



Ministry of National Economy
of the Republic of Kazakhstan
Committee on Statistics

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Environmental Protection and Sustainable Development of Kazakhstan

2014-2018



Nur-Sultan 2019

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Committee on Statistics**

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Statistical compilation

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The chief editor N.S. Aidapkelov

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Conventional symbols:

- - it is absent

0,0 - a small quantity

x - data are confidential

... - data are absent

The small discrepancies between total and the sum of summand in some cases can be explained by rounding of data.

Foreword

The statistical compilation presents information describing the dynamics of the state of the environment, the availability and use of natural resources. In order to more fully characterize the state of the environment, the collection publishes materials on the protection of atmospheric air, water, land, forestry, hunting resources, the formation and use of production and consumption waste, specially protected natural territories, information on environmental protection costs for 2014-2018.

Statistical compilation prepared by the Committee on Statistics of the Ministry of National Economy 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 Energy Republic of Kazakhstan, Committee for Environmental Regulation and Control Ministry of Energy of the Republic of Kazakhstan, the Ministry of Health of the Republic of Kazakhstan, the Committee for Forestry and Fauna of the Ministry of Agriculture, Water Resources Committee of the Ministry of Agriculture, by the Management Committee th land of the Ministry of Agriculture of the Republic of Kazakhstan, Republican State Enterprise “Kazhydromet” the Ministry of Energy of the Republic of Kazakhstan , JSC “ Zhasyl Damu”).

The compilation presents data on the 36 environmental indicators recommended by the UNECE, and on the “green growth” indicators recommended by the OECD.

The collection 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 – Nur-Sultan city

The territory of the republic – 2724,9 thousand square km

The population density is 6,8 people per 1 square. km

The population size as of 01.01.2019 – 18395,6 thousand people

The natural population growth – 14,63 people per 1000 inhabitants

The largest mountain ranges, m:

Khan-Tengri Peak (Saryzhaz Ridge) – 6995

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

Talgar Peak (Ilei Alatau) – 4979

Mount Ishanbulak (Kungei Alatau) – 4653

Mount Besbaskan (Zhetysu Alatau) – 4622

Mount Metallurg (Ileysky Alatau) – 4600

Muztau Peak (Altai Mountains, Katyn Ridge) – 4506

Manas Peak (Talas Ridge) – 4482

Mountain Ashutor (Teriskei Alatau) – 4427

Mountain Muztau (Zhetysu Alatau) – 4370

Komsomol Peak (Ilei Alatau) - 4330

The largest lakes, thous. km

Caspian Sea – 374

Aral Sea (Central Asia) - 41.0

Balkhash - 18.2

The length of the borders of the republic, km

Total - 13394

including:

with the Russian Federation – 7591

with the Republic of Uzbekistan – 2354

with the Kyrgyz Republic – 1241

with Turkmenistan – 426

with China – 1782

over the Caspian Sea – 600

On the territory of the republic flows

85022 rivers and temporary streams

The longest rivers, km

Irtysh – 4248

length within the republic – 1698

Esil – 2450

length within the republic – 1400

Zhaiyk – 2428

length within the republic – 1082

Syrdarya – 2219

length within the republic – 1400

The largest region by territory -

Karagandy region - 428 thousand square km

The largest city in terms of population is

Almaty - 1855 thousand people

2. Social factors

2.1 Main socio-demographic indicators

	2014	2015	2016	2017	2018
Total land (territory) ¹⁾ thousand square km	2 724,9	2 724,9	2 724,9	2 724,9	2 724,9
Population at the end of the year, thousand people	17 415,7	17 669,9	17 918,2	18 157,3	18 395,6
Population density, people per 1 square km	6,4	6,5	6,6	6,7	6,8
Percentage of urban population	56,5	56,8	57,2	57,4	58,2
Percentage of rural population	43,5	43,2	42,8	42,6	41,8
Life expectancy at birth, years	71,44	71,97	72,41	72,95	73,15
Infant mortality rate, per 1000 live births	9,83	9,41	8,59	7,93	8,03
Number of doctors per 10000 population ²⁾	39,5	39,5	41,6	39,7	39,6
Employment rate, percent	95,0	94,9	95,0	95,1	95,1
Unemployment rate, percent	5,0	5,1	5,0	4,9	4,9
Real wage in percentage of previous year	103,9	97,7	98,9	98,3	101,7
Percentage of the population with incomes below the subsistence minimum	2,9	2,6	2,5	2,7	4,3
Percentage of the population with incomes below the cost of the food basket	0,1	0,1	0,1	0,1	0,1
The crime rate per 10000 people	198	221	203	175	159

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
2014	399 309	193 553	205 756	132 287	60 082	72 205	267 022	133 471	133 551
2015	398 458	193 167	205 291	130 811	59 588	71 223	267 647	133 579	134 068
2016	400 694	193 471	207 223	131 231	60 153	71 078	269 463	133 318	136 145
2017	390 262	188 506	201 756	129 009	59 905	69 104	261 253	128 601	132 652
2018	397 799	192 575	205 224	130 448	60 110	70 338	267 351	132 465	134 886

2.3 Natural movement of the population per 1000 people

	Births			Deaths			Natural increase		
	Total	including		Total	including		Total	including	
		female	male		female	male		female	male
2014	23,1	21,7	24,6	7,7	6,7	8,7	15,5	14,1	16,0
2015	22,7	21,3	24,2	7,5	6,6	8,4	15,3	14,7	15,8
2016	22,5	21,1	24,1	7,4	6,6	8,3	15,2	14,5	15,8
2017	21,6	20,3	23,1	7,2	6,4	7,9	14,5	13,8	15,2
2018	21,8	20,4	23,2	7,1	6,4	8,0	14,6	14,1	15,2

2.4 Interstate migration

people

	2014			2015		
	arrived	left	migration balance	arrived	left	migration balance
Total	16 784	28 946	-12 162	16 581	30 047	-13 466
including:						
CIS country	14 833	26 098	-11 265	13 966	26 992	-13 026
Azerbaijan	234	36	198	194	20	174
Armenia	96	7	89	200	3	197
Belarus	201	1 605	-1 404	175	605	-430
Kyrgyzstan	932	139	793	695	164	531
Moldova	29	9	20	13	10	3
Russia	3 711	23 859	-20 148	3 905	25 682	-21 777
Tajikistan	197	10	187	210	9	201
Turkmenistan	565	5	560	765	3	762
Uzbekistan	8 725	244	8 481	7 592	364	7 228
Ukraine	143	184	-41	217	132	85
Other country	1 951	2 848	-897	2 615	3 055	-440
Germany	176	2 179	-2 003	222	2 196	-1 974
Israel	19	91	-72	21	84	-63
Canada	19	112	-93	20	121	-101
Mongolia	271	9	262	223	44	179
Turkey	200	15	185	233	35	198
USA	31	198	-167	64	265	-201
Greece	16	10	6	9	6	3
Latvia	3	7	-4	4	3	1
Lithuania	20	4	16	9	8	1
Estonia	1	-	1	2	6	-4
Georgia	77	9	68	117	12	105
Other countries	1 100	196	904	1 691	275	1 416
country not specified	18	18	-	-	-	-

Continuation

	2016			2017			2018		
	arrived	left	migration balance	arrived	left	migration balance	arrived	left	migration balance
Total	13 755	34 900	-21 145	15 595	37 725	-22 130	12 747	41 868	-29 121
including:									
CIS country	10 644	31 238	-20 594	11 292	33 718	-22 426	10 055	37 736	-27 681
Azerbaijan	186	37	149	194	24	170	269	28	241
Armenia	101	2	99	70	1	69	72	4	68
Belarus	155	399	-244	123	289	-166	113	343	-230
Kyrgyzstan	590	144	446	662	195	467	497	204	293
Moldova	13	5	8	7	9	-2	13	14	-1
Russia	3 723	30 277	-26 554	4 346	32 874	-28 528	3 901	36 778	-32 877
Tajikistan	185	45	140	245	20	225	233	10	223
Turkmenistan	387	3	384	382	2	380	366	1	365
Uzbekistan	5 028	208	4 820	4 972	197	4 775	4 385	245	4 140
Ukraine	276	118	158	291	107	184	206	109	97
Other country	3 111	3 662	-551	4 303	4 007	296	2 692	4 132	-1 440
Germany	214	2 679	-2 465	225	2 966	-2 741	213	2 685	-2 472

Continuation

	2016			2017			2018		
	arrived	left	migration balance	arrived	left	migration balance	arrived	left	migration balance
Israel	14	125	-111	19	124	-105	25	137	-112
Canada	20	179	-159	34	126	-92	16	128	-112
Mongolia	273	16	257	293	8	285	255	16	239
Turkey	98	42	56	102	57	45	143	52	91
USA	40	232	-192	101	285	-184	106	338	-232
Greece	16	20	-4	12	11	1	6	10	-4
Latvia	1	4	-3	3	6	-3	4	1	3
Lithuania	4	6	-2	11	5	6	1	7	-6
Estonia	0	2	-2	2	1	1	0	2	-2
Georgia	65	8	57	69	3	66	50	9	41
Other countries	2 366	349	2 017	3 432	415	3 017	1 873	747	1 126
country not specified	-	-	-	-	-	-	-	-	-

2.5 Average life expectancy at birth in 2018

number of years

	Total population	Female	Male
Republic of Kazakhstan	73,15	77,19	68,84
Akmola	71,60	75,99	67,12
Aktobe	73,45	77,49	69,06
Almaty	73,44	77,00	69,89
Atyrau	73,13	76,98	69,00
Batys Kazakhstan	72,43	77,23	67,49
Zhambyl	72,79	76,97	68,49
Karagandy	71,70	76,22	66,87
Kostanai	72,36	76,87	67,64
Kyzylorda	72,98	76,84	69,22
Mangystau	73,73	77,52	69,75
Pavlodar	72,31	77,04	67,26
Soltustik Kazakhstan	71,14	76,16	66,06
Turkistan	72,95	76,47	69,49
Shygys Kazakhstan	71,97	76,82	67,02
Nur-Sultan city	76,21	79,88	71,87
Almaty city	75,54	78,53	71,84
Shymkent city	74,65	77,99	70,85

2.6 Mortality rates by cause in 2018

Classes of causes of death	Number of deaths, people			Mortality rate, per 100,000 people		
	total	including		total female	male	including
		female	male			
Total	130 448	60 110	70 338	713,7	637,8	794,6
including:						
circulatory system diseases	30 573	13 153	17 420	167,3	139,6	196,8
accidents, poisoning and injuries	12 171	2 739	9 432	66,6	29,1	106,6

Continuation

Classes of causes of death	Number of deaths, people			Mortality rate, per 100,000 people		
	total	including		total female	male	including
		female	male			
neoplasms	15 150	7 002	8 148	82,9	74,3	92,0
respiratory diseases	15 885	6 720	9 165	86,9	71,3	103,5
diseases of the digestive system	11 469	5 011	6 458	62,8	53,2	73,0
infectious and parasitic diseases	1 327	466	861	7,3	4,9	9,7
other diseases	43 873	25 019	18 854	240,1	265,5	213,0

2.7 Maternal mortality

	Number of deaths of pregnant women, pregnant women, postpartum women, people	Per 100,000 live births
2014	61	15,7
2015	66	15,8
2016	62	15,7
2017	58	14,8
2018	56	13,9

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

2.8 Infant mortality

Number of dead children under 1 per 1000 live births

	Mortality rate		
	total	female	male
2014	9,8	8,9	10,8
2015	9,4	8,3	10,5
2016	8,6	7,6	9,5
2017	7,9	7,1	8,7
2018	8,0	6,7	9,3

2.9 Mortality of children under 5 years old

per 1000 born

	Mortality rate		
	total	female	male
2014	12,4	11,1	13,6
2015	12,0	10,6	13,4
2016	10,8	9,5	12,1
2017	10,2	9,2	11,3
2018	10,1	8,5	11,6

2.10 Morbidity by disease groups*

	2014	2015	2016	2017	2018
The number of registered diseases with the first established diagnosis - total, thousand cases	9 007,1	9 195,0	10 102,3	10 433,2	10 449,7
including:					
infectious and parasitic diseases	268,9	250,5	240,0	244,1	244,0
neoplasms	86,2	98,8	110,6	121,2	136,7
endocrine, nutritional and metabolic disorders	159,2	153,7	170,1	176,1	174,8
diseases of the blood, blood-forming organs and certain disorders involving the immune mechanism	369,2	344,4	347,9	351,7	325,5
mental and behavioral disorders	10,2	9,7	10,8	9,8	10,0
mental and behavioral disorders associated with the use of psychoactive substances	41,8	38,0	27,9	19,6	19,3
nervous system diseases	325,2	328,3	336,6	352,2	352,2
diseases of the eye and its adnexa	406,1	414,7	438,7	448,2	449,6
diseases of the ear and mastoid process	252,3	273,4	286,9	293,6	290,5
circulatory system diseases	414,0	426,3	461,3	468,2	503,6
respiratory diseases	3 729,4	3 863,0	4 396,2	4 476,9	4 445,1
diseases of the digestive system	635,9	673,7	752,2	814,9	789,3
diseases of the genitourinary system	591,4	675,9	753,6	763,2	817,3
complications of pregnancy, childbirth and the postpartum period	230,3	169,7	155,9	228,3	251,5
diseases of the skin and subcutaneous tissue	469,1	450,0	486,9	513,9	531,6
diseases of the musculoskeletal system and connective tissue	259,9	286,3	335,3	364,8	387,0
congenital anomalies (malformations), deformities and chromosomal abnormalities	38,7	52,8	55,9	70,4	80,2
symptoms, signs and abnormalities	33,0	34,6	43,4	37,4	30,8
Injuries, poisoning and some other consequences of external causes	586,4	556,2	592,7	593,6	543,7

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

2.11 The incidence of individual infectious and parasitic diseases*

	thousand cases				
	2014	2015	2016	2017	2018
Acute intestinal infections	13,2	13,1	12,1	11,8	12,0
Typhoid and paratyphoid A, B, C	-	0,001	0,001	0,001	-
Salmonella infections	1,4	1,4	1,2	1,1	1,3
Viral hepatitis, total	1,0	0,6	0,5	0,7	1,1
Influenza and acute viral infections	766,5	709,0	773,7	679,1	602,4
Scarlet fever	2,2	-	1,87	2,7	2,9
Whooping cough	0,023	0,074	0,032	0,044	0,097
Tetanus	-	0,002	0,002	0,003	0,006
Measles	0,3	2,3	0,1	0,002	0,576

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

2.12 The incidence of individual infectious and parasitic diseases per 100,000 population*

	thousand cases				
	2014	2015	2016	2017	2018
Acute intestinal infections	76,2	75,9	69,1	65,5	65,7
Typhoid and paratyphoid A, B, C	-	0,01	0,01	0,01	-
Salmonella infections	8,1	7,9	6,7	6,1	7,2
Viral hepatitis, total	5,9	3,3	3,1	4,2	5,9
Influenza and acute viral infections	4 433,4	4 043,4	4 380,6	3 764,7	3 339,7
Scarlet fever	12,7	0,01	10,7	15,2	16,2
Tetanus	-	0,01	0,01	0,02	0,03
Measles	1,9	13,5	0,7	0,01	3,2

*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

2.13 Morbidity related to the transmission by water *

	thousand cases				
	2014	2015	2016	2017	2018
Cholera					
Republic of Kazakhstan	-	1	-	5	-
Almaty city	-	1	-	5	-
Typhoid fever					
Republic of Kazakhstan	1	-	1	1	-
Almaty	-	-	1	1	-
Zhambyl	1	-	-	-	-
Nur-Sultan city	-	-	-	-	-
Almaty city	-	-	-	-	-
Acute intestinal infection					
Republic of Kazakhstan	217	72	78	106	-
Aktobe	7	-	-	43	-
Almaty	130	-	-	-	-
Atyrau	-	-	8	-	-
Batys Kazakhstan	3	-	-	-	-
Zhambyl	-	-	4	-	-
Karagandy	-	-	-	-	-
Kostanai	7	7	4	2	-
Kyzylorda	59	50	61	53	-
Mangystau	1	-	-	-	-
Pavlodar	-	3	-	2	-
Soltustikkazakhstan	-	1	-	1-	-
Turkistan	-	-	-	-	-
Shygyz Kazakhstan	-	-	-	-	-
Nur-Sultan city	10	11	1	5-	-
Almaty city	-	-	-	-	-

*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

2.14 Incidence transmitted by airborne droplets *

	number of cases				
	2014	2015	2016	2017	2018
Acute respiratory viral infection					
Republic of Kazakhstan	765 546	707 781	771 529	677 248	600 202
Akmola	34 300	40 011	30 458	32 610	23 793
Aktobe	16 738	12 477	9 264	7 766	7 283
Almaty	45 199	40 686	62 270	43 903	41 300
Atyrau	3 570	2 653	2 930	4 659	6 376
Batys Kazakhstan	45 416	40 626	35 942	27 177	25 243
Zhambyl	26 536	23 912	22 975	19 880	17 069
Karagandy	69 434	68 910	66 455	61 728	57 566
Kostanai	50 534	62 844	82 152	87 764	65 434
Kyzylorda	20 701	20 285	20 438	14 060	15 682
Mangystau	30 321	29 864	25 787	21 730	19 109
Ontustik Kazakhstan	17 203	17 080	20 508	-	-
Pavlodar	46 181	35 317	37 279	27 296	25 000
Soltustik Kazakhstan	32 601	33 672	36 992	52 138	42 398
Turkistan	-	-	-	6 655	8 372
Shygys Kazakhstan	130 855	118 401	126 382	98 153	76 616
Nur-Sultan city	50 546	34 476	65 858	70 452	75 386
Almaty city	145 411	126 567	125 839	91 243	81 995
Shymkent city	-	-	-	10 034	11 580
Influenza					
Republic of Kazakhstan	960	1 206	2 185	1 810	2 196
Akmola	50	50	56	130	158
Aktobe	15	65	96	160	106
Almaty	57	62	187	122	182
Atyrau	12	46	30	12	73
Batys Kazakhstan	60	108	121	135	141
Zhambyl	95	63	235	69	182
Karagandy	45	61	96	56	68
Kostanai	26	36	69	50	14
Kyzylorda	58	46	143	31	123
Mangystau	95	65	76	87	154
Ontustik Kazakhstan	38	83	223	-	-
Pavlodar	7	30	30	225	39
Soltustik Kazakhstan	62	117	96	312	206
Turkistan	-	-	-	4	7
Shygys Kazakhstan	129	81	126	123	134
Nur-Sultan city	95	149	332	126	239
Almaty city	116	144	269	85	261
Shymkent city	-	-	-	83	109

*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 Tuberculosis incidence*

	number of cases per 100,000 population				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	66,4	58,5	52,7	52,2	48,2
Akmola	77,6	72,5	70,6	64,9	56,6
Aktobe	68,9	60,8	58,3	57,8	51,6
Almaty	68,1	54,2	53,9	48,2	45,4
Atyrau	84,7	78,6	66,2	63,0	74,8
Batys Kazakhstan	63,8	58,4	48,2	48,1	47,7
Zhambyl	58,9	58,1	54,8	51,5	50,2
Karagandy	71,6	64,6	54,7	51,3	45,6
Kostanai	76,3	65,5	62,1	61,8	58,8
Kyzylorda	76,8	72,3	64,9	59,1	53,5
Mangystau	71,2	64,2	59,2	55,7	53,3
OntustikKazakhstan	56,5	46,4	40,8	51,0	-
Pavlodar	69,9	58,4	54,0	49,1	46,9
Soltustik Kazakhstan	80,2	74,8	72,9	67,0	63,4
Turkistan	-	-	-	-	37,6
Shygys Kazakhstan	71,3	59,9	49,6	53,7	52,3
Nur-Sultan city	60,7	58,6	54,4	53,9	48,2
Almaty city	50,4	45,3	36,7	35,1	35,4
Shymkent city	-	-	-	-	43,1

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

2.16 Tuberculosis mortality

	number of cases per 100,000 population				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	4,93	3,97	3,24	2,99	2,55
Akmola	4,89	4,73	4,06	3,80	1,62
Aktobe	4,54	3,86	3,69	2,47	3,01
Almaty	2,43	1,86	1,53	1,55	1,13
Atyrau	4,35	3,06	2,16	2,28	1,91
Batys Kazakhstan	4,31	3,63	2,35	2,48	2,77
Zhambyl	4,67	3,71	2,88	2,96	2,59
Karagandy	8,22	8,11	6,36	4,13	4,35
Kostanai	5,79	5,44	4,31	3,99	3,77
Kyzylorda	4,29	3,43	3,64	4,11	2,66
Mangystau	5,36	3,24	2,52	3,38	2,69
Ontustik Kazakhstan	3,70	2,84	2,31	2,41	-
Pavlodar	6,36	4,62	2,90	3,70	2,65
Soltustik Kazakhstan	5,23	4,21	3,71	4,64	3,41
Turkistan	-	-	-	-	1,72
Shygys Kazakhstan	8,03	4,87	4,02	4,18	3,19
Nur-Sultan city	3,12	4,06	3,03	1,90	3,03
Almaty city	5,29	3,83	3,59	2,81	2,63
Shymkent city	-	-	-	-	1,73

