge / 100 kW hour	1 473	1 577	1 902	2 052	2 519
3rd level, tenge / 100 kW hour	1 817	1 946	2 369	2 550	3 124
AI-92 gasoline, tenge / liter	147	151	179.8	179	203
AI-95 gasoline, 96, tenge / liter	170	171	208.5	212	254
AI-98 gasoline, tenge / liter	188	190	231.2	233	284
Diesel fuel					
Summer, tenge / liter	193	183	243	239	291
Winter, tenge / liter	275	247	346	...	561

13. International comparisons

13.1 The main socio-economic indicators of the CIS countries in 2023*

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

	Kazakhstan	Azerbaijan	Armenia	Belarus
Population size at the beginning of 2023, million ppl	20.0	10.1	3.0	9.2
Percent of urban population	62.2	54.6	63.8	78.4
Percent of rural population	37.8	45.4	36.2	21.6
Life expectancy at birth, number of years		76.0	75.11	...
Infant mortality rate, per 1 000 live births	7.67	7.81	6.6	...
Unemployment rate, percent	4.7	5.5	12.6	3.5
Number of doctors per 10 000 population	40.6	32.41	50.61	53.2
Crime rate per 100 000 population	705	363	1363	930
State budget expenditures on education, as a percent of GDP		3.4	1.9	...
State budget expenditures on health care, as a percent of GDP		1.4	1.5	...
Index of physical volume of GDP, 2023 as a percent of 2006	194	193	...	...
Index of physical volume of GDP, 2023 as a percent of 1991	274	290	162	120

Continuation

	Kyrgyzstan	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Population size at the beginning of 2023, million ppl	7.0	2.54	146.4	10.1	7.13	36.0	...
Percent of urban population	34.9	43.0	74.9	28.8	...	51.0	...
Percent of rural population	65.1	57.0	25.1	71.2	...	49.1	...
Life expectancy at birth, number of years	71.91	71.9	72.7	76.31	...	74.31	...
Infant mortality rate, per 1 000 live births	14.0	10.0	4.2	...	...	8.5	...
Unemployment rate, percent	4.91	4.6	3.2	6.97	4.71	6.8	...
Number of doctors per 10 000 population	18.9	50.8	50.8	21.45	...	27.91	...
Crime rate per 100 000 population	591	960	1331	209	...	286	...
State budget expenditures on education, as a percent of GDP	6.1	6.3	...	5.4	...	5.7	...
State budget expenditures on health care, as a percent of GDP	2.4	5.3	...	2.5	...	2.9	...
Index of physical volume of GDP, 2023 as a percent of 2006	206	...	...	...	391	297	976
Index of physical volume of GDP, 2023 as a percent of 1991	184	117	118	154	...	408	151

*Note: Since December 2022, the CIS Statistics Committee does not have data for Ukraine; until December 2022, data is provided from the official website of the country's national statistical service; for Turkmenistan - from the websites of government organizations of the country.

13.2 Number of births, deaths and natural population growth

thousand people

	Kazakhstan	Azerbaijan	Armenia	Belarus	Kyrgyzstan
Number of births					
2019	402	141	36	88	173
2020	427	126	37	...	158
2021	446	112	37	...	150
2022	404	123	37	...	150
2023	388	113	36	...	146
Number of deaths					
2019	133	56	26	120	33
2020	161	76	36	...	40
2021	182	77	34	...	39

Continuation						
	Kazakhstan	Azerbaijan	Armenia	Belarus	Kyrgyzstan	
2022	134	61	27	...	31	
2023	131	60	24	...	30	
Natural increase, decrease (-)						
2019	269	85	10	-32	140	
2020	265	51	0.1	...	118	
2021	264	35	3	...	111	
2022	270	62	10	...	119	
2023	258	53	12	...	116	

Continuation						
	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Number of births						
2019	32	1 481	...	...	815	309
2020	31	1 436	...	...	853	293
2021	29	1 398	...	...	905	272
2022	29	1 304	...	...	932	...
2023	24	1 264	...	...	962	...
Number of deaths						
2019	36	1 798	...	...	154	581
2020	41	2 124	...	...	176	617
2021	45	2 442	...	...	174	714
2022	45	1 899	...	...	172	...
2023	34	1 764	...	...	173	...
Natural increase, decrease (-)						
2019	-4	-317	...	...	661	-272
2020	-11	-689	...	...	666	-323
2021	-16	-1044	...	...	731	-442
2022	-16	-595	...	...	760	...
2023	-10	-500	...	...	789	...