2.17 Incidence of respiratory diseases*

	number of cases per 100,000 population				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	21 570,7	22 018,8	24 706,1	24 819,6	28 390,7
Akmola	22 163,5	21 055,1	22 571,5	24 710,0	31 729,7
Aktobe	16 804,8	17 277,8	17 504,5	17 681,9	20 300,3
Almaty	27 272,4	27 207,4	35 253,0	35 749,3	37 021,2
Atyrau	10 570,3	10 648,5	11 434,6	11 905,2	16 303,4
Batys Kazakhstan	17 294,3	16 562,5	16 613,3	16 541,0	20 782,3
Zhambyl	22 611,5	26 909,1	30 447,4	29 260,9	30 253,4
Karagandy	22 790,4	21 147,4	21 756,0	20 514,7	25 683,7
Kostanai	19 368,8	20 581,3	24 380,0	26 916,3	29 888,9
Kyzylorda	16 498,6	16 836,9	17 606,0	15 360,8	18 460,6
Mangystau	15 499,6	15 304,1	19 404,7	19 361,2	22 699,6
Ontustik Kazakhstan	13 900,1	16 454,4	15 810,5	16 752,6	-
Pavlodar	36 080,9	33 639,8	38 459,1	39 772,1	40 286,4
Soltustik Kazakhstan	21 716,3	21 724,3	22 108,8	22 037,3	26 356,1
Turkistan					18 273,1
Shygyz Kazakhstan	25 826,1	26 101,7	27 031,7	28 402,7	31 385,2
Nur-Sultan city	22 503,9	22 907,9	33 066,7	30 475,8	34 247,6
Almaty city	28 698,2	28 268,8	31 881,2	30 823,0	37 510,4
Shymkent city	-	-	-	-	25 055,1

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

2.18 Mortality from respiratory diseases

	number of cases per 100,000 population				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	96,6	104,5	102,1	92,2	86,9
Akmola	86,4	126,1	105,6	100,9	85,9
Aktobe	108,4	96,3	103,9	100,2	103,6
Almaty	128,2	145,6	147,9	127,0	120,2
Atyrau	82,5	80,8	89,0	78,3	80,5
Batys Kazakhstan	151,3	127,7	126,2	108,4	112,83
Zhambyl	71,8	65,6	77,2	77,2	88,0
Karagandy	80,1	103,1	99,1	101,3	94,0
Kostanai	195,5	237,7	224,7	191,5	170,9
Kyzylorda	74,1	65,2	79,7	79,6	67,2
Mangystau	25,8	41,2	38,3	36,5	47,8
Ontustik Kazakhstan	58,1	50,0	45,8	40,5	-
Pavlodar	110,4	110,9	111,1	108,7	106,6
Soltustik Kazakhstan	223,6	184,0	201,4	191,6	173,57
Turkistan	-	-	-	-	40,1
Shygyz Kazakhstan	144,6	181,3	178,6	149,1	118,4
Nur-Sultan city	30,9	42,5	36,7	31,3	30,4
Almaty city	58,3	78,3	62,8	60,1	63,9
Shymkent city	-	-	-	-	36,9

2.19 Incidence of malignant neoplasms*

	number of cases per 100,000 population				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	198,7	207,7	206,9	197,9	195,7
Akmola	261,8	244,0	249,2	254,7	244,2
Aktobe	164,9	177,0	171,7	187,0	207,7
Almaty	169,3	182,5	137,5	133,7	136,3
Atyrau	147,2	148,3	138,6	137,8	142,8
Batys Kazakhstan	228,9	232,0	226,7	215,5	222,3
Zhambyl	141,0	142,5	143,2	143,0	140,9
Karagandy	255,4	274,2	288,4	272,3	275,1
Kostanai	293,5	295,3	296,5	290,7	300,6
Kyzylorda	134,6	139,2	151,5	142,8	141,1
Mangystau	120,9	120,9	133,6	129,2	130,9
Ontustik Kazakhstan	97,2	108,3	106,6	105,3	-
Pavlodar	303,6	297,1	310,7	316,8	296,7
Soltustik Kazakhstan	321,4	338,5	333,0	311,6	323,4
Turkistan	-	-	-	-	93,8
Shygys Kazakhstan	298,9	301,4	296,3	306,3	285,4
Nur-Sultan city	165,5	198,3	203,7	183,8	179,8
Almaty city	237,1	261,4	291,8	234,5	220,8
Shymkent city	-	-	-	-	132,0

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

2.20 Accidents, poisonings and injuries

	Number of deaths, people					Per 100,000 people				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Republic of Kazakhstan	15 236	14 392	13 355	12 538	12 170	88,13	82,04	75,05	69,51	66,6
Akmola	908	852	767	828	640	123,36	115,06	103,73	112,4	86,6
Aktobe	650	660	580	515	540	79,68	79,64	69,03	60,47	62,5
Almaty	1 682	1 631	1 513	1 505	1 390	85,05	84,30	76,98	75,24	68,5
Atyrau	352	339	333	294	309	61,26	57,66	55,41	47,87	49,3
Batys Kazakhstan	584	569	533	537	516	93,13	89,82	83,38	83,36	79,4
Zhambyl	831	819	790	719	685	76,14	74,14	70,98	64,41	61,2
Karagandy	1 507	1 370	1 309	1 202	1 169	109,69	99,17	94,60	87	84,7
Kostanai	1 169	1 151	942	901	822	132,65	130,40	106,87	102,69	94,0
Kyzylorda	383	326	333	278	281	51,32	42,95	43,30	35,73	35,6
Mangystau	315	304	303	280	281	52,75	49,29	47,73	42,97	42,0
Ontustik Kazakhstan	1 786	1 567	1 463	-	-	64,70	55,68	51,16	-	-
Pavlodar	915	830	758	659	706	121,30	109,62	100,03	87,18	93,6
Soltustik Kazakhstan	824	724	703	607	585	143,58	126,86	124,11	108,21	105,1
Turkistan	-	-	-	1 034	1 015	-	-	-	52,44	51,3
Shygys Kazakhstan	1 811	1 814	1 653	1 579	1 560	129,83	129,97	118,68	113,87	113,0
Nur-Sultan city	473	488	471	431	446	56,74	56,57	51,05	43,03	42,3
Almaty city	1 046	948	904	780	852	67,49	56,70	52,34	43,9	46,6
Shymkent city	-	-	-	389	373	-	-	-	41,73	38,0

2.21 Diseases of the skin and subcutaneous tissue associated with radiation exposure in 2018

		number of cases				
		Republic of Kazakhstan	Akmola	Aktobe	Almaty	Atyrau
L55	<u>Sunburn</u>	97	6	5	4	-
L55.0	Sunburn first degree	36	3	2	3	-
L55.1	Sunburn second degree	15	1	1	1	-
L55.2	Sunburn third degree	3	-	-	-	-
L55.8	Another sunburn	20	1	-	-	-
L55.9	Sunburn, unspecified	23	1	2	-	-
L 56	<u>Other Acute Skin Changes Caused by UV Radiation</u>	584	18	23	101	43
L56.0	Drug phototoxic reaction	8	-	1	-	-
L56.1	Drug photoallergic reaction	26	-	5	-	-
L56.2	[berloquePhotocontact dermatitis [berloque dermatitis] dermatitis]	386	16	10	75	4
L56.3	Solar urticaria	45	1	1	4	-
L56.4	Polymorphic light eruption	31	1	2	20	-
L56.8	Other specified acute skin changes caused by ultraviolet radiation	40	-	3	1	2
L56.9	Acute skin changes caused by ultraviolet radiation, unsightly	48	-	1	1	37
L57	<u>And skin changes caused by chronic exposure to non-ionizing radiation.</u>	97	-	5	3	2
L57.0	Actinic (photochemical) keratosis	73	-	1	-	1
L57.1	Actinic reticuloid	2	-	-	-	1
L57.2	Rhombic skin on the nape (neck)	1	-	-	-	-
L57.3	Poikiloderma Civatta	2	-	-	2	-
L57.4	Senile atrophy (lethargy) of the skin	4	-	-	1	-
L57.5	Actinic (photochemical) granuloma	-	-	-	-	-
L57.8	Other skin changes caused by chronic exposure to non-ionizing radiation.	13	-	4	-	-
L57.9	Skin changes caused by chronic exposure to non-ionizing radiation, unspecified	2	-	-	-	-
L58	<u>Radiation radiation dermatitis</u>	-	-	-	-	-
L58.0	Acute Radiation Dermatitis	-	-	-	-	-
L58.1	Chronic Radiation Dermatitis	-	-	-	-	-
L58.9	Radiation dermatitis, unspecified	-	-	-	-	-
L59	<u>Other diseases of the skin and subcutaneous tissue associated with radiation</u>	-	-	-	-	-
L59.0	Burn erythema (dermatitis ab igne)igne)	-	-	-	-	-
L59.8	Other specified diseases of the skin and subcutaneous tissue associated with radiation	-	-	-	-	-
L59.9	Disease of the skin and subcutaneous tissue associated with radiation, unspecified	-	-	-	-	-

		Continuation Continuation			
		Batys Kazakhstan	Zhambyl	Karagandy	Kostanai
L55	<u>Sunburn</u>	5	6	9	7
L55.0	Sunburn first degree	2	-	3	3
L55.1	Sunburn second degree	2	1	1	-
L55.2	Sunburn third degree	-	-	1	-
L55.8	Another sunburn	-	-	2	1
L55.9	Sunburn, unspecified	1	5	2	3
L 56	Other Acute Skin Changes Caused by UV Radiation	18	30	46	26
L56.0	Drug phototoxic reaction	-	1	-	1
L56.1	Drug photoallergic reaction [berloque dermatitis]dermatitis]	-	3	3	5
L56.2	Solar urticaria	5	22	39	16
L56.3	Polymorphic light eruption	12	2	2	4
L56.4	Other specified acute skin changes caused by ultraviolet radiation	1	-	2	-
L56.8	Acute skin changes caused by ultraviolet radiation, unsightly	-	1	-	-
L56.9	<u>And skin changes caused by chronic exposure to non-ionizing radiation.</u>	-	1	-	-
L57	<u>Radiation radiation dermatitis</u>	1	2	11	1
L57.0	Actinic (photochemical) keratosis	1	1	4	1
L57.1	Actinic reticuloid	-	-	1	-
L57.2	Rhombic skin on the nape (neck)	-	-	-	-
L57.3	Poikiloderma Civatta	-	-	-	-
L57.4	Senile atrophy (lethargy) of the skin	-	-	-	-
L57.5	Actinic (photochemical) granuloma	-	-	-	-
L57.8	Other skin changes caused by chronic exposure to non-ionizing radiation.	-	1	6	-
L57.9	Skin changes caused by chronic exposure to non-ionizing radiation, unspecified	-	-	-	-
L58	<u>Radiation radiation dermatitis</u>	-	-	-	-
L58.0	Acute Radiation Dermatitis	-	-	-	-
L58.1	Chronic Radiation Dermatitis	-	-	-	-
L58.9	Radiation dermatitis, unspecified	-	-	-	-
L59	<u>Other diseases of the skin and subcutaneous tissue associated with radiation</u>	-	-	-	-
L59.0	bBurn erythema (dermatitis ab igne)igne)	-	-	-	-
L59.8	Other specified diseases of the skin and subcutaneous tissue associated with radiation	-	-	-	-
L59.9	Disease of the skin and subcutaneous tissue associated with radiation, unspecified	-	-	-	-

					Continuation
		Kyzylorda	Mangystau	Pavlodar	Soltustik Kazakhstan
L55	<u>Sunburn</u>	3	1	7	4
L55.0	Sunburn first degree	1	1	4	-
L55.1	Sunburn second degree	1	-	-	1
L55.2	Sunburn third degree	-	-	-	-
L55.8	Another sunburn	1	-	3	1
L55.9	Sunburn, unspecified	-	-	-	2
L 56	<u>Other Acute Skin Changes Caused by UV Radiation</u>	3	46	13	3
L56.0	Drug phototoxic reaction	-	1	-	-
L56.1	Drug photoallergic reaction [berloque dermatitis]dermatitis]	-	-	-	1
L56.2	Solar urticaria	2	44	11	2
L56.3	Polymorphic light eruption	1	1	-	-
L56.4	Other specified acute skin changes caused by ultraviolet radiation	-	-	-	-
L56.8	Acute skin changes caused by ultraviolet radiation, unsightly	-	-	2	-
L56.9	<u>And skin changes caused by chronic exposure to non-ionizing radiation.</u>	-	-	-	-
L57	Actinic (photochemical) keratosis	-	-	4	-
L57.0	Actinic reticuloid	-	-	3	-
L57.1	Rhombic skin on the nape (neck)	-	-	-	-
L57.2	Poikiloderma Civatta	-	-	-	-
L57.3	Senile atrophy (lethargy) of the skin	-	-	-	-
L57.4	Actinic (photochemical) granuloma	-	-	-	-
L57.5	Other skin changes caused by chronic exposure to non-ionizing radiation.	-	-	-	-
L57.8	Skin changes caused by chronic exposure to non-ionizing radiation, unspecified	-	-	1	-
L57.9	<u>Radiation radiation dermatitis</u>	-	-	-	-
L58	Acute Radiation Dermatitis	-	-	-	-
L58.0	Chronic Radiation Dermatitis	-	-	-	-
L58.1	Radiation dermatitis, unspecified	-	-	-	-
L58.9	<u>Other diseases of the skin and subcutaneous tissue associated with radiation</u>	-	-	-	-
L59	bBurn erythema (dermatitis ab igne)igne)	-	-	-	-
L59.0	Other specified diseases of the skin and subcutaneous tissue associated with radiation	-	-	-	-
L59.8	Disease of the skin and subcutaneous tissue associated with radiation, unspecified	-	-	-	-
L59.9		-	-	-	-

		Continuation				
		Turkistan	Shygys Kazakhstan	Nur-Sultan city	Almaty city	Shymkent city
L55	<u>Sunburn</u>	4	13	6	11	6
L55.0	Sunburn first degree	1	5	2	5	1
L55.1	Sunburn second degree	-	4	1	1	-
L55.2	Sunburn third degree	1	-	-	1	-
L55.8	Another sunburn	1	3	1	3	3
L55.9	Sunburn, unspecified	1	1	2	1	2
L 56	<u>Other Acute Skin Changes Caused by UV Radiation</u>	63	101	11	31	8
L56.0	Drug phototoxic reaction	-	-	-	4	-
L56.1	Drug photoallergic reaction [berloquePhotocontact dermatitis [berloque dermatitis]dermatitis]	-	3	3	2	1
L56.2	Solar urticaria	22	89	4	21	4
L56.3	Polymorphic light eruption	8	6	3	-	-
L56.4	Other specified acute skin changes caused by ultraviolet radiation	1	1	-	-	3
L56.8	Acute skin changes caused by ultraviolet radiation, unsightly	25	1	1	4	-
L56.9	<u>And skin changes caused by chronic exposure to non-ionizing radiation.</u>	7	1	-	-	-
L57		1	17	4	43	3
L57.0	Actinic (photochemical) keratosis	1	14	3	41	2
L57.1	Actinic reticuloid	-	-	-	-	-
L57.2	Rhombic skin on the nape (neck)	-	-	-	1	-
L57.3	Poikiloderma Civatta	-	-	-	-	-
L57.4	Senile atrophy (lethargy) of the skin	-	2	-	-	1
L57.5	Actinic (photochemical) granuloma	-	-	-	-	-
L57.8	Other skin changes caused by chronic exposure to non-ionizing radiation.	-	-	1	-	-
L57.9	Skin changes caused by chronic exposure to non-ionizing radiation, unspecified	-	1	1	1	-
L58	<u>Radiation radiation dermatitis</u>	-	-	-	-	-
L58.0	Acute Radiation Dermatitis	-	-	-	-	-
L58.1	Chronic Radiation Dermatitis	-	-	-	-	-
L58.9	Radiation dermatitis, unspecified	-	-	-	-	-
L59	<u>Other diseases of the skin and subcutaneous tissue associated with radiation</u>	-	-	-	-	-
L59.0	bBurn erythema (dermatitis ab igne)igne)	-	-	-	-	-
L59.8	Other specified diseases of the skin and subcutaneous tissue associated with radiation	-	-	-	-	-
L59.9	Disease of the skin and subcutaneous tissue associated with radiation, unspecified	-	-	-	-	-

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

2.22 Anemia incidence by age group*

Age groups	number of cases per 100 000 population				
	2014	2015	2016	2017	2018
Total	1 996,9	1 872,6	1 888,8	1 875,8	1 680,4
Children 0-14 years old	3 908,0	3 849,9	3 846,9	3 921,0	3 536,4
Teenagers 15-17 years old	4 329,4	4 039,8	3 888,2	3 700,1	3 369,7
Adults 18 years and older	1 145,5	987,8	1 000,8	941,7	812,6

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

2.23 The number of patients with anemia consisting on the dispensary

Age groups	people				
	2014	2015	2016	2017	2018
Total	310 888	290 936	262 369	256 833	254 850
Children 0-14 years old	167 611	152 636	150 794	146 655	144 678
Teenagers 15-17 years old	18 388	16 529	16 920	16 500	15 339
Adults 18 years and older	124 889	121 771	94 655	93 678	94 833

2.24 Incidence of anemia

	number of cases per 100 000 population				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	1 996,9	1 872,6	1 888,8	1 875,8	1 680,4
Akmola	961,0	916,7	921,3	877,5	835,3
Aktobe	2 820,1	2 661,7	2 518,9	2 166,0	1 630,4
Almaty	1 735,9	1 729,8	2 221,9	2 241,3	2 045,8
Atyrau	2 032,5	2 068,3	2 266,4	2 244,6	2 231,7
Batys Kazakhstan	1 107,4	1 719,1	1 692,2	1 703,9	1 844,1
Zhambyl	3 097,5	2 436,9	2 085,3	2 364,0	1 975,1
Karagandy	824,5	722,4	669,8	637,1	595,0
Kostanai	687,5	603,4	569,3	509,1	417,4
Kyzylorda	4 613,4	4 061,9	3 756,1	3 770,0	3 700,3
Mangystau	2 899,4	3 023,3	2 676,7	2 688,3	2 644,1
Ontustik Kazakhstan	3 293,3	3 435,4	3 551,3	3 475,0	-
Pavlodar	1 111,4	870,5	730,0	749,5	722,2
Soltustik Kazakhstan	772,3	716,4	709,2	661,9	700,9
Turkistan	-	-	-	-	2 855,3
Shygyz Kazakhstan	1 118,7	1 053,3	1 078,1	1 073,5	969,2
Nur-Sultan city	1 003,9	896,3	753,3	803,2	846,2
Almaty city	2 022,0	1 293,4	1 363,6	1 357,0	1 158,0
Shymkent city	-	-	-	-	2 970,7

2.25 Morbidity in ecologically unfavorable regions and the city of Almaty in 2018^{*}

	number of cases per 100 000 population				
	Republic of Kazakhstan	Shyngys Kazakhstan	Kyzylorda	Karagandy	Almaty city
Active tuberculosis	48,2	52,3	53,5	45,6	35,4
Malignant neoplasms	195,7	285,4	141,1	275,1	220,8
Malignant neoplasms of the breast, people.	25,4	32,9	14,6	38,3	31,7
Mental and behavioral disorders due to alcohol use	84,4	238,6	159,0	44,0	24,2
Mental and behavioral disorders	54,9	52,1	69,0	85,1	20,7

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

2.26 Vaccination coverage of children¹⁾

	in percentage				
	2014	2015	2016	2017	2018
BCG ²⁾	100,0	94,8	95,0	95,0	94,7
OPV-3 ³⁾	98,8	97,9	82,5	99,6	98,3
AKDS-3 ⁴⁾	98,5	97,9	82,5	99,6	98,3
HBV-3	98,5	97,9	-	-	-
Mumps (under 2 years of age)	100,0	100,0	99,4	100,0	99,5
Measles (under 2 years old)	100,0	100,0	99,4	100,0	99,5
BCG revaccination (under 7 years old)	56,3	53,2	59,0	59,2	63,2
Measles booster vaccination	99,2	99,3	99,3	98,7	98,4
HBV-3 ⁵⁾	98,8	98,2	92,4	99,8	98,7

¹⁾ According to the Public Health Committee of the Ministry of Health of the Republic of Kazakhstan, the percentage 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.

2.27 The results of preventive examinations of children aged 0-14 years in 2018^{*}

	1000 examined children identified			
	with reduced hearing acuity	with reduced visual acuity	with scoliosis	with posture violation
Republic of Kazakhstan	1,4	16,0	2,0	2,2
Akmola	0,8	6,1	1,9	1,9
Aktobe	1,9	14,5	1,3	2,6
Almaty	0,9	7,3	1,1	3,0
Atyrau	1,7	14,3	0,7	0,6
Batys Kazakhstan	2,3	30,5	1,8	1,9
Zhambyl	0,8	3,8	0,8	0,2
Karagandy	3,5	36,8	2,7	3,5
Kostanai	0,6	20,2	3,4	3,2
Kyzylorda	2,6	35,5	0,7	0,7
Mangystau	3,6	22,0	3,4	4,5
Pavlodar	2,3	24,9	9,7	12,1

Continuation

	1000 examined children identified			
	with reduced hearing acuity	with reduced visual acuity	with scoliosis	with posture violation
Soltustik Kazakhstan	0,5	12,5	1,8	3,2
Turkistan	0,5	12,5	1,8	3,2
Shygys Kazakhstan	0,9	11,7	2,9	2,2
Nur-Sultan city	0,4	43,0	2,2	3,5
Almaty city	0,7	13,5	2,8	1,3
Shymkent city	2,3	11,7	1,5	0,5

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

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

	people				
	2014	2015	2016	2017	2018
Total number of employees	1 801 659	1 661 539	1 676 955	1 660 631	1 671 572
Including:					
employed in conditions that do not meet sanitary and hygienic requirements	391 247	367 761	368 765	370 133	373 142
of them:					
working under the influence of increased noise and vibration	160 027	160 181	158 657	163 448	169 332
increased dustiness and gas contamination of the working area exceeding the MPC	132 067	127 415	125 098	124 816	128 311
adverse temperature conditions	68 759	62 250	60 754	62 806	65 871
engaged in heavy physical labor	76 301	80 836	77 861	84 588	85 274
working on equipment that does not meet safety requirements	1 499	1 405	886	890	2 855

2.29 The proportion in the total number of employees

	in percentage				
	2014	2015	2016	2017	2018
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	21,7	22,1	22,0	22,3	22,3
of them:					
working under the influence of increased noise and vibration	8,9	9,6	9,5	9,8	10,1
increased dustiness and gas contamination of the working area exceeding the MPC	7,3	7,7	7,5	7,5	7,7
adverse temperature conditions	3,8	3,7	3,6	3,8	3,9
engaged in heavy physical labor	4,2	4,9	4,6	5,1	5,1
working on equipment that does not meet safety requirements	0,1	0,1	0,1	0,1	0,2

2.30 Number of employees employed in harmful and unfavorable working conditions in 2018

	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		
			increased noise and vibration	increased dustiness and gas contamination of the working area exceeding the MPC				
Industry, total	634 322	236 826	129 351	105 031	50 159	45 142	2 466	
including:								
mining and quarrying	195 818	89 777	54 940	39 170	15 012	27 842	x	
manufacturing industry	293 992	98 810	50 612	46 776	24 475	12 581	138	
electricity, gas, steam and air conditioning	102 903	35 765	19 982	14 502	9 502	3 978	x	
water supply; Sewerage system, waste collection and distribution control	41 609	12 474						
Construction	168 492	20 527	3 817	4 583	1 170	741	-	
Transport and warehousing	229 797	52 668	6 414	9 611	4 337	7 465	33	
Information and communication	x	2 293	29 493	7 996	6 319	26 409	-	
Professional, scientific and technical activities	55 730	7 024	455	80	1 130	57	-	
Health and social services	411 214	49 036	1 859	1 315	910	1 040	x	
			850	2 185	2 025	3 943	347	

2.31 The number of victims of accidents connected with work

	2014	2015	2016	2017	2018
The number of victims of accidents related to work, total, people	2 578	2 307	2 034	2 045	2 160
including:					
fatal	263	229	225	211	215
The number of people injured in work-related accidents per 1,000 employees, people	0,6	0,5	0,4	0,4	0,4
including:					
fatal	0,05	0,05	0,05	0,04	0,04

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

	people		
Name of groups	2014	2015	2016
Military establishment	-	-	1
Heads (representatives) of authorities at all levels, including heads of organizations	21	23	16
Specialists of the highest qualification level	115	127	116
Professionals of average skill level (support staff)	184	197	232
Employees engaged in the preparation of information, paperwork, accounting and maintenance	15	21	29
Employees in the service sector, housing and communal services, trade and related activities	106	111	114
Qualified employees in agriculture, forestry, hunting, fish farming and fisheries	44	25	25
Qualified employees of large and small industrial organizations, art crafts, construction, transport, communications, geology and exploration of mineral resources	1 223	1 112	876
Operators, apparatuses, drivers of plants and machines and mechanics - assemblers	356	328	277
Unqualified employees	370	362	348

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

	people	
Name of groups	2017	2018
Executives and civil servants	37	42
Professional specialists	186	229
Technicians and other professional support staff	154	151
Administration Officers	16	26
Service and sales staff	120	149
Farmers and workers in agriculture and forestry, fish farming and fisheries	19	22
Employees in industry, construction, transport and other related occupations	767	823

Continuation

Name of groups	2017	2018
Production Equipment Operators, Assemblers and Drivers	437	416
Unqualified employees	273	268
Non-Employees	36	34

2.34 The number of victims of accidents by reasons

people

Causes of accidents	2014	2015	2016	2017	2018
Constructive defects of machines, mechanisms and equipment	35	46	19	11	19
Operation of defective machines, mechanisms and equipment	32	17	26	16	16
Violation of technological processes	30	12	22	30	39
Violation of safety requirements for vehicle operation	50	58	52	85	49
Traffic offense	163	141	168	146	177
Violation of railway traffic rules	2	3	4	2	5
Violation of air traffic rules	1	-	-	2	-
Unsatisfactory work organization	275	257	214	215	212
The unsatisfactory technical condition of buildings, structures, maintenance of territories and deficiencies in the organization of workplaces	88	49	54	47	46
Deficiencies in learning safe labor practices	48	38	34	38	38
Insecurity or non-use of personal protective equipment	22	19	25	26	19
Insecurity of collective protection	4	5	8	2	-
Violation of labor and production discipline	24	24	20	32	34
Increased dust and gas pollution of the working area	13	7	5	7	5
Increased noise level	3	-	-	3	1
Increased vibration	3	1	1	1	1
Increased level of ionizing radiation	-	-	-	-	-
Contact with sources of infectious diseases	13	-	1	1	3
The impact on the human body physical overload	10	1	3	5	3
Violation of the established labor regime	6	6	1	5	2
Violation of the rules of safety and labor protection	311	286	279	271	279
Accidents	77	73	69	78	83
Gross negligence of the victim	783	823	776	691	809
Other	84	52	33	62	66

2.35 The number of deaths as a result of accidents

	people				
Causes of accidents	2014	2015	2016	2017	2018
Constructive defects of machines, mechanisms and equipment	4	4	-	1	3
Operation of defective machines, mechanisms and equipment	5	3	6	2	1
Violation of technological processes	2	1	3	4	11
Violation of safety requirements for vehicle operation	10	12	8	12	12
Traffic offense	37	20	20	15	20
Unsatisfactory work organization	38	32	29	28	34
The unsatisfactory technical condition of buildings, structures, maintenance of territories and deficiencies in the organization of workplaces	4	3	5	8	5
Deficiencies in learning safe labor practices	2	1	4	2	2
Insecurity or non-use of personal protective equipment	2	4	1	2	-
Violation of labor and production discipline	6	4	X	4	5
Increased dust and gas pollution of the working area	4	4	3	1	1
Increased noise level	-	-	-	-	1
The impact on the human body physical overload	-	-	2	-	-
Violation of the established labor regime	1	-	-	3	1
Violation of the rules of safety and labor protection	46	43	33	39	26
Accidents	16	16	17	20	16
Gross negligence of the victim	68	75	76	55	70
Other	10	6	4	10	4

2.36 The number of victims of occupational diseases

	2014	2015	2016	2017	2018
The number of victims of occupational diseases, total, people	510	388	219	268	254
of these, the number of cases of diseases by type of disease:					
toxic effect of other inorganic substances	20	19	18	19	21
brucellosis	2	-	1	-	1
Autonomic-sensory (angioneurosis)					
polyneuropathy of hands	23	19	16	19	11
bronchitis and pneumonitis caused by chemicals, gases, fumes and vapors	123	48	3	2	11
skin diseases: epidermosis, contact dermatitis, photodermatitis, onychia, paranechia, toxic melasma, oily folliculitis	-	-	2	-	-
Coal miner pneumoconiosis	-	-	-	1	-
Pneumoconiosis caused by dust containing silicon	156	65	35	60	24
Pneumoconiosis caused by other inorganic dust	4	10	1	1	-

Continuation

	2014	2015	2016	2017	2018
Tuberculosis-associated pneumoconiosis	-	2	-	1	-
Professional bronchitis (dust, toxic-dust), including non-obstructive and obstructive	27	33	43	45	18
Other chronic sinusitis	-	-	-	-	-
Vibration disease	81	41	18	23	43
Two-way neurosensory hearing loss	113	62	29	71	66
Mixed conductive and sensorineural hearing loss bilateral	1	28	3	11	17
Autonomic-sensory (angioneurosis) polyneuropathy of hands	23	19	16	19	11
Other polyneuropathy	-	-	-	-	2
Coxarthrosis (hip joint arthrosis)	4	-	-	-	-
Gonarthrosis (arthrosis of the knee joint)	1	-	1	2	1
Other arthrosis	31	-	7	13	15
Damage to the intervertebral discs of the cervical spine	20	9	4	1	5
Damage to the intervertebral discs of other departments	130	73	60	73	81
Osteoporosis in diseases classified elsewhere	-	1	-	-	-
Respiratory tuberculosis, confirmed bacteriologically and histologically	1	4	-	2	2
asthma	1	35	14	15	4
asthmatic status	-	5	4		1
other acquired musculoskeletal deformities and connective tissues	40	8	2	1	1
dorsalgia	32	75	48	33	51

2.37 Deaths from road-traffic accidents

	Number of deaths, people					per 100,000 people				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Republic of Kazakhstan	2 664	2 528	2 625	2 353	2 413	15,4	14,4	14,8	13,0	13,4
Akmola	99	80	95	112	78	13,4	10,8	12,8	15,2	10,6
Aktobe	58	58	55	91	110	7,1	7,0	6,5	10,7	12,9
Almaty	465	467	454	396	339	23,5	24,1	23,1	19,8	16,9
Atyrau	84	70	72	55	101	14,6	11,9	12,0	9,0	16,4
Batys Kazakhstan	83	96	90	98	116	13,2	15,2	14,1	15,2	18,0
Zhambyl	181	234	246	192	197	16,6	21,2	22,1	17,2	17,6
Karagandy	188	170	160	163	203	13,7	12,3	11,6	11,8	14,7
Kostanai	143	126	81	91	85	16,2	14,3	9,2	10,4	9,7
Kyzylorda	107	99	136	89	95	14,3	13,0	17,7	11,4	12,2
Mangystau	97	85	101	72	52	16,2	13,8	15,9	11,0	8,0
Ontustik Kazakhstan	568	494	570	-	-	20,6	17,6	19,9	-	-
Pavlodar	109	93	96	62	85	14,4	12,3	12,7	8,2	11,2
Soltustik Kazakhstan	81	59	53	51	54	14,1	10,3	9,4	9,1	9,6
Turkistan	-	-	-	392	368	-	-	-	19,9	18,7
Shygys Kazakhstan	180	201	208	141	149	12,9	14,4	14,9	10,2	10,7
Nur-Sultan city	70	70	80	81	86	8,4	8,1	8,7	8,1	8,6
Almaty city	151	126	128	147	183	9,7	7,5	7,4	8,3	10,3
Shymkent city	-	-	-	120	112	-	-	-	12,9	12,0

2.38 Unequal distribution of income*

in percentage

	Proportion of population with incomes lower than*		Depth poverty*	Severity of poverty*	Gini coefficient for 20% of population groups	Income ratio of 10% of the most and least well-off population, times
	subsistence minimum	food basket cost				
2014	2,9	0,1	0,4	0,1	0,264	5,7
2015	2,6	0,1	0,3	0,1	0,265	5,6
2016	2,5	0,1	0,4	0,1	0,264	5,6
2017	2,7	0,1	0,4	0,1	0,273	5,6
2018	4,3	0,1	0,7	0,2	0,275	6,0

* Hereinafter, data are obtained using the income equivalence scale

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

in percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	2,9	2,6	2,5	2,7	4,3
Akmola	2,9	2,9	3,0	2,9	4,2
Aktobe	1,8	1,7	1,9	1,9	2,9
Almaty	2,5	2,3	2,2	2,4	3,7
Atyrau	2,8	2,8	3,1	2,8	2,5
Batys Kazakhstan	2,9	3,1	2,8	2,7	3,2
Zhambyl	3,1	3,2	3,3	3,5	4,6
Karagandy	1,4	1,5	1,3	1,6	2,3
Kostanai	2,5	2,7	2,6	2,4	4,1
Kyzylorda	3,2	3,5	3,1	3,0	4,9
Mangystau	3,0	2,6	2,8	3,3	4,9
Pavlodar	1,5	1,6	1,9	1,7	3,1
Soltustik Kazakhstan	4,2	3,7	3,4	3,3	4,7
Turkistan	7,7	6,3	5,7	6,6	10,6
Shygyz Kazakhstan	2,5	2,0	1,8	1,8	6,3
Nur-Sultan city	0,4	0,6	0,7	0,8	0,9
Almaty city	0,6	0,6	0,8	1,0	2,8
Shymkent city	1,0	1,1	0,5	0,2	2,5

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

in percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	1,3	1,3	1,2	1,2	2,5
Akmola	2,9	3,0	2,6	2,7	3,4
Aktobe	0,8	0,7	0,8	0,8	1,9
Almaty	2,3	1,8	1,5	1,3	3,3
Atyrau	0,4	0,4	0,2	0,6	0,5
Batys Kazakhstan	1,2	1,2	1,3	1,2	1,4
Zhambyl	1,9	2,7	2,7	1,9	2,3

Continuation

	2014	2015	2016	2017	2018
Karagandy	0,3	0,5	0,4	0,8	1,7
Kostanai	1,4	0,9	1,4	1,0	2,0
Kyzylorda	3,2	2,9	3,1	2,7	4,6
Mangystau	0,6	0,5	1,0	0,8	1,3
Pavlodar	0,8	0,8	1,1	0,9	2,1
Soltustik Kazakhstan	1,8	2,8	2,4	2,8	3,9
Turkistan	5,6	3,7	3,2	3,0	8,7
Shygys Kazakhstan	1,6	1,2	1,0	1,0	3,0
Nur-Sultan city	0,4	0,6	0,7	0,8	0,9
Almaty city	0,6	0,6	0,8	1,0	2,8
Shymkent city	1,0	1,1	0,5	0,2	2,5

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

in percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	4,7	4,4	4,2	4,6	6,7
Akmola	3,0	2,8	3,4	3,0	4,9
Aktobe	3,5	3,5	3,8	3,7	4,7
Almaty	2,5	2,5	2,4	2,7	3,8
Atyrau	5,0	5,1	5,8	4,8	4,7
Batys Kazakhstan	4,6	5,0	4,4	4,3	5,2
Zhambyl	3,9	3,5	3,7	4,4	6,2
Karagandy	5,7	5,5	4,9	4,9	4,4
Kostanai	3,6	4,6	3,9	4,0	6,5
Kyzylorda	3,2	3,9	3,2	3,1	5,1
Mangystau	5,4	4,6	4,5	5,0	7,3
Pavlodar	3,2	3,4	3,8	3,7	5,3
Soltustik Kazakhstan	6,0	4,3	4,1	3,8	5,3
Turkistan	8,3	7,3	6,7	8,1	11,1
Shygys Kazakhstan	3,8	3,4	3,0	3,1	11,7

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

in percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	0,1	0,1	0,1	0,1	0,1
Akmola	0,3	0,1	0,2	0,2	0,3
Aktobe	0,0	...	...	...	...
Almaty	0,1	0,1	...	...	0,1
Atyrau	...	...	...	...	...
Batys Kazakhstan	...	...	0,3	0,2	0,1
Zhambyl	...	0,1	...	0,1	...
Karagandy	0,1	0,2	0,1	0,1	0,1
Kostanai	0,2	0,2	0,2	0,1	0,4

Continuation

	2014	2015	2016	2017	2018
Kyzylorda	...	0,1	...	...	...
Mangystau	0,0	...	0,1	...	0,4
Pavlodar	...	0,0	0,0	...	...
Soltustik Kazakhstan	0,2	0,6	0,6	0,6	0,1
Turkistan	0,2	0,1	0,1	0,2	0,2
Shygyz Kazakhstan	0,2	0,4	0,1	0,8	0,4
Nur-Sultan city	...	0,1	...	...	0,1
Almaty city	...	...	0,1	0,1	0,1
Shymkent city	...	...	...	...	...

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

in percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	0,1	0,0	0,0	0,1	0,1
Akmola	...	...	0,3	0,2	0,4
Aktobe	...	...	...	...	...
Almaty	...	0,2	...	...	...
Atyrau	...	...	...	...	...
Batys Kazakhstan	...	...	...	...	...
Zhambyl	...	...	...	...	...
Karagandy	-	...	0,1	0,1	0,1
Kostanai	0,3	...	...	...	0,4
Kyzylorda	...	...	...	...	...
Mangystau	...	...	...	...	...
Pavlodar	...	...	...	...	...
Soltustik Kazakhstan	...	0,2	0,5	0,6	0,1
Turkistan	0,8	...	...	...	...
Shygyz Kazakhstan	...	0,1	...	0,2	0,1
Nur-Sultan city	...	0,1	...	...	0,1
Almaty city	...	...	0,1	0,1	0,1
Shymkent city	...	...	...	...	...

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

in percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	0,1	0,2	0,1	0,3	0,2
Akmola	0,6	0,1	0,1	0,2	0,3
Aktobe	0,1	...	...	...	...
Almaty	0,1	0,1	...	...	0,1
Atyrau	...	...	...	...	...
Batys Kazakhstan	...	...	0,5	0,3	0,1
Zhambyl	...	0,1	...	0,1	...
Karagandy	0,5	0,7	0,5	0,3	0,2
Kostanai	0,2	0,4	0,4	0,1	0,4
Kyzylorda	...	0,1	...	...	...

Continuation

	2014	2015	2016	2017	2018
Mangystau	0,1	...	0,1	...	0,7
Pavlodar	...	0,1	0,1	...	...
Soltustik Kazakhstan	0,4	1,0	0,6	0,7	...
Turkistan	...	0,1	0,1	0,3	0,2
Shygys Kazakhstan	0,5	0,7	0,2	1,8	0,8

2.45 The spread of poverty in Kazakhstan

in percentage

	2014	2015	2016	2017	2018
Share of the population of regions to the national population					
Republic of Kazakhstan	100,0	100,0	100,0	100,0	100,0
Akmola	4,2	4,2	4,1	4,1	4,0
Aktobe	4,7	4,7	4,7	4,7	4,7
Almaty	11,6	11,0	11,1	11,1	11,1
Atyrau	3,3	3,4	3,4	3,4	3,5
Batys Kazakhstan	3,6	3,6	3,6	3,6	3,6
Zhambyl	6,3	6,3	6,2	6,2	6,1
Karagandy	7,9	7,9	7,7	7,6	7,5
Kostanai	5,1	5,0	4,9	4,8	4,8
Kyzylorda	4,1	4,1	4,1	4,1	4,1
Mangystau	3,5	3,6	3,6	3,6	3,7
Pavlodar	4,3	4,3	4,2	4,2	4,1
Soltustik Kazakhstan	3,3	3,2	3,1	3,1	3,0
Turkistan	12,9	12,3	12,5	12,6	10,8
Shygys Kazakhstan	8,0	7,9	7,8	7,6	7,5
Nur-Sultan city	4,9	4,9	5,4	5,7	5,9
Almaty city	8,9	9,7	9,8	9,9	10,1
Shymkent city	3,4	3,9	3,8	3,7	5,5
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
Akmola	4,4	4,7	5,0	4,4	3,9
Aktobe	3,0	3,1	3,6	3,3	3,2
Almaty	10,1	9,9	9,7	10,1	9,4
Atyrau	3,3	3,6	4,2	3,6	2,0
Batys Kazakhstan	3,7	4,3	4,1	3,6	2,7
Zhambyl	6,9	7,6	8,2	8,0	6,6
Karagandy	3,9	4,5	4,1	4,6	4,0
Kostanai	4,4	5,1	5,0	4,4	4,5
Kyzylorda	4,6	5,5	5,2	4,6	4,6
Mangystau	3,7	3,6	4,1	4,5	4,2
Pavlodar	2,3	2,6	3,3	2,7	2,9
Soltustik Kazakhstan	4,9	4,5	4,3	3,9	3,3
Turkistan	34,0	29,6	28,0	31,1	26,6
Shygys Kazakhstan	7,1	6,2	5,6	5,3	11,1
Nur-Sultan city	0,6	1,1	1,6	1,7	1,2
Almaty city	1,9	2,4	3,3	3,9	6,6
Shymkent city	1,2	1,7	0,7	0,3	3,2

2.46 Poverty indicators

In percentage

	2014	2015	2016	2017	2018
Share of poverty					
Republic of Kazakhstan	2,9	2,6	2,5	2,7	4,3
Akmola	2,9	2,9	3,0	2,9	4,2
Aktobe	1,8	1,7	1,9	1,9	2,9
Almaty	2,5	2,3	2,2	2,4	3,7
Atyrau	2,8	2,8	3,1	2,8	2,5
Batys Kazakhstan	2,9	3,1	2,8	2,7	3,2
Zhambyl	3,1	3,2	3,3	3,5	4,6
Karagandy	1,4	1,5	1,3	1,6	2,3
Kostanai	2,5	2,7	2,6	2,4	4,1
Kyzylorda	3,2	3,5	3,1	3,0	4,9
Mangystau	3,0	2,6	2,8	3,3	4,9
Pavlodar	1,5	1,6	1,9	1,7	3,1
Soltustik Kazakhstan	4,2	3,7	3,4	3,3	4,7
Turkistan	7,7	6,3	5,7	6,6	10,6
Shygys Kazakhstan	2,5	2,0	1,8	1,8	6,3
Nur-Sultan city	0,4	0,6	0,7	0,8	0,9
Almaty city	0,6	0,6	0,8	1,0	2,8
Shymkent city	1,0	1,1	0,5	0,2	2,5
Depth of poverty					
Republic of Kazakhstan	0,4	0,3	0,4	0,4	0,7
Akmola	0,5	0,5	0,5	0,5	0,8
Aktobe	0,3	0,3	0,2	0,3	0,4
Almaty	0,4	0,3	0,3	0,3	0,5
Atyrau	0,2	0,1	0,2	0,2	0,2
Batys Kazakhstan	0,4	0,5	0,5	0,5	0,5
Zhambyl	0,3	0,5	0,4	0,7	0,4
Karagandy	0,3	0,3	0,2	0,3	0,5
Kostanai	0,5	0,5	0,5	0,4	0,8
Kyzylorda	0,3	0,4	0,3	0,3	0,5
Mangystau	0,5	0,4	0,4	0,8	1,4
Pavlodar	0,2	0,2	0,2	0,1	0,3
Soltustik Kazakhstan	0,6	0,8	0,7	0,7	0,8
Turkistan	0,8	0,5	0,9	0,9	1,3
Shygys Kazakhstan	0,4	0,5	0,3	0,7	0,9
Nur-Sultan city	0,1	0,1	0,2	0,2	0,3
Almaty city	0,1	0,1	0,1	0,1	0,6
Shymkent city	0,1	0,1	0,0	0,0	0,6
Severity of poverty					
Republic of Kazakhstan	0,1	0,1	0,1	0,1	0,2
Akmola	0,1	0,1	0,1	0,1	0,2
Aktobe	0,1	0,1	0,0	0,1	0,1
Almaty	0,1	0,1	0,0	0,0	0,1
Atyrau	0,0	0,0	0,0	0,0	0,0
Batys Kazakhstan	0,1	0,1	0,1	0,1	0,1
Zhambyl	0,0	0,1	0,1	0,2	0,1
Karagandy	0,1	0,1	0,1	0,1	0,2
Kostanai	0,1	0,1	0,1	0,1	0,2