13.3 General birth, death and natural population rates

per 1000 population						
	Kazakhstan	Azerbaijan	Armenia	Belarus	Kyrgyzstan	
Number of births						
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	
2023	19.5	11.1	12.3	...	20.6	
Number of deaths						
2019	7.2	5.6	8.8	12.8	5.2	
2020	8.6	7.6	11.9	...	6.1	
2021	9.5	7.7	11.6	...	5.8	
2022	6.8	6.0	9.0	...	4.5	
2023	6.6	5.9	8.2	...	4.4	
Natural increase, decrease (-)						
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	
2023	12.9	5.2	4.1	...	16.2	

Continuation						
	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Number of births						
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	...
2023	9.8	8.6	...	...	26.4	...
Number of deaths						
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	...
2023	13.7	12.1	...	...	4.7	...

Continuation

	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Natural increase, decrease (-)						
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	...
2023	-3.9	-3.5	...	...	21.7	...

13.4 Infant mortality

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

	2019	2020	2021	2022	2023
Kazakhstan	8.4	7.8	8.4	7.7	7.7
Azerbaijan	11.0	9.8	7.5	7.8	18.1
Armenia	6.1	7.4	6.9	6.7	6.6
Belarus	2.4	...	...	...	...
Kyrgyzstan	15.1	14.4	15.2	14.3	14.0
Moldova	8.7	6.9	8.5	8.5	10.0
Russia	4.9	6.5	4.6	4.6	4.2
Tajikistan	...	...	...	...	...
Turkmenistan	...	...	...	...	...
Uzbekistan	9.3	9.3	9.2	8.6	8.5
Ukraine	7.0	6.8	7.2	...	...

13.5 Incidence of malignant neoplasms

number of cases per 100000 population

	2019	2020	2021	2022	2023
Kazakhstan	190	168	190	194	203
Azerbaijan	122	116	129	138	...
Armenia	267	234	...	274	...
Belarus	573	463	502	574	633
Kyrgyzstan	87	82	86	...	86
Moldova	394	326	336	...	435
Russia	436	380	398	426	...
Tajikistan	40	32	33	...	33
Turkmenistan	...	...	...	...	...
Uzbekistan	...	...	249	...	228
Ukraine	...	261	...	...	...

13.6 Morbidity of active tuberculosis

number of cases per 100000 population

	2019	2020	2021	2022	2023
Kazakhstan	46	36	36	37	35
Azerbaijan	37	26	25	28	...
Armenia	18	13	...	13	...
Belarus	19	13	13	15	14
Kyrgyzstan	79	54	58	...	54
Moldova	72	43	52	...	61
Russia	41	32	31	31	...
Tajikistan	56	40	40	...	...
Turkmenistan	...	...	...	...	...
Uzbekistan	...	32	35	...	...
Ukraine	60	34	...	...	...

13.7 Number of victims of work-related accidents

per 10000 employees

	2019	2020	2021	2022	2023
Kazakhstan	4.1	3.9	4.1	...	...
Azerbaijan	...	1.5	1.9	...	...
Armenia	3.9	3.4	2.7	3	3.4
Belarus	...	5.0	5.4	...	5.4
Kyrgyzstan	2.5	3.3	4.2	...	2.1
Moldova	8.4	7.0	9.1	...	...
Russia	11.7	10.3	10.8	10	10.0

Continuation

	2019	2020	2021	2022	2023
Tajikistan	1.5	0.7	0.7	...	...
Turkmenistan	...	...	...	...	...
Uzbekistan	4.6	2.9	3.3	3	...
Ukraine	6.0	9.0	17.0	...	...

13.8 Number of deaths from accidents involving work

per 10 000 employees

	2019	2020	2021	2022	2023
Kazakhstan	0.4	0.4	0.3	...	...
Azerbaijan	...	0.3	0.3	...	...
Armenia	0.4	0.4	0.6	0.6	0.7
Belarus	...	0.3	0.3	0.3	0.3
Kyrgyzstan	0.3	0.2	0.4	...	0.2
Moldova	0.6	0.5	0.5	...	...
Russia	0.5	0.5	0.6	0.5	0.5
Tajikistan	0.3	0.2	0.3	...	...
Turkmenistan	...	...	...	...	...
Uzbekistan	1.0	0.6	0.6	0.8	...
Ukraine	0.6	0.5	0.8	...	...

13.9 Average size of pensions in the CIS countries

for December

	2020		2021		2022		2023	
	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	63 937.0	150.8	67 432	158.3	73 902	160.49	81 277	178.4
Azerbaijan, manat	302.2	177.8	331.8	195.2	372.1	218.9	441.3	259.6
Armenia, drams	43 983	84.2	43677	91.0	46 629	118.5	49 605	122.5
Belarus, belarusian rubles	482.6	187.1	514.4	201.9	630.8	230.5	692.5	217.9
Kyrgyzstan, soms	9 616	116.3	10 428	123.0	12 020	140.3	...	...
Moldova, lei	2 104.5	122.3	2 578.5	145.3	3 156.4	164.8	3 676.6	211.2
Russia, rubles	15 059	203.8	15 842	213.2	18 552	263.8	19 637	218.9
Tajikistan, somoni	320.9	28.4	321.4	28.4	337.3	33.1	370.6	33.8
Uzbekistan, soums	848.5 ¹⁾	81.0	963.6 ¹⁾	88.9	1 080.8	96.3	...	...
Ukraine, hryvnia	3 399.3	120.2	...	...	...	...	...	...

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

for December

	2020		2021		2022		2023	
	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	40 441	97.94	43 272	101.57	48 032	104.31	53 076	116.5
Azerbaijan, manat	200	117.6	200	117.6	240	141.2	280	164.7
Armenia, drams	16 000	30.6	16 000	33.3	21 000	53.4	24000	59.3
Belarus, belarusian rubles	350	135.7	378	148.4	462	168.9	509	160.2
Kyrgyzstan, soms	1 780	21.5	1 780	21.0	3 170	37.0	3170	35.6
Moldova, lei	1 144	66.4	2 000	112.7	2 279	118.9	2621	150.6
Russia, rubles	5 686	77.0	6 044	81.4	7 221	102.7	7567	84.4
Tajikistan, somoni	207	18.3	207	18.3	207	20.3	250	22.8
Uzbekistan, soums	513	49.0	565	52.1	633	56.4	725	58.8
Ukraine, hryvnia	1 769	62.6	...	...	...	...	...	...

13.11 Minimum subsistence level in the CIS countries

	2020		2021		2022		2023	
	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	33 015	79,9	37 266	87	43 566	95	48 738	107
Azerbaijan, manat	190	112	196	115	210	124	247	145
Armenia, drams	...	...	...	...	...	...	...	...
Belarus, belarusian rubles	254	103	282	111	...	...	...	...

Continuation

	2020		2021		2022		2023	
	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	5 359	69	6 268	74	7 178	85	7 682	87
Moldova, lei	2 088	121	2 154	122	2 628	139	2 877	158
Russia, rubles	11 312	157	11 653	158	12 654	188	14 375	170
Tajikistan, somoni	...	...	...	...	...	...	...	...
Uzbekistan, soums	...	...	...	...	...	...	...	...
Ukraine, hryvnia	2 078	77	2 250	82	...	...	...	...

13.12 Area of arable land in 2023

	Area of arable land, hectares per 100 population, ha
Kazakhstan	136
Azerbaijan	20
Armenia	15
Belarus	61
Kyrgyzstan*	18
Moldova	...
Russia	...
Tajikistan	8
Turkmenistan	...
Uzbekistan	11
Ukraine	...

13.13 Structure of the acreage of the main types of grain and leguminous crops in 2023

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

	Wheat	Rye	Corn	Barley	Oats	Rice	Other (legumes)
Kazakhstan	78.5	0.1	1.1	14.7	1.2	0.6	3.8
Azerbaijan	52.7	0.0	3.0	37.6	0.5	0.3	1.2
Armenia	56.2	0.2	0.7	31.5	6.7	-	1.0
Belarus	31.8	10.0	11.4	19.0	5.6	-	5.0
Kyrgyzstan	...	...	...	...	...	...	...
Moldova	38.9	0.1	50.4	6.2	0.1	-	3.7
Russia	62.1	1.7	5.6	16.6	3.8	0.4	6.2
Tajikistan	...	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...	...
Uzbekistan	81.6	0.1	4.1	7.0	0.0	2.8	3.7
Ukraine	...	...	...	...	...	...	...

13.14 Gross collection of main crops in 2023

mln. tons

	Grain and leguminous crops	Potatoes	Vegetables and melons
Kazakhstan	17.1	3.9	7.3
Azerbaijan	3.2	1.1	2.3
Armenia	0.3	0.4	0.7
Belarus	7.7	4.0	2.8
Kyrgyzstan	...	...	...
Moldova	3.2	0.2	0.3
Russia	145.0	20.2	15.5
Tajikistan	...	...	...
Turkmenistan	...	...	...
Uzbekistan	8.5	3.6	14.1
Ukraine	...	...	...