Continuation

	2014	2015	2016	2017	2018
Kyzylorda	0,1	0,1	0,0	0,0	0,1
Mangystau	0,1	0,1	0,1	0,2	0,5
Pavlodar	0,0	0,1	0,0	0,0	0,1
Soltustik Kazakhstan	0,2	0,3	0,3	0,2	0,2
Turkistan	0,2	0,1	0,2	0,2	0,3
Shygys Kazakhstan	0,1	0,2	0,1	0,3	0,2
Nur-Sultan city	0,0	0,0	0,0	0,1	0,1
Almaty city	0,0	0,0	0,0	0,0	0,2
Shymkent city	0,0	0,0	0,0	0,0	0,2

2.47 Share of low-income population depending on the size of households in 2018

	Households consisting				
	from 1 person	from 2 persons	from 3 persons	from 4 persons	from 5 and more persons
Total population, people	675 146	2 593 068	3 283 789	3 943 557	7 860 991
the proportion of the population with lower incomes:					
subistence minimum, in percentage	0,04	0,23	0,87	1,86	8,69
food basket cost, in percentage	...	0,01	0,02	0,08	0,26

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

in percentage

	Percentage of population income by decile groups									
	1 (with the lowest income)	2	3	4	5	6	7	8	9	10 (with the highest incomes)
2014	4,09	5,33	6,18	7,05	8,01	9,08	10,36	12,05	14,68	23,17
2015	4,15	5,33	6,19	7,03	7,96	9,00	10,30	12,03	14,68	23,33
2016	4,15	5,35	6,21	7,05	7,97	9,02	10,29	11,99	14,65	23,32
2017	4,07	5,23	6,10	6,92	7,82	8,89	10,21	11,98	14,79	23,99
2018	4,06	5,26	6,13	6,89	7,74	8,79	10,09	11,89	14,83	24,32

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

2.49 Share of income of the population by 10 percent (decile) population groups in 2014

in percentage

	1	2	3	4	5	6	7	8	9	10	Total
Republic of Kazakhstan	4,09	5,33	6,18	7,05	8,01	9,08	10,36	12,05	14,68	23,17	100,0
Akmola	4,14	5,38	6,22	7,09	8,04	9,12	10,34	11,98	14,60	23,09	100,0
Aktobe	4,14	5,51	6,52	7,49	8,33	9,32	10,51	11,88	14,33	21,97	100,0
Almaty	4,31	5,82	6,73	7,65	8,49	9,43	10,49	11,97	14,22	20,89	100,0
Atyrau	5,12	6,34	7,05	7,88	8,68	9,54	10,63	11,96	13,75	19,05	100,0
Batys Kazakhstan	4,24	5,35	6,36	7,25	8,21	9,23	10,42	12,16	14,83	21,95	100,0
Zhambyl	5,34	6,53	7,05	7,58	8,17	8,98	10,02	11,58	13,96	20,79	100,0
Karagandy	3,81	5,14	6,14	7,08	8,07	9,07	10,31	12,05	14,59	23,74	100,0
Kostanai	4,17	5,55	6,34	7,25	8,18	9,16	10,43	12,01	14,35	22,56	100,0

Continuation

	1	2	3	4	5	6	7	8	9	10	Total
Kyzylorda	4,89	6,25	7,12	7,83	8,60	9,36	10,37	11,78	13,85	19,95	100,0
Mangystau	5,25	6,60	7,37	8,02	8,83	9,53	10,38	11,47	13,21	19,34	100,0
Pavlodar	4,63	6,03	7,03	7,93	8,79	9,64	10,66	12,02	13,79	19,48	100,0
Soltustik Kazakhstan	3,89	5,18	6,19	7,22	8,11	9,02	10,23	11,92	14,96	23,28	100,0
Turkistan	5,61	6,77	7,67	8,38	8,99	9,66	10,50	11,62	13,12	17,68	100,0
Shygys Kazakhstan	4,08	5,24	6,14	7,00	7,97	9,10	10,52	12,21	15,01	22,73	100,0
Nur-Sultan city	5,01	6,01	6,93	7,62	8,43	9,38	10,47	11,91	13,95	20,29	100,0
Almaty city	4,16	5,70	6,72	7,56	8,52	9,44	10,58	11,99	14,04	21,29	100,0
Shymkent city	5,34	6,77	7,59	8,36	9,25	10,03	10,94	11,99	13,35	16,38	100,0

2.50 Share of income of the population by 10 percent (decile) population groups in 2015

in percentage

	1	2	3	4	5	6	7	8	9	10	Total
Republic of Kazakhstan	4,15	5,33	6,19	7,03	7,96	9,00	10,30	12,03	14,68	23,33	100,0
Akmola	4,22	5,50	6,38	7,22	8,08	9,12	10,36	11,99	14,64	22,49	100,0
Aktobe	4,24	5,40	6,35	7,25	8,19	9,17	10,43	12,13	14,56	22,28	100,0
Almaty	4,19	5,57	6,52	7,52	8,44	9,47	10,67	12,13	14,47	21,02	100,0
Atyrau	5,18	6,42	7,11	7,79	8,54	9,44	10,31	11,62	13,68	19,91	100,0
Batys Kazakhstan	4,18	5,42	6,36	7,32	8,40	9,44	10,59	12,19	14,73	21,37	100,0
Zhambyl	5,33	6,48	7,01	7,59	8,30	9,13	10,20	11,64	14,11	20,21	100,0
Karagandy	3,74	4,99	6,04	7,03	8,00	9,11	10,42	12,14	14,77	23,76	100,0
Kostanai	4,34	5,75	6,65	7,42	8,25	9,24	10,45	12,03	14,50	21,37	100,0
Kyzylorda	5,21	6,50	7,21	7,91	8,70	9,50	10,41	11,64	13,49	19,43	100,0
Mangystau	5,34	6,52	7,27	7,91	8,68	9,38	10,31	11,50	13,28	19,81	100,0
Pavlodar	4,51	6,06	6,97	7,88	8,67	9,65	10,77	12,24	14,08	19,17	100,0
Soltustik Kazakhstan	3,91	5,42	6,39	7,35	8,30	9,33	10,54	12,23	14,71	21,82	100,0
Turkistan	5,60	6,90	7,72	8,35	9,01	9,73	10,51	11,58	13,20	17,40	100,0
Shygys Kazakhstan	3,97	5,23	6,11	7,01	7,97	9,12	10,41	12,11	15,00	23,07	100,0
Nur-Sultan city	5,05	6,20	6,98	7,73	8,52	9,46	10,41	11,69	13,93	20,03	100,0
Almaty city	4,11	5,38	6,30	7,21	8,18	9,27	10,51	12,02	14,47	22,55	100,0
Shymkent city	5,44	6,75	7,52	8,19	9,12	9,97	10,78	11,86	13,54	16,83	100,0

2.51 Share of income of the population by 10 percent (decile) population groups in 2016

in percentage

	1	2	3	4	5	6	7	8	9	10	Total
Republic of Kazakhstan	4,15	5,35	6,21	7,05	7,97	9,02	10,29	11,99	14,65	23,32	100,0
Akmola	4,15	5,35	6,21	7,05	7,97	9,02	10,29	11,99	14,65	23,32	100,0
Aktobe	4,21	5,46	6,36	7,20	8,09	9,12	10,41	12,15	14,84	22,16	100,0
Almaty	4,66	5,77	6,66	7,50	8,37	9,35	10,58	12,06	14,27	20,78	100,0
Atyrau	4,24	5,64	6,57	7,48	8,34	9,27	10,37	11,91	14,60	21,58	100,0
Batys Kazakhstan	5,02	6,18	6,88	7,58	8,42	9,48	10,57	11,82	14,01	20,04	100,0
Zhambyl	4,38	5,52	6,49	7,32	8,20	9,18	10,51	12,18	14,60	21,62	100,0
Karagandy	5,34	6,42	7,06	7,69	8,36	9,12	10,09	11,42	14,06	20,44	100,0
Kostanai	3,86	5,04	5,98	6,88	7,89	9,06	10,47	12,14	14,96	23,72	100,0
Kyzylorda	4,36	5,67	6,64	7,42	8,32	9,26	10,45	12,02	14,35	21,51	100,0
Mangystau	5,40	6,58	7,30	7,98	8,73	9,53	10,49	11,76	13,59	18,64	100,0
Pavlodar	5,19	6,37	7,28	7,99	8,78	9,69	10,70	11,85	13,62	18,53	100,0

Continuation

	1	2	3	4	5	6	7	8	9	10	Total
Soltustik Kazakhstan	4,52	5,93	6,82	7,70	8,63	9,57	10,73	12,16	14,17	19,77	100,0
Turkistan	3,86	5,22	6,16	7,13	8,17	9,32	10,69	12,34	14,86	22,25	100,0
Shygys Kazakhstan	5,52	6,67	7,51	8,30	9,07	9,78	10,70	11,76	13,45	17,24	100,0
Nur-Sultan city	4,12	5,27	6,11	7,00	8,00	9,14	10,53	12,27	14,95	22,61	100,0
Almaty city	4,94	6,23	7,12	7,84	8,71	9,60	10,49	11,93	13,84	19,30	100,0
Shymkent city	4,02	5,17	6,07	6,93	7,98	9,05	10,35	12,12	14,82	23,49	100,0

2.52 Share of income of the population by 10 percent (decile) population groups in 2017

in percentage

	1	2	3	4	5	6	7	8	9	10	Total
Republic of Kazakhstan	4,07	5,23	6,10	6,92	7,82	8,89	10,21	11,98	14,79	23,99	100,0
Akmola	4,10	5,32	6,26	7,12	8,18	9,29	10,56	12,19	14,77	22,21	100,0
Aktobe	4,74	5,79	6,63	7,42	8,33	9,35	10,51	11,94	14,44	20,85	100,0
Almaty	4,22	5,29	6,24	7,13	8,01	9,18	10,37	12,08	14,83	22,65	100,0
Atyrau	5,04	6,15	6,96	7,74	8,53	9,34	10,39	11,88	13,96	20,01	100,0
Batys Kazakhstan	4,31	5,27	6,16	7,00	8,00	9,19	10,38	12,07	14,85	22,77	100,0
Zhambyl	5,01	6,33	7,02	7,67	8,34	9,16	10,18	11,62	14,16	20,51	100,0
Karagandy	3,71	5,00	5,96	6,92	7,96	8,97	10,36	12,11	14,86	24,15	100,0
Kostanai	4,41	5,82	6,63	7,44	8,32	9,21	10,38	11,99	14,41	21,39	100,0
Kyzylorda	5,17	6,18	6,84	7,48	8,24	9,12	10,12	11,61	13,66	21,58	100,0
Mangystau	6,05	7,48	7,84	8,45	8,90	9,56	10,36	11,43	12,75	17,18	100,0
Pavlodar	4,42	5,68	6,58	7,32	8,29	9,31	10,58	12,23	14,72	20,87	100,0
Soltustik Kazakhstan	3,69	4,99	6,09	7,10	8,22	9,31	10,63	12,40	15,24	22,33	100,0
Turkistan	5,64	6,59	7,39	8,16	8,84	9,56	10,45	11,49	13,43	18,45	100,0
Shygys Kazakhstan	3,65	4,90	5,81	6,71	7,79	9,06	10,46	12,21	14,92	24,49	100,0
Nur-Sultan city	5,03	6,14	6,95	7,72	8,57	9,43	10,46	11,95	14,09	19,66	100,0
Almaty city	3,91	5,12	6,01	6,96	7,98	9,12	10,41	12,26	15,15	23,08	100,0
Shymkent city	5,40	6,95	7,76	8,44	9,11	9,98	10,80	11,83	13,47	16,26	100,0

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

in percentage

	1	2	3	4	5	6	7	8	9	10	Total
Republic of Kazakhstan	4,06	5,26	6,13	6,89	7,74	8,79	10,09	11,89	14,83	24,32	100,0
Akmola	3,87	5,20	6,08	6,91	7,89	9,05	10,45	12,26	15,06	23,23	100,0
Aktobe	4,77	5,66	6,50	7,44	8,36	9,31	10,45	12,03	14,31	21,17	100,0
Almaty	4,26	5,51	6,25	6,94	7,80	8,79	10,12	11,90	14,98	23,45	100,0
Atyrau	5,25	6,29	7,08	7,80	8,52	9,40	10,48	11,98	13,95	19,25	100,0
Batys Kazakhstan	4,57	5,46	6,23	7,04	8,01	9,03	10,40	12,09	14,59	22,58	100,0
Zhambyl	5,29	6,39	6,98	7,51	8,23	9,07	10,20	11,67	14,31	20,35	100,0
Karagandy	3,69	5,08	5,96	6,80	7,75	8,88	10,29	12,24	15,15	24,16	100,0
Kostanai	4,42	5,76	6,62	7,45	8,28	9,21	10,37	11,97	14,46	21,46	100,0
Kyzylorda	4,98	6,03	6,71	7,32	8,07	8,99	10,12	11,52	13,87	22,39	100,0
Mangystau	5,52	7,29	7,75	8,25	8,82	9,48	10,32	11,42	12,93	18,22	100,0
Pavlodar	4,01	5,29	6,21	7,14	8,16	9,21	10,63	12,21	14,80	22,34	100,0
Soltustik Kazakhstan	3,52	5,05	5,99	6,99	8,00	9,22	10,56	12,34	15,11	23,22	100,0
Turkistan	5,39	6,71	7,66	8,50	8,80	9,65	10,56	11,50	13,13	18,10	100,0
Shygys Kazakhstan	3,55	4,69	5,78	6,76	7,87	9,09	10,45	12,46	15,64	23,71	100,0

Continuation

	1	2	3	4	5	6	7	8	9	10	Total
Nur-Sultan city	5,04	6,04	6,75	7,52	8,35	9,27	10,26	11,83	13,73	21,21	100,0
Almaty city	3,62	5,00	5,95	6,87	7,94	9,09	10,42	12,13	15,04	23,94	100,0
Shymkent city	4,87	6,80	7,82	8,40	9,08	10,14	10,62	12,11	13,70	16,46	100,0

2.54 Improvement of housing stock

in percentage

	2014	2015	2016	2017	2018
The share of the total area of the total housing stock, (in percent) equipped:					
water supply		98	98	98	98
sewage		62	65	67	68
central heating		40	41	41	41
gas		89	89	88	88
central hot water supply		36	36	36	36
in a bath or shower		40	41	42	42
floor electric stoves		9	10	10	11
The share of the total area of urban housing stock, (in percent) equipped:					
it is one in the supply		99	100	100	100
to the analysis		82	85	86	87
central heating		63	62	63	62
gas		84	84	82	82
central hot water supply		56	56	56	56
bath or shower		60	62	63	63
floor electric stoves		14	15	16	16
The share of the total area of rural housing stock, (in percent) equipped :					
it is one in the supply		96	96	97	96
to the analysis		29	31	34	37
central heating		3	3	3	4
gas		97	97	97	97
central hot water supply		2	2	2	2
in a bath or shower		5	6	7	7
floor electric stoves		1	1	1	1

2.55 Drinking water quality of decentralized water supply facilities

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

	2014	2015	2016	2017	2018
By sanitary and chemical indicators					
Republic of Kazakhstan	7,7	6,5	8,5	9,4	21,9
Akmola	25,8	25,0	43,2	-	36,0
Aktobe	18,4	6,7	-	-	6,4
Almaty	0,5	-	1,7	3,4	0
Atyrau	-	-	-	-	0
Batys Kazakhstan	16,6	11,0	12,1	16,2	13,4
Zhambyl	3,3	-	2,9	6,5	0
Karagandy	5,7	7,6	28,0	22,6	21,0

Continuation

	2014	2015	2016	2017	2018
Kostanai	8,8	5,5	6,0	9,6	21,3
Kyzylorda	19,6	25,0	16,7	66,7	100
Mangystau	8,9	20,4	13,6	14,1	6,8
Ontustik Kazakhstan	4,6	2,8	10,9	3,6	-
Pavlodar	2,7	5,1	7,4	12,7	35,5
Soltustik Kazakhstan	4,6	19,0	-	14,3	19,4
Turkistan	-	-	-	-	1,9
Shygys Kazakhstan	3,4	4,1	4,2	3,3	2,2
Nur-Sultan city	-	-	-	-	-
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	-
By microbiological indicators					
Republic of Kazakhstan	4,9	4,0	4,2	3,1	11,3
Akmola	7,0	11,1	-	-	24,1
Aktobe	16,8	7,9	-	-	6,4
Almaty	4,4	-	-	1,1	-
Atyrau	-	-	-	-	-
Batys Kazakhstan	8,9	5,8	8,8	9,3	6,2
Zhambyl	1,5	-	2,2	-	0
Karagandy	2,6	14,8	14,3	4,7	4,3
Kostanai	6,9	6,4	5,0	0,7	15,0
Kyzylorda	5,1	7,0	33,3	-	-
Mangystau	-	-	-	-	-
Ontustik Kazakhstan	1,4	2,9	4,7	0,5	-
Pavlodar	0,8	9,5	-	-	11,9
Soltustik Kazakhstan	0,8	1,3	2,0	4,3	4,9
Turkistan	-	-	-	-	0,8
Shygys Kazakhstan	4,3	2,8	4,4	3,8	0,4
Nur-Sultan city	-	-	-	-	-
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	-

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

2.56 Drinking water quality of centralized water supply facilities

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

	2014	2015	2016	2017	2018
By sanitary and chemical indicators					
Republic of Kazakhstan	2,2	2,5	3,3	3,4	4,0
Akmola	14,8	16,1	19,2	21,0	16,1
Aktobe	4,2	5,8	4,0	5,7	3,5
Almaty	2,2	4,1	4,1	3,2	3,2
Atyrau	3,5	28,6	11,8	12,5	9,1
Batys Kazakhstan	3,6	4,1	3,3	6,3	4,2
Zhambyl	1,2	0,8	1,8	1,1	5,2
Karagandy	0,4	0,4	0,4	0,6	0,5
Kostanai	0,8	0,9	0,8	2,2	4,6
Kyzylorda	6,8	8,2	6,0	9,8	9,8
Mangystau	2,6	5,2	5,3	5,4	5,0

Continuation

	2014	2015	2016	2017	2018
Ontustik Kazakhstan	2,5	2,2	1,5	1,4	-
Pavlodar	1,1	3,3	5,1	3,5	9,0
Soltustik Kazakhstan	0,8	5,5	8,9	4,3	5,4
Turkistan	-	-	-	-	1,7
Shygyz Kazakhstan	0,5	1,5	2,3	0,9	1,0
Nur-Sultan city	-	-	-	3,1	1,7
Almaty city	2,1	-	0,3	1,3	-
Shymkent city	-	-	-	-	-
By microbiological indicators					
Republic of Kazakhstan	1,5	2,0	2,6	2,4	2,6
Akmola	11,3	19,6	16,7	11,9	11,3
Aktobe	3,0	6,5	3,8	3,2	1,8
Almaty	2,4	2,3	4,4	2,9	3,1
Atyrau	8,5	30,4	7,9	5,5	5,4
Batys Kazakhstan	2,8	2,8	2,4	1,8	2,0
Zhambyl	0,5	1,0	1,0	0,6	4,7
Karagandy	0,1	0,2	0,1	0,1	0,1
Kostanai	4,2	4,4	3,2	1,5	2,1
Kyzylorda	2,3	4,9	6,0	6,1	6,4
Mangystau	0,8	2,5	1,9	1,4	0,6
Ontustik Kazakhstan	1,9	2,8	3,6	4,1	-
Pavlodar	1,5	5,6	3,1	4,2	3,9
Soltustik Kazakhstan	0,3	0,4	1,8	2,2	1,2
Turkistan	-	-	-	-	5,0
Shygyz Kazakhstan	1,0	1,4	2,3	2,1	1,7
Nur-Sultan city	-	-	-	0,2	2,1
Almaty city	0,7	0,4	0,8	1,1	0,2
Shymkent city	-	-	-	-	1,7

2.57 Proportion of population provided with tap water

In percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	90,4	90,9	91,4	92,0	92,8
Akmola	87,5	88,0	85,9	90,8	91,1
Aktobe	90,6	90,7	90,9	90,9	94,3
Almaty	92,4	92,8	93,4	94,1	100
Atyrau	94,7	96,2	97,0	98,3	98,5
Batys Kazakhstan	87,4	87,9	88,5	84,4	86,6
Zhambyl	82,4	84,4	85,0	85,5	86,9
Karagandy	97,3	97,3	97,3	97,3	97,3
Kostanai	76,6	79,3	79,4	82,1	81,5
Kyzylorda	96,7	96,6	97,0	97,6	97,6
Mangystau	83,0	83,4	83,6	83,9	86,1
Ontustik Kazakhstan	90,1	91,4	92,2	92,3	-
Pavlodar	94,6	84,8	85,3	85,7	87,7
Soltustik Kazakhstan	86,7	86,7	87,0	85,7	86
Turkistan	-	-	-	-	90,4
Shygyz Kazakhstan	85,2	85,5	85,6	87,3	88,6
Nur-Sultan city	99,8	99,8	100,0	99,9	99,9
Almaty city	100,0	100,0	99,9	100,0	100,0
Shymkent city	-	-	-	-	97,5

2.58 Proportion of population provided with drinking water from decentralized water sources

In percentage

	2014	2015	2016	2017	2018
Republic of Kazakhstan	8,2	7,8	7,4	6,9	6,3
Akmola	10,6	10,4	13,0	7,9	7,8
Aktobe	9,2	9,1	8,9	8,9	5,7
Almaty	7,4	6,9	6,4	5,9	5,1
Atyrau	0,7	0,4	0,4	0,4	0,4
Batys Kazakhstan	10,4	10,1	9,5	13,6	11,8
Zhambyl	17,1	15,0	14,5	14,1	12,8
Karagandy	2,6	2,7	2,7	2,6	2,6
Kostanai	19,4	17,5	17,5	15,2	15,4
Kyzylorda	2,8	2,6	2,7	2,3	2,5
Mangystau	12,5	12,2	12,4	10,5	8,3
Ontustik Kazakhstan	6,2	5,4	4,7	4,6	-
Pavlodar	15,2	15,0	14,3	13,9	12,1
Soltustik Kazakhstan	13,1	13,0	12,8	13,9	13,8
Turkistan	-	-	-	-	6,5
Shygyz Kazakhstan	14,4	14,2	14,1	12,4	11,2
Nur-Sultan city	-	-	-	-	-
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	2,4

2.59 Drinking water quality

units

	2014	2015	2016	2017	2018
Purified water in centralized water supply systems					
Total number of samples	80 359	59 769	65 090	56 170	48 470
The number of samples exceeding the standards established in the country of them:	1 441	1 329	1 899	1 668	1 595
on microbiological indicators	618	614	883	766	669
by chemical parameters	823	715	1 016	902	926
Percentage of samples exceeding established standards in the country, in percent	1,8	2,2	2,9	3,0	3,2
Groundwater - springs, wells, water from which is used as drinking water					
Total number of samples	8 157	5 256	4 093	5 376	11 468
The number of samples exceeding the standards established in the country of them:	517	277	260	380	1 938
on microbiological indicators	192	104	86	71	603
by chemical parameters	325	173	174	309	1 335
Percentage of samples exceeding established standards in the country, in percent	6,3	5,3	6,4	7,1	16,8

**According to the State Enterprise «Scientific and Practical Center for Sanitary-Epidemiological Expertise and Monitoring» Public Health Committee of the Ministry of Health of the Republic of Kazakhstan.*

3. Economic factors

3.1 Main economic indicators

	2014	2015	2016	2017	2018
Index of physical volume of GDP, as a percentage of the previous year	104,2	101,2	101,1	104,1	104,1
Index of physical volume of GDP, as a percentage of 1990	191,1	193,4	195,5	203,5	211,8
GDP at current prices, mln. Tenge	39 675 832,9	40 884 133,6	46 971 150,0	54 378 857,8	61 819 536,4
GDP, at current prices, million USD	221 417,7	184 387,0	137 278,3	166 806,3	179 337,8
GDP per capita, tenge	2 294 830,2	2 330 360,2	2 639 710,3	3 014 720,8	3 382 469,2
GDP per capita, USD	12 806,7	10 509,9	7 714,8	9 247,6	9 812,5
Share of industry, as a percentage of GDP	27,3	24,7	26,1	26,8	28,2
Dwelling houses, th. 1. meters (total area)	7 516	8 940	10 513	11 168	12 521
Foreign trade turnover with non-CIS countries *, million USD	92 155,8	55 553,2	44 422,4	55 642,4	69 167,5
including:					
export	68 407,3	38 047,5	30 409,3	40 186,2	51 542,9
import	23 748,5	17 505,7	14 013,1	15 456,2	17 624,6
Foreign trade turnover with CIS countries *, million USD	28 599,5	20 970,3	17 691,2	22 044,4	25 602,2
including:					
export	11 052,5	7 908,3	6 327,6	8 155,9	9 568,3
import	17 547,0	13 062,0	11 363,6	13 848,5	16 033,9

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

3.2 GDP by production*

	The share of sectors of the economy in total GDP, in percentage				
	2014	2015	2016	2017	2018
Kazakhstan GDP	100,0	100,0	100,0	100,0	100,0
Agriculture	4,4	4,8	4,6	4,6	4,4
Industry	27,3	24,7	26,1	26,8	28,2
Construction	5,9	6,0	5,9	5,5	5,3
Trade	16,0	17,0	16,8	16,8	16,8
Transportation and warehousing	7,9	8,6	8,3	8,2	8,2
Information and communication	2,6	2,6	2,1	2,0	1,9
Other services	35,9	36,3	36,2	36,1	35,2

* Includes net taxes.

3.3 Indexes of physical volume of industrial production

	as a percentage of the previous year				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	100,3	98,4	98,9	107,3	104,4
Akmola	105,6	106,4	104,3	101,1	107,3
Aktobe	96,7	95,6	100,2	105,6	105,1
Almaty	102,0	104,8	97,4	104,8	102,7

Continuation

	2014	2015	2016	2017	2018
Atyrau	99,7	101,0	102,2	121,2	110,6
Batys Kazakhstan	103,9	94,7	98,9	103,4	96,1
Zhambyl	105,7	91,3	102,4	103,6	101,8
Karagandy	103,7	106,8	105,1	105,5	100,9
Kostanai	100,2	81,8	98,8	105,4	110,6
Kyzylorda	97,1	91,3	90,7	96,1	94,3
Mangystau	103,5	96,0	96,9	100,9	101,1
Pavlodar	96,1	96,1	101,4	106,5	105,2
Soltustik Kazakhstan	103,2	101,1	100,5	108,5	101,9
Turkistan	104,5	108,0	103,8	102,6	98,1
Shygyz Kazakhstan	100,4	92,6	105,0	100,7	109,5
Nur-Sultan city	98,0	105,1	100,9	110,8	107,1
Almaty city	102,2	95,1	100,1	105,1	104,3
Shymkent city	105,9	99,3	104,9	106,6	105,4

3.4 The volume of industrial production by economic activity

million tenge

	2014	2015	2016	2017	2018
Industry - total	18 529 225	14 931 378	19 026 781	22 790 209	27 218 063
including:					
mining industry	11 060 179	7 521 180	9 397 619	11 568 785	14 877 068
coal mining, lignite	219 282	213 521	232 703	292 079	342 996
crude oil and natural gas production	9 164 095	5 880 227	7 409 929	9 202 733	12 060 235
metal ore mining	863 139	740 258	989 193	1 188 391	1 474 218
other mining industries	136 671	154 573	175 694	191 988	265 709
technical services in the field of mining					
industry	676 992	532 599	590 100	693 593	733 909
manufacturing industry	6 089 645	5 978 008	8 046 845	9 400 848	10 403 854
of them:					
food production	1 103 491	1 123 041	1 448 386	1 525 814	1 527 687
beverage industry	233 059	216 316	254 294	311 675	343 794
tobacco production	104 232	93 469	105 936	106 247	123 620
manufacture of textiles	26 471	29 492	37 601	43 489	52 594
manufacture of wearing apparel	29 722	36 111	36 552	46 015	36 568
manufacture of leather and related products	6 996	5 990	8 310	8 586	10 188
manufacture of wood and cork products, except furniture; manufacture of products from straw and materials for weaving	19 882	21 313	24 385	21 355	23 741
paper and paper products	33 605	33 770	48 416	56 672	62 381
production of coke and refined petroleum products	565 219	462 234	640 137	716 297	901 982
manufacture of industrial products	230 310	241 588	284 551	333 328	401 141
manufacture of rubber and plastic products	158 057	150 028	186 777	226 568	211 380
manufacture of other non-metallic mineral products	452 081	442 989	442 975	506 479	563 678
metallurgical industry	1 912 427	2 140 058	3 380 172	4 075 747	4 614 873
manufacture of finished metal products, except machinery and equipment	179 898	176 733	234 453	233 937	239 609
engineering	902 541	668 265	766 781	998 176	1 089 800

Continuation

	2014	2015	2016	2017	2018
manufacture of other finished products	13 329	13 172	12 557	17 307	29 493
power supply, gas, steam and air conditioning	1 210 167	1 256 429	1 384 129	1 582 299	1 693 343
water supply; sewage system, control over the collection and distribution of waste collection, treatment and distribution of water	169 234	175 761	198 189	238 277	243 797
	81 612	87 815	98 717	105 510	111 600

3.5 Production of electricity, steam and hot water

	2014	2015	2016	2017	2018
Electricity, million kw. h					
Republic of Kazakhstan	94 643,2	91 645,1	94 642,4	103 128,0	107 268,8
Akmola	640,4	833,5	883,5	870,1	1 013,4
Aktobe	3 110,1	3 344,5	3 790,9	3 930,5	4 125,9
Almaty	2 819,5	3 255,5	4 291,2	4 204,9	3 990,6
Atyrau	4 122,8	4 090,0	4 556,7	5 559,1	5 955,2
Batys Kazakhstan	1 700,6	1 594,7	1 705,9	1 981,8	2 068,7
Zhambyl	2 756,3	3 168,3	2 895,1	3 021,3	2 331,3
Karagandy	12 575,5	13 764,9	14 033,3	14 398,6	14 117,4
Kostanai	1 674,5	1 512,0	1 299,9	1 061,6	893,1
Kyzylorda	1 756,6	1 762,3	1 566,6	1 529,9	1 611,8
Mangystau	5 106,5	5 221,1	5 283,0	4 953,5	5 179,7
Pavlodar	40 890,8	34 782,9	34 205,0	41 359,6	45 627,2
Soltustik Kazakhstan	2 751,5	2 830,2	3 229,2	3 246,7	3 232,9
Turkistan	601,4	491,2	365,1	401,5	393,7
Shygys Kazakhstan	7 863,1	8 726,5	9 930,5	9 999,2	9 651,5
Nur-Sultan city	23 70,9	2 550,4	2 770,4	3 189,3	3 351,9
Almaty city	3 146,9	3 283,4	3 210,7	3 208,4	3 263,6
Shymkent city	755,6	433,7	625,3	211,8	460,9
Steam and hot water, thousand Gcal					
Republic of Kazakhstan	98 399,4	82 975,5	84 040,0	88 665,4	94 711,0
Akmola	3 860,8	3 232,6	3 294,6	3 241,6	3 590,6
Aktobe	6 605,1	5 765,7	5 446,8	5 592,1	6 677,0
Almaty	2 760,9	1 795,6	1 815,6	1 886,3	2 063,1
Atyrau	3 352,3	2 831,3	3 791,6	6 078,3	6 581,0
Batys Kazakhstan	3 713,9	3 092,3	2 913,6	3 161,5	3 080,0
Zhambyl	2 202,7	1 878,9	1 912,6	1 930,4	X
Karagandy	15 021,9	13 262,5	12 958,8	12 916,5	13 360,5
Kostanai	6 591,4	4 244,4	4 207,8	4 023,3	X
Kyzylorda	1 272,5	616,3	635,5	668,7	680,2
Mangystau	4 165,6	7 235,0	7 340,9	7 442,2	7 340,9
Pavlodar	15 782,4	13 636,1	14 047,4	15 345,6	16 272,2
Soltustik Kazakhstan	5 312,5	2 244,1	2 236,7	2 032,5	2 296,6
Turkistan	1 454,1	331,0	295,3	340,8	339,7
Shygys Kazakhstan	8 376,1	8 012,9	8 164,3	8 275,8	8 746,7
Nur-Sultan city	6 186,4	5 725,5	6 103,9	6 436,8	X
Almaty city	10 156,8	7 927,8	7 753,1	8 145,9	8 544,1
Shymkent city	1 584,0	1 143,5	1 121,5	1 147,1	1 561,3

3.6 Crop area of crops

	thousand hectares				
	2014	2015	2016	2017	2018
Total sown area	21 244,6	21 022,9	21 473,6	21 839,9	21 899,4
of them:					
Cereals (including rice) and legumes	15 291,5	14 982,2	15 403,5	15 405,4	15 150,0
Sugar beet	1,2	9,2	12,6	17,4	17,4
Potatoes	186,8	190,6	186,7	183,4	193,0
Vegetables	137,7	139,5	145,9	142,9	152,3
Bakhchi	89,8	94,7	93,9	93,8	96,1
Oilseeds	2 299,5	2 009,7	2 035,7	2 478,9	2 834,2
of them sunflower	846,1	740,7	835,0	895,9	856,9

3.7 Harvested crop area

	thousand hectares				
	2014	2015	2016	2017	2018
Cereals (including rice) and legumes	14 654,5	14 658,1	15 313,3	15 304,0	15 034,6
Sunflower	768,7	701,3	807,7	883,0	850,0
Sugar beet	1,0	7,5	12,1	16,9	17,0
Potatoes	185,1	189,8	186,2	182,9	192,3
Vegetables	136,5	139,1	145,4	142,5	151,7

3.8 Gross harvest of main crops

	in all categories of farms, thousand tons				
	2014	2015	2016	2017	2018
Cereals (including rice) and legumes	17 162,2	18 672,8	20 634,4	20 585,1	20 273,7
Sunflower	512,8	534,0	754,9	902,6	847,7
Sugar beet	23,9	174,1	345,0	463,2	504,5
Potatoes	3 410,5	3 521,0	3 545,7	3 551,1	3 807,0
Vegetables	3 469,9	3 564,9	3 795,2	3 791,1	4 081,9

3.9 Yield of main crops

	in all categories of farms, quintals per hectare				
	2014	2015	2016	2017	2018
Cereals (including rice) and legumes	11,7	12,7	13,5	13,4	13,5
Sunflower	6,7	7,6	9,3	10,2	10,0
Sugar beet	240,6	232,5	285,5	274,4	305,3
Potatoes	184,3	185,5	190,4	194,2	197,9
Vegetables	243,0	245,8	250,0	253,7	257,3

3.10 Livestock and poultry

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

	2014	2015	2016	2017	2018
Cattle	6 032,7	6 183,9	6 413,2	6 764,2	7 150,9
Pigs	884,7	887,6	834,2	815,1	798,7
Sheep and goats	17 914,6	18 015,5	18 184,2	18 329,0	18 699,1
Horses	1 937,9	2 070,3	2 259,2	2 415,7	2 646,5
Camels	165,9	170,5	180,0	193,1	207,6
Fowls	35 020,0	35 632,9	36 910,0	39 913,5	44 337,9

3.11 Production of main livestock products

	2013	2014	2015	2016	2017
Meat (slaughter weight), million tons	0,9	0,9	1,0	1,0	1,1
Milk, million tons	5,1	5,2	5,3	5,5	5,7
Eggs, billion pieces	4,3	4,7	4,8	5,1	5,6

3.12 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	
2014	4 533,7	434,7	99,0	4 000,1	22,0
2015	4 397,3	443,2	97,7	3 856,5	20,8
2016	4 383,1	439,2	98,6	3 845,3	20,4
2017	4 382,6	440,6	90,4	3 851,6	20,2
2018	4 342,1	404,8	89,3	3 848,0	21,1

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

3.13 The number of registered passenger vehicles by type of fuel used

on January 1, 2019, units

	Total	Including					
		petrol	diesel fuel	gas balloon	mixed fuel	electric	not specified
Republic of Kazakhstan	3 847 981	3 455 517	86 840	3 751	236 101	703	65 069
Akmola	177 381	163 466	1 978	69	4 743	2	7 123
Aktobe	149 229	113 922	1 023	298	32 317	7	1 662
Almaty	482 952	465 647	8 443	355	7 284	6	1 217
Atyrau	114 484	101 027	2 862	160	9 339	-	1 096
Batys Kazakhstan	116 470	102 985	2 624	27	9 773	1	1 060
Zhambyl	195 682	183 310	3 338	99	5 459	2	3 474
Karagandy	287 202	268 190	5 652	135	6 990	4	6 231
Kostanai	171 506	158 361	4 279	31	7 614	10	1 211
Kyzylorda	112 612	100 471	1 021	192	10 649	2	277
Mangystau	140 255	67 775	1 953	64	68 173	13	2 277
Pavlodar	401 745	358 561	23 126	412	14 864	-	4 782
Soltustik Kazakhstan	154 362	146 091	978	68	4 308	3	2 914
Turkistan	144 326	127 559	1 581	242	11 688	2	3 254

Continuation

	Total	Including					
		petrol	diesel fuel	gas balloon	mixed fuel	electric	not specified
Shygys Kazakhstan	25 256	20 130	1 152	16	3 407	4	547
Nur-Sultan city	301 372	294 986	2 073	41	2 103	3	2 166
Almaty city	261 117	244 521	2 637	389	13 506	51	13
Shymkent city	471 082	437 991	18 104	633	13 350	89	915
Diplomatic numbers	24 701	21 545	358	82	2 716	-	-
Not specified region	26 640	23 658	1 982	31	944	4	21

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

3.14 The number of registered passenger vehicles by year of manufacture

on January 1, 2019, units

	Total	Including				
		no more than 3 years	more than 3 years, but not more than 7 years	more than 7 years, but not more than 10 years	more than 10 years	other
Republic of Kazakhstan	3 847 981	416 741	573 963	268 562	2 480 684	108 031
Akmola	177 381	16 702	22 774	12 466	120 715	4 724
Aktobe	149 229	21 555	31 091	12 016	79 390	5 177
Almaty	482 952	25 152	43 708	27 116	379 749	7 227
Atyrau	114 484	29 446	30 132	8 621	40 231	6 054
Batys Kazakhstan	116 470	18 322	21 439	8 883	64 073	3 753
Zhambyl	195 682	7 943	14 846	9 864	160 865	2 164
Karagandy	287 202	26 725	36 421	19 683	197 016	7 357
Kostanai	171 506	22 500	23 890	10 261	109 850	5 005
Kyzylorda	112 612	9 377	13 376	7 667	79 558	2 634
Mangystau	140 255	19 942	32 331	12 151	70 423	5 408
Pavlodar	401 745	28 744	46 390	26 808	289 467	10 336
Soltustik Kazakhstan	154 362	11 721	18 545	8 439	112 964	2 693
Turkistan	144 326	15 469	15 691	11 289	97 404	4 473
Shygys Kazakhstan	25 256	1 696	5 302	2 005	16 252	1
Nur-Sultan city	301 372	13 953	45 423	12 968	226 339	2 689
Almaty city	261 117	55 546	63 372	20 923	109 430	11 846
Shymkent city	471 082	72 216	87 094	47 597	245 933	18 242
Diplomatic numbers	24 701	1 995	5 667	1 559	15 478	2
Not specified region	26 640	8 393	6 591	2 436	7 900	1 320

Note: «other» - not determined year.