13.15 Productivity of grain and leguminous crops

centners per hectare of harvested area

	2019	2020	2021	2022	2023
Kazakhstan	12.3	12.8	10.7	13.8	11.1
Azerbaijan	31.3	30.9	31.9	30.4	32.2
Armenia	16.9	20.5	12.9	21.8	23.5
Belarus	30.4	35.0	29.8	34.5	33.2
Kyrgyzstan	30.9	31.1	22.5	30.9	...

Continuation

	2019	2020	2021	2022	2023
Moldova	37.5	18.7	50.4	20.9	33.5
Russia	26.7	28.6	26.7	33.6	33.10
Tajikistan	30.6	30.8	30.7	33.1	...
Turkmenistan	...	...	...	...	...
Uzbekistan	42.6	41.8	40.9	43.4	47.9
Ukraine	49.1	42.5	53.9	...	...

13.16 Number of cattle

million heads on January 1

	2019	2020	2021	2022	2023
Kazakhstan	7.2	7.4	7.9	8.2	6.6
Azerbaijan	2.7	2.6	2.7	2.6	2.6
Armenia	0.6	0.6	0.6	0.6	0.5
Belarus	4.3	4.3	4.2	4.2	4.2
Kyrgyzstan	1.6	1.7	1.7	1.8	...
Moldova	0.1	0.1	0.1	0.1	...
Russia	18.1	18.0	17.6	17.5	17.1
Tajikistan	2.4	2.4	2.5	2.6	2.7
Turkmenistan	...	...	...	...	...
Uzbekistan	12.8	12.9	13.2	13.5	...
Ukraine	3.1	2.9	2.2	...	...

13.17 Production of main livestock products in 2023

	Meat (slaughter weight)		Milk		Eggs	
	thousand tons	per capita kg	thousand tons	per capita kg	million pieces	per capita pieces
Kazakhstan	1 120.0	56	3 472.9	175	4 420.6	222
Azerbaijan	379.7	37	2 284.0	225	2 188.2	215
Armenia	100.3	34	591.6	200	732.2	247
Belarus	1 273.3	139	8 331.2	908	3 438.8	375
Kyrgyzstan	...	...	...	...	...	...
Moldova	...	...	...	...	...	...
Russia	11 590.5	...	33 797.9	...	46 589.2	...
Tajikistan	239.2	19	1 118.5	110	1 223.7	120
Turkmenistan	...	...	...	...	...	...
Uzbekistan	2 833.2	...	11 968.7	329	8 487.4	233
Ukraine	...	...	...	...	...	...

13.18 Water intake, water use and discharge of polluted wastewater in 2023

	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	24 366	20 480	5 412	5
Azerbaijan	12 806	9 772	...	229
Armenia	3 072	2 422	862	750
Belarus	1 435	1 278	2	0
Kyrgyzstan	8 873	6 028	2	2
Moldova	845	788	8	2
Russia	56 531	47 874	11 326	2 150
Tajikistan	...	...	...	...
Turkmenistan	26 929	17 590	5 873.5	...
Uzbekistan	...	...	...	...
Ukraine	...	...	...	...

13.19 Emissions of harmful substances into the atmosphere from stationary sources in 2023

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	2 257.5	436.3	1 821.2	798.5	436.7	303.7
Azerbaijan	144	3.7	141	1	38	26

Continuation

	Emitted harmful substances	Including		From the total number of gaseous and liquid		
		solid	gaseous and liquid	sulfurous anhydride	carbon monoxide	nitrogen oxides
Armenia	106	9	97	1	4	2
Belarus	490	28	462	57	76	44
Kyrgyzstan	62	24	38	16	12	5
Moldova	17.5	2.2	15.3	1.0	5.1	1.6
Russia	16 952	1 705	18 247	3 266	1 937	5 060
Tajikistan	66	35	31	9	17	2
Turkmenistan	...	...	...	...	...	...
Uzbekistan	874	167	707	...	74	14
Ukraine	...	...	...	...	...	...

Methodological notes

Environment - is 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.

Environmental protection – system of the 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 percent.

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 deaths of children under 1 year per 1 000 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 – equipping 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 equipped with: water pipes, 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-factory turnover. 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 SGW 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

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

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, ore 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.

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

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

MPC_i - 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.

Responsible for release:
Agency for Strategic planning and reforms
of the Republic of Kazakhstan
Bureau of National statistics
Department of production and environment statistics
Tel. +7 7172 749311, 749307
Director of the Department
Issabekova A.Z.
Tel. +7 7172 749056