3.15 The average age of the road vehicle fleet

	2014	2015	2016	2017	2018
Cars					
Total amount per 1000 units	4 000,1	3 856,5	3 845,3	3 851,6	3 848,0
including					
<= 3 years, per 1000 units	326,1	624,4	616,5	571,4	416,7
<= 3 years, in percentage	8,2	16,2	16,0	14,8	10,8
3 <= 7 years, per 1000 units	280,7	372,0	400,7	444,4	574,0

Continuation					
	2014	2015	2016	2017	2018
3 <= 7 years, in percentage	7,0	9,6	10,4	11,5	14,9
7 <= 10 years, per 1000 units	268,0	360,6	344,8	308,8	268,6
7 <= 10 years, in percentage	6,7	8,0	9,0	8,0	7,0
> 10 years, per 1000 units	2 900,6	2 284,7	2 271,0	2 350,0	2 480,7
> 10 years, in percentage	72,5	59,2	59,1	61,0	64,5
Other, per 1000 units	224,7	268,8	212,3	177,0	108,0
Other, in percentage	5,6	7,0	5,5	4,6	2,8
Buses					
Total amount per 1000 units	99,0	97,7	98,6	90,4	89,3
Trolley buses					
Total amount per 1000 units	0,2	0,2	x	x	x
Trucks					
Total amount per 1000 units	434,7	443,2	439,2	440,6	404,8

3.16 Passenger traffic of all types of transport*

million pkm					
	2014	2015	2016	2017	2018
Total	246 959*	251 251*	266 784*	273 193*	281 484*
of them:					
railway	18 999	17 012	17 914	18 222	18 562
automotive	217 069	222 717	237 194	240 074	247 474
electric	303	368	362	513	458
inland water	1,2	0,4	1,2	0,7	0,6
air	10 586	11 153	11 313	14 384	14 990

*Taking into account the transportation of passengers by subway

3.17 The turnover of goods transported by individual modes of transport

billion tkm					
	2014	2015	2016	2017	2018
Total	554,9	546,3	518,6	564,0	609,5
of them:					
railway	280,7	267,4	239,0	266,6	283,3
automotive	155,7	161,8	163,3	166,1	185,2
electric	0,03	0,03	0,02	0,03	0,04
inland water	116,0	115,4	114,5	129,5	x
air	2,5	1,6	1,8	1,6	x
Total	49,3	42,7	42,9	53,8	57,6

4. Environmental factors

4.1 Current expenses for environmental protection by types of environmental activities in 2018

	Total	Including								thousand tenge
		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	191 015 579	59 654 228	51 927 229	59 453 066	9 934 442	43 178	619 111	1 190 754	4 762 808	3 430 763
Akmola	2 715 372	932 911	457 121	590 602	528 444	191	2 720	29 666	-	173 717
Aktobe	23 454 296	7 316 976	5 502 771	9 536 048	548 349	3 707	33 690	18 779	316 694	177 282
Almaty	841 212	127 978	422 632	191 031	61 316	x	-	404	17 190	20 411
Atyrau	38 408 591	9 783 675	9 221 572	13 998 701	1 634 436	680	246 621	27 534	2 891 930	603 432
Batys Kazakhstan	9 659 834	4 842 611	229 974	2 982 906	874 234	1 865	82 576	1 670	319 731	324 267
Zhambyl	3 629 200	952 431	1 524 509	1 065 952	36 538	1 696	-	29 862	-	18 212
Karagandy	24 045 627	5 918 972	11 982 776	4 762 970	970 511	491	4 195	4 173	127 087	274 452
Kostanai	8 400 631	1 635 334	2 771 753	1 276 385	1 870 292	-	3 035	3 524	289 436	550 872
Kyzylorda	2 639 628	542 628	249 650	1 512 760	151 653	393	617	31 058	63 496	87 373
Mangystau	11 809 507	997 830	2 242 790	6 399 633	550 216	2 662	95 297	627 552	461 256	432 271
Pavlodar	29 016 058	12 255 166	6 351 764	8 917 295	808 761	229	139 001	147 228	69 628	326 986
Southstik Kazakhstan	2 700 396	1 079 867	579 527	212 370	785 224	147	110	x	-	43 001
Turkistan	1 279 159	241 419	135 071	333 510	97 699	24 839	318	202 876	51 970	191 457
Shygyz Kazakhstan	21 125 691	10 480 836	5 767 680	4 061 178	496 553	5 697	10 852	40 709	126 292	135 894
Nur-Sultan city	2 032 590	649 064	749 603	319 714	311 342	-	-	-	-	2 867
Almaty city	3 918 314	581 720	172 695	2 931 776	141 902	331	-	25 565	11 496	52 829
Shymkent city	5 339 483	1 314 810	3 565 341	360 235	66 972	-	79	x	16 602	15 440

4.2 Investments to protect the environment by types of environmental activities in 2018

thousand tenge

	Total	Including								radiation safety	research and development	other areas of environmental activities
		air protection and climate change issues	cleaning of drains	waste management	protection and rehabilitation of soil, groundwater and surface water	noise and vibration reduction	biodiversity conservation and habitat					
Republic of Kazakhstan	111 161 429	10 333 129	6 179 506	7 541 510	9 882 630	16 584	3 573 298	90 958	323 022		73 220 792	
Akmola	27 368 480	x	-	x	-	-	-	-	-	-	27 348 062	
Aktobe	3 818 054	1 739 636	-	122 487	x	-	172 401	-	x	-	1 159 314	
Almaty	2 417 089	9 814	351 145	299	482 366	-	-	-	1 982	-	1 571 483	
Atyrau	1 311 424	-	918 508	676	282 071	-	110 169	-	-	-	-	
Batys Kazakhstan	5 116 827	5 024 710	x	91 604	x	-	-	-	-	-	-	
Zhambyl	18 611 484	-	-	-	-	-	-	-	-	-	18 611 484	
Karagandy	12 259 845	1 791 883	2 533 654	956 829	192 028	-	-	-	15 811	-	6 769 640	
Kostanal	107 739	-	29 218	54 000	6 666	-	-	-	-	-	17 855	
Kyzylorda	447 071	235 926	30 320	87 676	78 458	-	150	589	7 185	-	6 767	
Mangystau	15 459 191	22 525	11 147	226 714	7 167 802	-	-	x	23 952	-	8 004 747	
Pavlodar	5 624 492	449 546	450	2 689 449	63 694	x	-	x	241 037	-	2 120 704	
Soltustik Kazakhstan	x	-	-	-	x	-	-	-	-	-	-	
Turkistan	5 726 247	x	x	1 252	x	x	-	45 176	x	-	5 671 577	
Shygyys Kazakhstan	5 329 867	939 633	1 982 569	2 246 397	127 855	-	-	-	-	-	33 413	
Nur-Sultan city	6 360 840	-	321 912	98 840	752 912	-	3 288 231	-	-	-	1 898 945	
Almaty city	1 066 328	105 535	-	947 071	13 722	-	-	-	-	-	-	
Shymkent city	x	7 018	x	x	233	2 127	x	-	1 250	-	6 801	

4.3 Investments aimed at a «green economy»

thousand tenge

	2018			
	total	including		
		investment in renewable energy	investments in energy-saving technologies and energy efficiency	investments to reduce greenhouse gas emissions
Republic of Kazakhstan	72 840 764	70 941 690	1 793 464	105 610
Akmola	27 347 844	27 347 844	-	-
Aktobe	1 154 989	1 154 989	-	-
Almaty	1 571 483	1 571 483	-	-
Zhambyl	18 611 484	18 611 484	-	-
Karagandy	6 767 364	6 767 364	-	-
Kostanai	17 855	17 855	-	-
Kyzylorda	x	-	-	x
Mangystau	8 003 528	8 003 528	-	-
Pavlodar	x	-	x	-
Turkistan	x	x	-	x
Shygys Kazakhstan	x	-	x	-
Nur-Sultan city	1 898 945	1 898 945	-	-
Almaty city	-	-	-	-
Shymkent city	6 765	-	6 765	-

4.3 Current environmental costs by type of environmental activity

thousand tenge

	2014	2015	2016	2017	2018
Republic of Kazakhstan	140 578 609	174 650 049	152 205 626	175 445 180	191 015 579
Akmola	604 221	1 200 707	2 128 605	2 049 453	2 715 372
Aktobe	16 382 464	18 308 916	17 711 122	19 018 457	23 454 296
Almaty	1 608 070	2 431 904	1 793 189	844 376	841 212
Atyrau	25 159 288	40 254 371	26 218 442	36 827 790	38 408 581
Batys Kazakhstan	4 964 179	3 793 821	7 533 073	10 744 087	9 659 834
Zhambyl	2 181 832	3 245 330	3 599 495	3 424 138	3 629 200
Karagandy	16 968 507	23 881 108	17 040 221	24 231 114	24 045 627
Kostanai	16 572 796	5 171 019	8 303 476	6 946 069	8 400 631
Kyzylorda	2 428 958	2 904 693	2 708 568	2 401 904	2 639 628
Mangystau	14 651 455	29 093 197	18 427 462	14 265 688	11 809 507
Soltustik Kazakhstan	4 045 632	4 988 206	5 461 879	5 911 514	-
Pavlodar	16 265 835	16 696 011	19 015 796	22 983 128	29 016 058
Ontustik Kazakhstan	772 392	1 864 711	1 994 908	2 488 085	2 700 396
Turkistan	-	-	-	-	1 279 159
Shygys Kazakhstan	13 316 733	15 838 119	15 063 348	17 783 490	21 125 691
Nur-Sultan city	992 053	1 584 670	2 424 693	2 211 120	2 032 590
Almaty city	3 664 194	3 393 266	2 781 349	3 314 767	3 918 314
Shymkent city	-	-	-	-	5 339 483

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

	thousand tenge				
	2014	2015	2016	2017	2018
Total	103 492 239	82 883 241	43 936 904	86 961 995	111 161 429
including:					
Agriculture, forestry and fisheries	80 032	217 547	43 355	980	50 725
Industry	84 681 965	62 641 222	31 641 745	58 727 741	94 337 719
including:					
Mining and quarrying	53 294 195	24 894 682	15 518 993	27 920 040	16 679 332
Manufacturing industry	16 621 988	16 806 564	4 906 687	8 749 758	11 804 342
Electricity, gas, steam and air conditioning	12 999 542	20 129 595	10 283 229	21 149 863	64 739 230
Water supply; sewage system, control over the collection and distribution of waste	1 766 240	810 381	932 836	908 080	1 114 815
Construction	145 058	20 291	-	15 401 018	1 706 393
Wholesale and retail trade; car and motor-cycle repair	1 637	1 379	-	1 229	6 777 140
Transportation and warehousing	25 086	60 497	1 688	36	526
Accommodation and Food Services	1 290	-	-	-	-
Information and communication	1 290	43 720	1 977	2 269	-
Financial and insurance activities	25	12 162	-	-	-
Real estate transactions	150	512	4 368	14 449	-
Professional, scientific and technical activities	8 344 435	8 399 903	1 884 958	437 378	2 290 730
Administrative and support services	376 421	1 725	-	-	17
Public administration and defense; compulsory social security	9 828 207	10 321 192	10 356 503	11 576 674	5 985 607
Education	1 044	774	-	221	12 294
Health and social services	30	-	2 302	-	-
Arts, entertainment and recreation	-	-	8	-	278
Provision of other services	-	1 162 317	-	800 000	-

4.5 Investing in environmental protection

	thousand tenge				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	103 492 239	82 883 241	43 936 904	86 961 995	111 161 429
Akmola	1 297 414	8 802 732	1 689 004	5 682 105	27 368 480
Aktobe	1 216 752	1 098 845	2 100 592	712 326	3 818 054
Almaty	35 738	381 385	79 646	1 087 688	2 417 089
Atyrau	47 453 365	18 377 439	5 217 350	5 885 328	1 311 424
Batys Kazakhstan	2 992 317	1 812 890	5 602 083	8 152 537	5 116 827
Zhambyl	922 046	2 526 175	16 748	13 983 583	18 611 484
Karagandy	10 196 214	11 935 630	1 339 089	3 342 386	12 259 845
Kostanai	1 977 000	116 947	65 464	419 406	107 739
Kyzylorda	3 514 154	1 954 722	1 850 625	1 864 505	447 071
Mangystau	4 473 686	9 956 210	2 937 456	10 398 596	15 459 191
Pavlodar	12 408 206	7 661 024	2 483 027	2 474 682	5 624 492
Soltustik Kazakhstan	1 033 825	3 526 246	4 528 477	-	118 172,0
Turkistan	170 269	181 194	202 685	3 400 062	5 726 247
Shygyz Kazakhstan	6 601 925	6 653 044	6 327 969	6 943 049	5 329 867
Nur-Sultan city	5 572 947	6 520 213	6 317 621	21 483 454	6 360 840

Continuation

	2014	2015	2016	2017	2018
Almaty city	3 346 800	1 323 612	3 158 153	1 129 575	1 066 328
Shymkent city	279 581	54 933	20 915	2 713	18 279

4.6 The number of natural hazards *

units

	2014	2015	2016	2017	2018
Republic of Kazakhstan	60	104	94	96	68
Akmola	6	12	4	13	7
Aktobe	2	-	7	2	1
Almaty	17	7	7	7	17
Atyrau	1	2	3	-	-
Batys Kazakhstan	2	10	4	1	1
Zhambyl	1	13	8	14	4
Karagandy	1	3	-	2	-
Kostanai	-	2	4	9	-
Kyzylorda	-	-	1	9	1
Mangystau	1	1	-	-	-
Ontustik Kazakhstan	5	11	-	9	10
Pavlodar	1	5	17	2	3
Soltustik Kazakhstan	11	11	11	5	2
Turkistan					-
Shygys Kazakhstan	5	20	25	15	12
Nur-Sultan city	2	-	-	-	3
Almaty city	5	7	3	8	7
Shymkent city					-

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

4.7 The number of hazardous phenomena of natural and man-made

units

	2014			2015			2016			2017			2018		
	natural			natural			natural			natural			natural		
	total	of which water	man-made	total	of which water	man-made	total	of which water	man-made	total	of which water	man-made	total	of which water	man-made
Republic of Kazakhstan	2 789	-	990	2 665	-	013	2 061	-	762	2 464	-	259	2 023	-	596
Akmola	123	-	931	133	-	926	64	-	916	118	-	989	61	-	910
Aktobe	38	-	687	84	-	742	54	-	627	81	-	776	54	-	791
Almaty	378	-	1 541	333	-	1 589	233	-	1 734	276	-	2 026	225	-	1 739
Atyrau	55	-	414	74	-	406	91	-	373	81	-	346	94	-	343
Batys Kazakhstan	121	-	679	159	-	754	57	-	643	131	-	643	85	-	706
Zhambyl	279	-	676	271	-	745	269	-	75	269	-	799	266	-	703
Karagandy	79	-	2 015	88	-	1 841	39	-	1 784	71	-	1 902	31	-	1 788
Kostanai	77	-	1 165	128	-	1 241	88	-	1 184	98	-	1 146	89	-	1 086
Kyzylorda	232	-	534	241	-	489	184	-	519	227	-	550	235	-	505
Mangystau	10	-	284	16	-	233	9	-	257	22	-	292	18	-	326

Continuation

	2014			2015			2016			2017			2018		
	natural		man-made	natural		man-made	natural		man-made	natural		man-made	natural		man-made
	total	of which water		total	of which water		total	of which water		total	of which water		total	of which water	
Ontustik Kazakhstan	516	-	854	428	-	919	380	-	912	346	-	740	335	-	680
Pavlodar	300	-	1 158	192	-	914	200	-	952	196	-	841	135	-	854
Soltustik Kazakhstan	93	-	832	73	-	790	54	-	734	57	-	741	65	-	744
Turkistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shygys Kazakhstan	444	-	1 527	385	-	1 683	304	-	1 822	456	-	2 027	290	-	2 003
Nur-Sultan city	28	-	973	34	-	1 005	24	-	822	17	-	733	14	-	664
Almaty city	16	-	720	26	-	736	11	-	728	18	-	708	26	-	754
Shymkent city	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

4.8 Commissioning of capacities for the protection of natural resources

	2014	2015	2016	2017	2018
Wastewater treatment facilities thousand cubic meters m of water per day	54,8	26,6	1 488,0	5,1	89,2
Circulating water supply systems, thousand cubic meters m of water per day	2,8	5,6	1,7	705,5	3,7
Installations for the capture and disposal of harmful substances from exhaust gases, thousand cubic meters m of gas per day	-	950,0	-	4 800,0	-

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

	thousand cubic meters m of water per day				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	54,76	26,6	1 488,0	5,1	89,2
Akmola	3,0	-	-	-	-
Aktobe	-	-	-	-	-
Almaty	20,4	-	-	-	-
Atyrau	9,64	-	-	-	89,0
Batys Kazakhstan	0,48	-	-	-	-
Zhambyl	0,87	0,35	-	-	-
Karagandy	-	26,25	-	-	-
Kyzylorda	-	-	-	-	-
Mangystau	-	-	-	-	-
Pavlodar	-	-	-	5,1	-
Turkistan	-	-	-	-	-
Shygys Kazakhstan	0,37	-	1 488,0	-	0,2
Nur-Sultan city	-	-	-	-	-
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	-

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

	thousand cubic meters m of gas per hour				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	-	950,0	-	4 800,0	-
Atyrau	-	-	-	-	-
Batys Kazakhstan	-	-	-	-	-
Pavlodar	-	950,0	-	-	-
Turkistan	-	-	-	-	-
Shygys Kazakhstan	-	-	-	-	-
Nur-Sultan city	-	-	-	4 800,0	-
Almaty city	-	-	-	-	-
Shymketn city	-	-	-	-	-

5. Land resources

5.1 Distribution of land fund by accounting categories^{*}

on November 1; thousand hectares					
Land categories	2014	2015	2016	2017	2018
Total land in use of the Republic of Kazakhstan	261 173,8	261 173,8	261 299,8	261 925,8	262 508,2
including:					
agricultural land	98 580,2	100 835,4	102 600,9	104 050,6	105 337,4
specific weight, in percent	37,7	38,6	39,3	39,7	40,1
lands of settlements	23 804,8	23 751,5	23 725,8	23 805,6	24 053,2
specific weight, in percent	9,1	9,1	9,1	9,1	9,2
lands of industry, transport, communications, defense and other non-agricultural purposes	2 778,7	2 826,0	2 875,4	2 877,2	2 244,6
specific weight, in percent	1,1	1,1	1,1	1,1	0,9
lands of specially protected natural territories	6 634,3	6 613,4	6 724,6	7 134,3	7 284,3
specific weight, in percent	2,5	2,5	2,6	2,7	2,8
forest land	22 850,6	22 899,6	22 876,4	22 880,8	22 737,6
specific weight, in percent	8,7	8,8	8,8	8,7	8,6
water fund lands	4 120,9	4 124,2	4 128,5	4 140,0	4 144,6
specific weight, in percent	1,6	1,6	1,6	1,6	1,6
reserve lands	102 404,3	100 123,7	98 368,2	97 037,3	96 706,5
specific weight, in percent	39,2	38,3	37,6	37	36,8

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

5.2 Agricultural land

thousand hectares					
	2014	2015	2016	2017	2018
Agricultural land	98 580,2	100 835,4	102 600,9	104 050,6	105 337,4
including:					
lands of citizens for gardening and country building	72,7	71,3	71,1	70,1	65,8
land of citizens for farming	56 795,4	58 390,9	60 097,4	61 612,3	62 619,7
lands of non-state agricultural legal entities	40 353,1	40 673,6	40 777,7	40 876,2	41 162,8
lands of state agricultural legal entities	1 359,0	1 699,6	1 654,7	1 492,0	1 489,1

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

	thousand hectares				
	2014	2015	2016	2017	2018
Lands of settlements (cities, towns, and rural settlements)	23 804,8	23 751,5	23 725,8	23 805,6	24 053,2
including:					
cities and villages	2 254,9	2 265,7	2 232,6	2 207,0	2 372,6
rural settlements	21 549,9	21 485,8	21 493,2	21 598,6	21 680,6

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

	thousand hectares				
	2014	2015	2016	2017	2018
Lands of industry, transport, communications, defense and other non-agricultural purposes	2 778,7	2 826,0	2 875,40	2 877,2	2 244,6
including:					
Industry	1 016,4	1 052,9	1 094,7	1 103,8	1 127,6
Road transport	320,3	322,4	324,1	324,8	309,7
Railway transport	200,3	200,8	202,8	199,9	196,7
Connections	8,4	8,9	10,1	10,0	16,3
Other non-agricultural enterprises	1 233,3	1 241,0	1 243,7	1 238,7	594,3

5.7 The distribution of agricultural land on the composition of land

on November 1, 2018, thousand hectares

	Total area of agricultural land	Including								
		arable land	perennial plantations	deposits	hayfields	pastures	forest area	swamps	under water	other
Republic of Kazakhstan	105 337,4	25 339,9	77,0	1 930,5	2 177,9	72 369,7	1,6	161,4	221,7	2 536,9
Akmola	10 828,9	5 945,2	2,9	263,3	153,7	4 438,0	0,1	2,2	7,1	12,3
Aktobe	10 500,0	710,3	0,5	259,5	134,1	9 247,5	0,1	7,2	18,9	101,8
Almaty	8 292,9	1 012,4	20,6	81,3	202,1	6 808,1		5,9	5,9	114,7
Atyrau	2 662,9	6,0	0,5	8,2	51,4	2 398,3		53,1	31,5	100,8
Batys Kazakhstan	6 907,3	605,3	2,0	457,8	440,5	5 345,2	0,2	0,2	2,8	35,6
Zhambyl	4 589,2	781,9	3,9	-	123,4	3 540,9	0,1	4,2	7,7	71,2
Karagandy	14 887,8	1 250,6	1,9	193,6	222,8	12 803,4		5,1	25,6	335,9
Kostanai	10 644,9	6 015,2	9,2	139,3	115,3	4 216,0		32,4	26,1	47,4
Kyzylorda	2 692,4	166,7	0,6	40,2	37,1	1 915,9		2,1	3,5	484,5
Mangystau	5 228,0	0,4	0,1	0,1	-	4 205,7		-	-	989,8
Pavlodar	5 906,1	1 605,2	1,5	269,4	140,5	3 811,5		5,1	9,9	40,6
Soltustik Kazakhstan	7 154,8	4 918,0	2,6	57,3	15,7	1 930,4	0,2	42,7	64,9	42,2
Turkistan	4 114,3	863,4	28,4	101,2	69,5	2 932,4	0,2	0,2	8	81,3
Shygyz Kazakhstan	10 927,9	1 459,3	2,3	59,3	471,8	8 776,4	0,7	1	9,8	78,8
Nur-Sultan city	-	-	-	-	-	-	-	-	-	-
Almaty city	-	-	-	-	-	-	-	-	-	-
Shymkent city	-	-	-	-	-	-	-	-	-	-

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

on November 1, 2018, thousand hectares

	Total area of agricultural land	Of them									
		uncomplicated negative symptoms		crushed	saline	salty	eroded	deflated	waterlogged	marshy	other
		total	of which certainly fit								
Republic of Kazakhstan*	215 575,5	41 517,1	23 556,5	43 444,9	35 817,4	58 164,9	4 950,3	24 168,1	2 947,6	1 083,6	3 279,9
Akmola	13 135,5	4 995,5	4 995,5	2 412,1	1 601,9	3 169,5	562,0	9,6	164,5	111,6	108,8
Aktobe	26 237,8	7 872,9	1 447,0	1 829,5	1 483,8	11 453,6	473,1	2 101,1	269,0	25,9	720,6
Almaty	15 733,8	2 958,6	781,1	3 048,4	2 907,4	573,8	815,5	4 952,4	199,7	187,6	90,4
Atyrau	9 663,0	537,9	0,4	136,9	2 282,6	3 396,0	-	3 133,9	45,7	3,1	126,9
Batys Kazakhstan	12 772,6	1 528,2	1 073,2	301,9	1 343,2	7 109,5	274,5	1 409,5	326,4	72,5	215,0
Zhambyl	9 327,6	669,7	333,8	4 030,7	1 358,1	406,3	222,7	2 414,0	124,0	87,0	15,1
Karagandy	33 383,6	3 654,3	1 174,2	13 472,7	2 604,6	11 443,7	200,4	759,7	574,6	61,8	611,8
Kostanai	18 129,3	5 898,0	5 403,4	590,4	3 133,1	6 846,5	158,7	611,2	294,5	183,6	413,3
Kyzylorda	12 161,5	1 127,2	4,3	263,8	7 066,5	641,6	2,9	2 846,7	94,5	79,1	39,2
Mangystau	12 650,9	1 600,9	-	932,5	6 870,0	1 635,4	800,0	656,3	-	-	155,8
Pavlodar	11 167,5	1 606,5	1 596,5	2 824,4	775,6	3 943,8	0,9	1 296,3	157,9	34,8	527,3
Soltustik Kazakhstan	8 404,4	4 180,2	4 180,2	410,2	573,2	2 790,4	56,0	-	144,5	115,6	134,3
Turkistan	10 037,2	1 584,7	1 093,5	1 061,2	2 215,6	1 007,5	933,7	3 112,9	112,3	7,7	1,6
Shygyys Kazakhstan	22 644,6	3 230,1	1 424,6	12 121,3	1 587,2	3 744,3	426,6	864,5	437,7	111,7	119,7
Nur-Sultan	15,2	3,0	3,0	0,9	4,6	3,0	-	-	2,0	1,6	0,1
Almaty city	27,8	24,4	0,8	3,0	-	-	0,1	-	0,3	-	-
Shymkent city	83,2	45,0	45,0	5,0	10,0	-	23,2	-	-	-	-

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

5.9 The area of land subject to wind and water erosion *

	2000	2005	2010	2015
Total area of agricultural land, thousand hectares	222 485,9	222 624,7	222 407,5	222 143,3
Area of land subject to water erosion, thousand hectares	5 009,8	4 988,9	4 988,9	4 950,0
Percentage of soils subject to water erosion in the total area of agricultural land	2,3	2,2	2,2	2,2
Area of land subject to wind erosion, thous. Ha	25 489,5	25 493,1	25 493,1	24 168,1
Percentage of soils subject to wind erosion in the total area of agricultural land	11,5	11,5	11,5	10,9

*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.

5.10 Distrubed, worked out and reclaimed lands

	2014	2015	2016	2017	2018
Disturbed lands	247 136,0	250 199,0	247 834	248 297,4	248 420,4
Worked out of disturbed lands	52 989,0	53 427,0	53 702	51 417,1	51 324,1
Reclaimed	870,0	338,0	3 673	1 152,8	1 897,4
Of them under:					
arable land	-	-	-	-	-
other farmland	751,0	331,0	427,0	1 066,8	1 459,0
forest shrubs	-	-	-	-	-
ponds and other purposes	119,0	7,0	3 246	86,0	438,4

5.11 Distrubed and worked out lands

	At the beginning of 2014		At the beginning of 2015		At the beginning of 2016	
	disturbed lands	disturbed lands	disturbed lands	disturbed lands	disturbed lands	worked out of disturbed lands
Republic of Kazakhstan	250 199,0	53 427,0	250 199,0	53 427,0	247 887,0	53 702,0
Akmola	17 484,0	7 288,0	17 484,0	7 288,0	17 879,0	7 288,0
Aktobe	15 454,0	3 018,0	15 454,0	3 018,0	15 193,0	3 049,0
Almaty	6 802,0	800,0	6 802,0	800,0	6 969,0	995,0
Atyrau	2 097,0	51,0	2 097,0	51,0	2 329,0	59,0
Batys Kazakhstan	3 652,0	392,0	3 652,0	392,0	3 341,0	392,0
Zhambyl	6 605,0	1 983,0	6 605,0	1 983,0	6 605,0	1 983,0
Karagandy	44 819,0	10 639,0	44 819,0	10 639,0	45 170,0	10 651,0
Kostanai	37 756,0	13 978,0	37 756,0	13 978,0	37 615,0	14 000,0
Kyzylorda	2 448,0	711,0	2 448,0	711,0	2 600,0	711,0
Mangystau	78 574,0	3 593,0	78 574,0	3 593,0	7 734,0	3 592,0
Pavlodar	12 146,0	1 232,0	12 146,0	1 232,0	12 146,0	1 232,0
Ontustik Kazakhstan	2 690,0	93,0	2 690,0	93,0	2 690,0	93,0
Soltustik Kazakhstan	6 661,0	4 515,0	6 661,0	4 515,0	3 933,0	4 515,0
Turkistan	0,0	0,0	0,0	0,0	0,0	0,0
Shygyz Kazakhstan	12 784,0	5 134,0	12 784,0	5 134,0	12 683,0	5 142,0
Nur-Sultan city	227,0	0,0	227,0	0,0	0,0	0,0

Continuation

	At the beginning of 2014		At the beginning of 2015		At the beginning of 2016	
	disturbed lands	disturbed lands	disturbed lands	disturbed lands	disturbed lands	worked out of disturbed lands
Almaty city	0,0	0,0	0,0	0,0	0,0	0,0
Shymkent city	0,0	0,0	0,0	0,0	0,0	0,0

Continuation

	At the beginning of 2017		At the beginning of 2018	
	disturbed lands	disturbed lands	disturbed lands	worked out of disturbed lands
Republic of Kazakhstan	248 297,4	51 417,1	248 420,4	51 324,1
Akmola	18 412,0	7 288,0	18 412,0	7 288,0
Aktobe	14 888,0	2 103,7	14 888,0	2 103,7
Almaty	6 804,0	995,0	6 804,0	995,0
Atyrau	2 329,0	59,0	2 329,0	59,0
Batys Kazakhstan	3 334,0	392,0	3 334,0	392,0
Zhambyl	6 605,1	1 983,0	6 605,1	1 983,0
Karagandy	45 270,0	10 651,0	45 270,0	10 651,0
Kostanai	37 773,6	13 748,0	37 773,6	13 748,0
Kyzylorda	2 600,0	711,0	2 700,0	711,0
Mangystau	78 574,0	3 592,6	78 574,0	3 592,6
Pavlodar	3 933,0	3 701,0	3 933,0	3 701,0
Ontustik Kazakhstan	2 690,0	93,0	0,0	0,0
Soltustik Kazakhstan	12 146,0	1 232,0	12 146,0	1 232,0
Turkistan	0,0	0,0	2 378,0	93,0
Shygys Kazakhstan	12 631,5	4 867,8	12 631,5	4 867,8
Nur-Sultan city	0,0	0,0	0,0	0,0
Almaty city	307,2	0,0	307,2	0,0
Shymkent city	0,0	0,0	335,0	0,0

5.12 Availability of irrigated land by land

on November 1, in thousand hectares

	2014	2015	2016	2017	2018
Total irrigated area	2 122,6	2 142,2	2 167,9	2 181,0	2 203,1
including:					
agricultural land	1 701,9	1 722,2	1 750,1	1 775,4	1 766,5
land of settlements (cities and towns and rural settlements)	157,9	159,1	161,8	164,0	180,1
lands of industry, transport and communication, defense and other non-agricultural purposes	4,5	4,1	4,5	3,7	2,6
lands of specially protected natural areas	1,5	1,4	1,5	1,5	1,3
lands of the forest fund	8,6	8,7	7,9	7,8	7,7
lands of the water fund	0,3	0,3	0,3	0,3	0,2
reserve lands	247,9	246,4	241,8	228,3	244,7

5.13 Availability of irrigated land

thousand ha

	2014		2015		2016	
	total area	of them arable land	total area	total area	total area	of them arable land
Republic of Kazakhstan	2 122,6	1 587,9	2 142,2	1 597,9	2 167,9	1 607,9
Akmola	38,3	16,0	31,0	15,5	31,0	15,5
Aktobe	28,1	9,5	28,1	10,9	28,1	10,9
Almaty	577,8	487,7	577,8	480,7	579,8	480,7
Atyrau	14,1	4,4	16,2	5,1	20,3	5,1
Batys Kazakhstan	55,8	16,1	55,8	14,7	55,8	14,7
Zhambyl	229,6	209,2	229,7	210,4	229,7	210,4
Karagandy	87,9	55,3	87,9	54,7	91,6	54,7
Kostanai	32,4	9,2	32,4	9,2	32,3	9,2
Kyzylorda	231,1	154,9	238,6	160,9	240,0	170,9
Mangystau	2,1	0,5	2,1	0,5	2,1	0,5
Ontustik Kazakhstan	548,1	454,1	561,1	462,6	565,7	462,6
Pavlodar	59,6	30,4	63,8	35,2	72,2	35,2
Soltustik Kazakhstan	15,5	10,1	15,5	10,1	17,0	10,1
Turkistan	-	-	-	-	-	-
Shygys Kazakhstan	200,7	129,8	200,7	126,7	200,8	126,7
Nur-Sultan city	0,3	0,1	0,3	0,1	0,3	0,1
Almaty city	1,2	0,6	1,2	0,6	1,2	0,6
Shymkent city	-	-	-	-	-	-

Continuation

	2017		2018	
	total area	total area	total area	of them arable land
Republic of Kazakhstan	2 181,0	1 624,0	2 203,1	1 634,4
Akmola	31,0	17,9	31,6	18,3
Aktobe	28,1	11,3	30,3	14,3
Almaty	579,9	473,6	583,1	474,5
Atyrau	21,8	6,6	21,8	6,2
Batys Kazakhstan	55,8	16,6	55,8	16,5
Zhambyl	229,7	210,0	230,8	204,8
Karagandy	91,8	57,1	93,0	57,7
Kostanai	32,3	8,1	32,3	5,7
Kyzylorda	242,0	167,1	250,0	171,7
Mangystau	2,3	0,6	2,3	0,6
Ontustik Kazakhstan	570,3	466,5	-	-
Pavlodar	74,8	39,5	86,4	54,1
SoltustikKazakhstan	17,0	11,4	17,0	11,4
Turkistan	-	-	545,0	446,9
Shygys Kazakhstan	200,9	135,3	195,8	129,7
Nur-Sultan city	0,3	0,1	0,3	0,1
Almaty city	3,0	2,3	2,3	2,3
Shymkent city	-	-	25,3	19,6

5.14 Land withdrawal from productive turnover

ha

	2014	2015	2016	2017	2018
Land withdrawal from productive turnover					
- total area	103,1	44,7	45,7	88,9	277,7
Including under:					
lands of settlements	55,1	-	-	79,8	247,6
industrial lands	44,7	36,5	41,8	9,1	23,8
transport infrastructure	0,7	0,5	1,2	-	6,3
other non-agricultural purposes	2,6	7,7	2,7	-	-

5.15 Application of organic fertilizers by agricultural enterprises

in terms of 100% nutrients, thousand tons

	2014	2015	2016	2017	2018
Republic of Kazakhstan	145,2	176,2	334,8	463,6	424,0
Akmola	48,2	63,1	45,3	79,4	14,9
Aktobe	-	10,6	45,2	45,1	52,5
Almaty	9,2	5,8	37,5	34,7	4,4
Atyrau	1,6	2,0	-	-	-
Batys Kazakhstan	-	-	-	-	-
Zhambyl	-	16,2	16,2	5,5	72,7
Karagandy	0,5	1,2	0,1	6,5	0,6
Kostanai	19,9	17,9	27,8	150,9	152,7
Kyzylorda	-	-	-	-	-
Mangystau	0,0	0,0	0,3	-	-
Pavlodar	15,4	17,3	67,0	39,6	17,7
Soltustik Kazakhstan	18,1	13,8	37,9	19,4	96,4
Turkistan	0,6	8,0	32,6	31,7	1,6
Shygys Kazakhstan	27,1	17,9	22,7	24,0	10,1
Nur-Sultan city	-	-	-	-	-
Almaty city	145,2	176,2	334,8	463,6	424,0
Shymkent city	48,2	63,1	45,3	79,4	14,9

5.16 Application of mineral fertilizers by agricultural enterprises

in terms of 100% nutrients, thousand tons

	2014	2015	2016	2017	2018
Republic of Kazakhstan	60,1	60,2	63,3	104,4	105,0
Akmola	9,3	15,8	14,0	40,1	12,0
Aktobe	0,0	0,2	0,2	0,3	1,0
Almaty	3,7	3,1	3,5	4,1	0,4
Atyrau	0,0	0,2	0,1	0,1	0,0
Batys Kazakhstan	0,2	0,1	0,2	0,2	0,2
Zhambyl	0,4	2,6	0,8	1,1	1,0
Karagandy	2,0	0,9	1,0	1,7	1,2
Kostanai	15,4	3,1	4,3	5,4	7,0
Kyzylorda	9,3	7,3	8,5	9,3	7,7
Mangystau	0,1	0,1	0,0	0,0	0,0
Pavlodar	0,8	0,7	1,1	2,2	1,2

Continuation

	2014	2015	2016	2017	2018
Soltustik Kazakhstan	11,8	17,1	20,4	24,3	38,2
Turkistan	3,3	4,7	5,0	6,7	3,4
Shygys Kazakhstan	3,4	3,9	0,9	8,2	31,6
Nur-Sultan city	0,0	0,0	0,1	0,0	0,0
Almaty city	-	-	-	0,2	-
Shymkent city	0,2	0,1	0,0	0,5	0,1

5.17 Pesticide application*

	2014	2015	2016	2017	2018
Insecticides, tons	645,4	524,7	506,9	619,4	528,1
Herbicides and desiccants, tons	9 421,4	8 706,5	8 306,7	10 764,9	11 050,7
Fungicides and bactericides, tons	812,0	674,5	915,4	1 369,5	1 073,5
The plant growth regulators, in tons	262,2	99,4	269,7	247,7	401,7
Rodenticides, tons	17,8	7,2	59,2	-	4,0
Others, tons	-	576,6	613,7	-	-
The total amount of any (all pesticides), tons	11 158,8	10 588,9	10 671,6	13 001,5	13 058,0
Total area of agricultural land, ha	24 876,9	21 205,0	21 660,1	21 902,6	22 011,2
Introduction of pesticides per unit area, kg/ha	0,449	0,499	0,493	0,594	0,593

*According to the State Inspection Committee in the agro-industrial complex of the Ministry of Agriculture of the Republic of Kazakhstan.

5.18 The number of applied mineral and organic fertilizers per unit areacultivated land and perennial plantations

	tons / ha				
	2013	2014	2015	2016	2017
Mineral					
Republic of Kazakhstan	73,6	87,1	68,9	80,8	51,6
Akmola	47,0	52,8	43,9	97,8	23,2
Aktobe	7,9	51,4	38,5	43,8	47,9
Almaty	121,9	246,4	75,4	166,6	27,3
Atyrau	143,1	351,4	187,9	204,7	88,5
Batys Kazakhstan	205,0	138,4	82,0	265,7	122,7
Zhambyl	1 148,5	1 611,8	742,2	576,4	129,3
Karagandy	53,6	44,9	98,4	41,1	33,5
Kostanai	34,8	20,2	33,6	35,8	22,3
Kyzylorda	268,9	188,7	237,1	268,7	145,4
Mangystau	1 076,2	343,8	477,9	629,3	1 016,3
Pavlodar	95,8	149,0	168,3	129,4	3,1
Soltustik Kazakhstan	32,0	39,5	37,1	34,7	43,7
Turkistan	-	-	-	-	34,3
Shygys Kazakhstan	103,5	75,4	74,4	82,9	300,1
Nur-Sultan city	151,3	150,7	146,1	-	254,3
Almaty city	-	87,1	-	-	-
Shymkent city	-	-	-	-	15,5
Organic					
Republic of Kazakhstan	900,6	762,5	771,3	767,9	622,7

Continuation

	2013	2014	2015	2016	2017
Akmola	1 064,3	478,1	301,0	214,7	53,3
Aktobe	214,3	3 052,9	7 758,6	6 358,7	11 152,5
Almaty	710,9	882,5	899,6	822,1	408,1
Atyrau	12 307,7	952,4	-	-	-
Batys Kazakhstan	1 016,3	1 509,8	1 713,7	521,7	261,4
Zhambyl	1 400,9	1 335,3	1 555,3	1 484,7	4 726,0
Karagandy	1 573,2	2 098,5	2 780,8	1 384,6	2 609,1
Kostanai	3 000,7	1 529,3	1 525,1	1 264,5	6 423,4
Kyzylorda	7,3	314,4	-	409,9	-
Mangystau	206,0	119,2	234,6	450,0	5 316,5
Pavlodar	1 729,6	499,1	966,7	801,2	470,6
Soltustik Kazakhstan	167,0	321,4	308,1	146,8	570,4
Turkistan	-	-	-	-	136,7
Shygys Kazakhstan	1 012,3	1 012,1	531,7	911,9	414,7
Nur-Sultan city	758,1	1 613,0	1 962,4	1 001,6	-
Almaty city	2 500,0	-	1 000,0	600,0	3 300,0
Shymkent city	-	-	-	-	35,0

5.19 About irrigated lands and irrigation methods*

	measure				
Name	2014	2015	2016	2017	2018
Availability of irrigated land regular irrigation	2 123 000	2 142 000	2 168 000	2 181 000	2 175 000
Irrigated area	1 420 000	1 477 000	1 400 000	1 415 000	1 480 000
Including irrigation methods :					
Furrow irrigation	1 310 166	1 340 476	1 229 700	1 231 612	1 264 411
drip irrigation	48 817	60 780	72 900	82 853	93 636
sprinkling	61 017	75 744	97 400	100 535	121 953
Land area of estuary irrigation	866	864	864	864	864

* According to the Land Management Committee of the Ministry of Agriculture of the Republic of Kazakhstan.

By irrigation methods - data of regional akimats.

6. Water resources

6.1 River Flow Resources*

	Volume of water resources, million cubic meters		
	Total	including	
		formed on the territory of the Republic of Kazakhstan	coming from the neighboring countries
2014	108 100	61 200	46 900
2015	115 600	71 400	44 200
2016	160 000	105 000	55 000
2017	122 100	64 000	58 100
2018	109 100	66 500	42 600

* Hereinafter, according to RGP «Kazhydromet» of the Ministry of Energy of the Republic of Kazakhstan.

6.2 The main characteristics of large rivers

Name of the largest rivers	Length, km		The total area of the basin (catchment thousand square meters km)	Volume of annual flow, cub. km	
	total length	on the territory of the Republic of Kazakhstan		2016	Medium-perennial
Irtys	4 248	1 700	210 (16 430)	29,2 (Семиярское)	27,9
Ishim	2 450	1 400	113 (155)	3,17 (Петропавловск)	1,82
Tobol	1 591	800	130 (395)	0,19 (Костанай)	0,28
Nura	978	978	55,1	1,09 (с. Р.Кошкарбаева)	0,67
Ural	2 428	1 082	73 (231)	4,99 (Кушум с каналом)	10,0
Syr Darya	2 212	1 400	219 (462)	11,7 (н.б. Шардаринского вдхр)	14,9
Chu	1 186	800	62,5 (148)	1,74 (Кайнар Благовещенское)	1,77
Talas	661	227	52,7	0,55 (суммарная)	0,54 (за 8 лет)
Ili	1 001	815	68,4 (131)	164 км	14,4

6.3 Main characteristics of the largest lakes

Name of the lakes	Water surface area (mirrors), sq. Km	Water volume, million cubic meters M	Depth, m	
			average	deepest
Balkhash	18 200	106,0	5,8	26,5
Alakol	2 650	58,6	22,0	54,0
Markakol	449	6,3	14,0	25,0

6.4 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	0,7	0,6
Vyacheslav reservoir	61	0,4	0,4
Kapshagai reservoir	1 847	18,5	10,3
Shardara reservoir	400	5,2	4,2

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

	2014	Water pollution index				Comprehensive Water Pollution Index				Comprehensive Water Pollution Index				Comprehensive Water Pollution Index			
		2015				2016				2017				2018			
		Dissolved oxygen	BOC ₅	CWPI		Dissolved oxygen	BOC ₅	CWPI		Dissolved oxygen	BOC ₅	CWPI		Dissolved oxygen	BOC ₅	CWPI	
Irtys (EKR)		10,4	1,45	1,86		10,57	1,49	1,90		10,23	1,25	1,80		10,26	1,57	1,93	
Irtys (Pavlodar)	1,01	10,91	1,71	1,8		10,85	1,88	1,6		10,6	1,8	1,6		11,02	1,79	1,50	
Ural (Atyrau)		10,3	3,7	0,00		11,8	3,36	0,00		9,3	2,93	0,0		6,23	2,87	0,0	
Ural (WKR)	1,07	9,04	3,34	1,08		9,95	1,57	1,10		10,35	2,36	1,30		8,68	2,26	1,75	
Syr Darya (SKR)		9,83	1,84	2,75		10,1	1,96	2,5		10,01	1,64	2,8		10,35	1,88	2,38	
Syr Darya (Kyzylorda)	2,16	7,5	1,4	2,1		6,93	1,07	3,4		5,34	1,2	2,7		5,40	1,21	2,87	
Nura (Akmola)		7,99	2,39	3,14		9,55	2,63	2,30		10,88	2,33	1,42		8,45	2,81	2,25	
Nura (Karagand)	3,87	9,29	1,95	4,66		9,22	2,03	2,83		8,63	2,13	2,08		9,85	2,42	2,31	
Ili	1,43	11,7	0,9	1,27		10,63	1,2	1,8		11,4	1,37	2,0		10,32	1,02	1,7	
Ishim (NKR)		10,3	1,57	2,06		10,60	2,08	2,12		10,12	1,73	1,95		10,22	1,91	1,7	
Ishim (Akmola)	2,22	8,29	2,01	2,83		10,29	1,96	2,09		11,20	1,65	1,90		10,05	1,86	1,52	
Chu	1,97	9,96	3,69	1,85		9,52	3,49	1,88		9,61	3,59	1,83		9,27	3,30	1,5	
Talas	1,54	9,80	3,69	2,1		9,24	3,31	1,75		9,89	3,24	1,53		9,67	3,12	1,55	
Tobol	2,73	8,96	2,28	4,2		7,60	2,0	2,45		8,06	2,58	3,19		8,29	2,35	2,26	
Balkhash (Karagand)		9,49	1,20	3,94		9,23	1,00	3,66		7,96	1,40	3,21		7,96	0,88	2,76	
Balkhash (Almaty)	1,94	-	-	-		10,9	0,8	5,3		10,4	1,66	6,88		10,56	1,26	5,38	

6.6 The state of the quality of surface waters of Kazakhstan by hydrochemical indicators in 2018

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLK/CWPI)	2018(SLK/CWPI)				
Irtys (Shygys Kazakhstan)	10,23		Dissolved oxygen	10,26	-	Regulatory clean
	1,25		BOC _s	1,57	-	Regulatory clean
	1,80	1,93	Heavy metals			
			Copper	0,0025	2,5	moderate level of pollution
			Zinc	0,019	1,9	
			Manganese	0,014	1,4	
	10,60		Dissolved oxygen	11,02		Regulatory clean
	1,8		BOC _s	1,79		Regulatory clean
	1,6	1,50	Heavy metals			Moderate level of pollution
			Copper	0,0015	1,5	
Bukhtarma (Shygys Kazakhstan)	10,71		Dissolved oxygen	10,05		Regulatory clean
	1,10		BOC _s	1,42		Regulatory clean
		1,62	Nutrients			
			Common iron	0,125	1,3	
			Heavy metals			
	1,60		Copper	0,0025	2,5	Moderate level of pollution
			Manganese	0,017	1,7	
			Zinc	0,016	1,6	
	10,46		Dissolved oxygen	10,22		Regulatory clean
	1,23	4,04	BOC _s	1,32		Regulatory clean
Breksha (Shygys Kazakhstan)			Nutrients			
			Common iron	0,26	2,6	
			Nitrite nitrogen	0,031	1,6	
	4,14		Heavy metals			High level of pollution
			Zinc	0,091	9,1	
			Copper	0,0038	3,8	
			Manganese	0,050	5,0	
	10,29		Dissolved oxygen	9,87		Regulatory clean
	1,41		BOC _s	1,71		Regulatory clean
			Nutrients			
Tikhaya (Shygys Kazakhstan))			Common iron	0,185	1,8	
			Ammonium salt	0,84	1,7	
	4,39	4,45	Nitrite nitrogen	0,046	2,3	High level of pollution
			Heavy metals			
			Zinc	0,090	9,0	
			Copper	0,0046	4,6	
			Manganese	0,073	7,3	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/CWPI)	2018(SLKI/CWPI)				
Ulba (Shygys Kazakhstan)	10,39		Dissolved oxygen	10,34		Regulatory clean
	1,12		BOC ₅	1,60		Regulatory clean
			Nutrients			
			Common iron	0,152	1,5	
	4,0	4,89	Heavy metals			High level of pollution
			Zinc	0,151	15,1	
			Copper	0,0033	3,3	
			Manganese	0,064	6,4	
	9,86		Dissolved oxygen	9,42		Regulatory clean
	1,32		BOC ₅	1,57		Regulatory clean
Glubochanka (Shygys Kazakhstan)			Nutrients			
			Nitrite nitrogen	0,039	1,9	
	5,22	4,60	Heavy metals			High level of pollution
			Zinc	0,105	10,5	
			Manganese	0,066	6,6	
			Copper	0,0048	4,8	
	10,54		Dissolved oxygen	10,22		Regulatory clean
	1,10		BOC ₅	1,43		Regulatory clean
			Nutrients			
	9,17	10,5	Heavy metals			
Krasnoyarka (Shygys Kazakhstan)			Zinc	0,202	20,2	High level of pollution
			Copper	0,0048	4,8	
			Manganese	0,065	6,5	
	10,71		Dissolved oxygen	10,02		Regulatory clean
	1,03		BOC ₅	1,46		Regulatory clean
		1,95	Nutrients			
			Common iron	0,161	1,6	
			Heavy metal			
	2,05		Copper	0,0029	2,9	Moderate level of pollution
			Manganese	0,022	2,2	
Markakol (Shygys Kazakhstan)			Zinc	0,018	1,8	
	9,64		Dissolved oxygen	8,73		Regulatory clean
	1,21		OBT	1,08		
			BOC ₅			Regulatory clean
		1,9	Nutrients			
			Common iron	0,27	2,7	Moderate level of pollution
			Heavy metal			
			Copper	0,0011	1,1	
	8,81		Dissolved oxygen	8,73		Regulatory clean
	1,73		BOC ₅	1,20		Regulatory clean
Emil (Shygys Kazakhstan)		1,38	Main ions			
			Sulphates	150	1,5	
			Heavy metals			Moderate level of pollution
			Мыс			
			Copper	0,0014	1,4	
			Manganese	0,011	1,1	

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/CWPI)	2018(SLKI/CWPI)				
	9,18		Dissolved oxygen	8,95		Regulatory clean
	1,96		OBТ	2,03		
			BOC ₅			Regulatory clean
			Sulphates	113	1,1	
Ayakoz (Shygys Kazakhstan)	1,70	1,33	Copper	0,0015	1,5	Moderate level of pollution
			Zinc	0,016	1,6	
Bukhtarma reservoir (Shygys Kazakhstan)	8,99		Dissolved oxygen	8,89		Regulatory clean
	1,33	1,8	BOC ₅	1,57		Regulatory clean
	2,30		Copper	0,0018	1,8	Moderate level of pollution
Ust-Kamenogorsk reservoir (Shygys Kazakhstan)	9,78		Dissolved oxygen	9,61		Regulatory clean
	1,62		BOC ₅	1,42		Regulatory clean
	2,30	1,30	Copper	0,0013	1,3	Moderate level of pollution
			Dissolved oxygen	9,22		Regulatory clean
Usolka (Pavlodar)		1,60	BOC ₅	1,70		Regulatory clean
			Copper	0,0016	1,6	Moderate level of pollution
			Dissolved oxygen	9,11		Regulatory clean
			BOC ₅	1,28		Regulatory clean
Zhasybai (Pavlodar)		2,20	Sulphates	114,3	1,1	
			Magnesium	51,2	1,3	Moderate level of pollution
			Sodium	210,7	1,8	
			Fluoride	2,26	3,0	
		2,10	Dissolved oxygen	9,29		Regulatory clean
			BOC ₅	1,38		Regulatory clean
Sabyndy (Pavlodar)			Sulphates	120,5	1,2	
			Magnesium	58,0	1,4	Moderate level of pollution
			Sodium	161,5	1,3	
			Fluoride	2,20	2,9	
		2,83	Dissolved oxygen	9,57		Regulatory clean
			BOC ₅	1,49		Regulatory clean
Toraigyr (Pavlodar)			Sulphates	158,6	1,6	Moderate level of pollution
			Sodium	488,4	4,1	
			Fluoride	2,13	2,8	
Ural (Atyrau)			Dissolved oxygen	6,23		Regulatory clean
		0,0	BOC ₅	2,87		Regulatory clean
Sharonova (Atyrau)			Dissolved oxygen	7,00		Regulatory clean
		0,0	BOC ₅	3,19		Regulatory clean
Kigash (Atyrau)			Dissolved oxygen	6,35		Regulatory clean
		0,0	BOC ₅	2,84		Regulatory clean

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/CWPI)	2018(SLKI/CWPI)				
Embi (Atyrau)			Dissolved oxygen	6,20		Regulatory clean
			1,3 BOC _s	2,35		Regulatory clean
			Heavy metal			Moderate level of pollution
	10,35		Manganese	0,013	1,3	Regulatory clean
Ural (Batys Kazakhstan)	2,36		Dissolved oxygen	8,68		Regulatory clean
	1,30		BOC _s	2,26		Regulatory clean
		1,75	Common iron	0,216	2,2	Moderate level of pollution
			Nitrite nitrogen	0,025	1,3	Regulatory clean
Chagan (Batys Kazakhstan)	10,69		Dissolved oxygen	8,66		Regulatory clean
	2,49		BOC _s	2,41		Regulatory clean
	1,50	1,70	Nitrite nitrogen	0,027	1,4	Moderate level of pollution
			Common iron	0,203	2,0	Regulatory clean
Derkol (Batys Kazakhstan)	10,03		Dissolved oxygen	9,34		Regulatory clean
	2,62		BOC _s	2,44		Regulatory clean
	1,50	1,75	Nitrite nitrogen	0,029	1,4	Moderate level of pollution
			Common iron	0,211	2,1	Regulatory clean
Karaozen (Batys Kazakhstan)	9,56		Dissolved oxygen	8,04		Regulatory clean
	2,87		BOC _s	2,48		Regulatory clean
	1,25	1,20	Magnesium	43,31	1,1	Moderate level of pollution
			Common iron	0,12	1,2	Regulatory clean
Saryozen (Batys Kazakhstan))			Nitrite nitrogen	0,028	1,4	Regulatory clean
	9,68		Dissolved oxygen	8,16		Regulatory clean
	3,08			2,30		
	1,12		BOC _s	0,115	1,1	Moderate level of pollution
Saryozen (Batys Kazakhstan))			Common iron	0,024	1,2	Regulatory clean
			Nitrite nitrogen			Moderate level of pollution
	8,48		Dissolved oxygen	8,48	-	Regulatory clean
	3,92		BOC _s	3,92	-	Moderate level of pollution
Shalkar lake (Batys Kazakhstan)			Chlorides	2 007,0	6,7	Regulatory clean
			Calcium	296	1,6	Regulatory clean
			Magnesium	248,4	6,2	Regulatory clean
	2,24		Sulphates	117	1,2	Regulatory clean
Kushum channel (Batys Kazakhstan)			Calcium	296	1,6	Regulatory clean
			Nitrite nitrogen	0,032	1,6	Regulatory clean
			Phenols	0,0012	1,2	Regulatory clean
	8,96		Dissolved oxygen	9,16		Regulatory clean
Kushum channel (Batys Kazakhstan)	2,63		BOC _s	2,59		Regulatory clean
	1,50	1,35	Nitrite nitrogen	0,023	1,2	Regulatory clean
			Common iron	0,152	1,5	Moderate level of pollution

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Ilek (Batys Kazakhstan)	10,28		Dissolved oxygen	9,32		Regulatory clean
	2,98		BOC _s	2,17		Regulatory clean
			Common iron	0,188	1,9	Moderate level of pollution
	1,53	1,50	Nitrite nitrogen	0,023	1,1	
			Dissolved oxygen	9,40		Regulatory clean
Shyngyrlau (Batys Kazakhstan)			BOC _s	2,68		Regulatory clean
		1,70	Common iron	0,227	2,3	Moderate level of pollution
			Chlorides	321,75	1,1	
	10,24		Dissolved oxygen	9,05		Regulatory clean
	2,28		BOC _s	1,93		Regulatory clean
Ilek (Aktobe)			Borum	0,269	15,8	
			Ammonium saline	1,199	2,4	
	3,48	4,89	Copper	0,0042	4,2	High level of pollution
			Manganese	0,043	4,3	
			Xром (6+)	0,097	4,9	
Or (Aktobe)			Phenols	0,0011	1,1	
	11,09		Dissolved oxygen	9,82		Regulatory clean
	2,49		BOC _s	2,22		Regulatory clean
			Copper	0,0044	4,4	
	3,65	2,62	Ammonium saline	1,138	2,3	High level of pollution
Emba (Aktobe)			Manganese	0,043	4,3	
			Phenols	0,0012	1,2	
	10,00	2,61	Dissolved oxygen	11,04		Regulatory clean
	2,14		BOC _s	3,17		Regulatory clean
			Copper	0,005	5,0	
Kargaly (Aktobe)			Ammonium saline	1,49	3,0	
		2,33	Sulphates	115,09	1,2	High level of pollution
			Manganese	0,049	4,9	
			Phenols	0,0013	1,3	
			Dissolved oxygen	9,49		Regulatory clean
Koksestek (Aktobe)		2,16	BOC _s	1,70		Regulatory clean
			Copper	0,0050	5,0	
			Ammonium saline	0,766	1,5	
			Zinc	0,014	1,4	Moderate level of pollution
			Manganese	0,049	4,9	
			Phenols	0,0012	1,2	
		2,75	Dissolved oxygen	9,90		Regulatory clean
			BOC _s	1,51		Regulatory clean
			Copper	0,0072	7,2	
			Ammonium saline	0,684	1,4	
			Zinc	0,011	1,1	Moderate level of pollution
			Manganese	0,040	4,0	
			Phenols			

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Aktasty (Aktobe)			2,60 Dissolved oxygen	10,05		Regulatory clean
			BOC ₅	1,74		Regulatory clean
			Sulphates	107,1	1,1	
			Ammonium saline	0,87	1,7	Moderate level of pollution
			Copper	0,0046	4,6	
OiyI (Aktobe)			Manganese	0,054	5,4	
			2,18 Dissolved oxygen	10,93		Regulatory clean
			BOC ₅	2,45		Regulatory clean
			Sulphates	116,8	1,2	
			Ammonium saline	0,918	1,8	
Ulken kobda (Aktobe)			Copper	0,0050	5,0	Moderate level of pollution
			Manganese	0,040	4,0	
			Phenols	0,0012	1,2	
			2,90 Dissolved oxygen	9,10		Regulatory clean
			BOC ₅	2,0		Regulatory clean
Kara Kobda (Aktobe)			Ammonium saline	0,646	1,3	
			Copper	0,0060	6,0	Moderate level of pollution
			Manganese	0,030	3,0	
			3,28 Dissolved oxygen	11,77		Regulatory clean
			BOC ₅	1,70		Regulatory clean
Temir (Aktobe)			Sulphates	111	1,1	
			Copper	0,0058	5,8	High level of pollution
			Manganese	0,051	5,1	
			2,98 Dissolved oxygen	10,53		Regulatory clean
			BOC ₅	4,01		Regulatory clean
Shalkar (Aktobe)			Ammonium saline	1,128	2,3	
			Copper	0,0025	2,5	Moderate level of pollution
			Manganese	0,048	4,8	
			2,88 Dissolved oxygen	11,91		Regulatory clean
			BOC ₅	2,77		Regulatory clean
Tobol (Kostanai)			Ammonium saline	0,874	1,7	
			Copper	0,0032	3,2	Moderate level of pollution
			Manganese	0,049	4,9	
			8,06 Dissolved oxygen	8,29		Regulatory clean
			2,58 BOC ₅	2,35		Regulatory clean
			Copper	0,0017	1,7	
			Sulphates	233,8	2,3	
			Magnesium	47,1	1,2	
			3,19 2,26 Common iron	0,20	2,0	Moderate level of pollution
			Ammonium saline	0,56	1,1	
			Manganese	0,034	3,4	
			Nickel	0,061	6,1	
			Zinc	0,027	2,7	

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Ayet (Kostanai)	9,15		Dissolved oxygen	9,01		Regulatory clean
	3,06		BOC ₅	2,94		Regulatory clean
			Sulphates	188,3	1,9	
			Magnesium	48,7	1,2	
	3,31	2,35	Common iron	0,31	3,1	
			Ammonium saline	0,76	1,5	Moderate level of pollution
			Copper	0,0014	1,4	
			Manganese	0,025	2,5	
			Nickel	0,059	5,9	
			Zinc	0,030	3,0	
	9,93		Dissolved oxygen	11,04		Regulatory clean
	3,35		BOC ₅	4,20		Regulatory clean
Togyzak (Kostanai)			Sulphates	277,8	2,8	
			Magnesium	62,7	1,6	
	2,61	2,84	Common iron	0,29	2,9	
			Ammonium saline	0,72	1,4	Moderate level of pollution
			Copper	0,0025	2,5	
			Zinc	0,039	3,9	
			Manganese	0,030	3,0	
			Nickel	0,073	7,3	
Karatomar reservoir (Kostanai)	9,55		Dissolved oxygen	11,68		Regulatory clean
	1,48		BOC ₅	2,22		Regulatory clean
			Copper	0,0018	1,8	
			Zinc	0,021	2,1	
	3,3	1,85	Manganese	0,017	1,7	Moderate level of pollution
			Nickel	0,054	5,4	
			Sulphates	148,8	1,5	
			Common iron	0,13	1,3	
	6,15		Dissolved oxygen	9,93		Regulatory clean
	2,46		BOC ₅	3,43		Regulatory clean
Ubagan (Kostanai)			Sulphates	815,9	8,2	
			Chlorides	1 634,3	5,4	
			Magnesium	212,5	5,3	
			Calcium	193,9	1,1	
	3,71	4,12	Ammonium saline	1,41	2,8	High level of pollution
			Common iron	0,32	3,2	
			Copper	0,004	4,0	
			Manganese	0,041	4,1	
			Nickel	0,067	6,7	
			Zinc	0,026	2,6	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Ui (Kostanai)			Dissolved oxygen	7,41		Regulatory clean
			BOC _s	3,05		Regulatory clean
			2,69 Sulphates	279,9	2,8	
			Magnesium	46,5	1,2	
			Nitrite nitrogen	0,026	1,3	
			Ammonium saline	0,58	1,2	
			Common iron	0,26	2,6	Moderate level of pollution
			Copper	0,003	3,0	
			Manganese	0,062	6,2	
			Nickel	0,063	6,3	
			Zinc	0,020	2,0	
			Dissolved oxygen	9,15		Regulatory clean
			BOC _s	3,02		Regulatory clean
			4,10 Sulphates	241,4	2,4	
Zhelkuar (Kostanai)			Magnesium	52,7	1,3	
			Ammonium saline	0,56	1,1	
			Common iron	0,25	2,5	
			Copper	0,0062	6,2	High level of pollution
			Manganese	0,308	30,8	
			Nickel	0,051	5,1	
			Zinc	0,036	3,6	
			Oil products	0,07	1,3	
			Dissolved oxygen	9,07		Regulatory clean
			BOC _s	2,96		Regulatory clean
Amangeldi (Kostanai)			1,87 Copper	0,0032	3,2	
			Zinc	0,019	1,9	
			Manganese	0,023	2,3	
			Nickel	0,049	4,9	Moderate level of pollution
			Sulphates	198,4	2,0	
			Common iron	0,13	1,3	
			Oil products	0,06	1,1	
			Dissolved oxygen	9,75		Regulatory clean
			BOC _s	1,65		Regulatory clean
			2,34 Copper	0,0023	2,3	
High Tobol (Kostanai)			Zinc	0,026	2,6	
			Manganese	0,022	2,2	Moderate level of pollution
			Nickel	0,066	6,6	
			Sulphates	210,8	2,1	
			Common iron	0,15	1,5	
	10,12		Dissolved oxygen	10,22		Regulatory clean
	1,73		BOC _s	1,91		Regulatory clean
			Sulphates	125	1,2	
			Common iron	0,18	1,8	Moderate level of pollution
			Copper	0,0021	2,1	
Ishim (Soltustik Kazakhstan)	1,95	1,7	Common iron	0,18	1,8	Moderate level of pollution
			Copper	0,0021	2,1	

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Sergeev reservoir (Soltustik Kazakhstan)	8,10		Dissolved oxygen	9,90		Regulatory clean
	2,23		BOC _s	2,08		Regulatory clean
		1,73	Common iron	0,13	1,3	Moderate level of pollution
			Copper	0,0025	2,5	
			Phenols	0,0014	1,4	
Ishim (Akmola)	11,20		Dissolved oxygen	10,05		Regulatory clean
	1,65		BOC _s	1,86		Regulatory clean
			Sulphates	132,6	1,3	Moderate level of pollution
		1,52	Manganese	0,015	1,5	
			Zinc	0,013	1,3	
Akbulak (Nur-Sultan city)			Copper	0,0024	2,4	
	10,03		Dissolved oxygen	8,18		Regulatory clean
	1,89	2,94	BOC _s	3,21		Regulatory clean
			Sulphates	469,3	4,7	Moderate level of pollution
			Chlorides	652,61	2,2	
			Magnesium	71,18	1,8	
			Calcium	289,01	1,6	
			Fluoride	3,86	5,1	
			Ammonium saline	3,62	7,2	
			Zinc	0,014	1,4	
			Nitrite nitrogen	0,038	1,9	
			Copper	0,0016	1,6	
	8,45		Dissolved oxygen	7,69		Regulatory clean
	3,73		BOC _s	3,34		Regulatory clean
			Chlorides	524,31	1,7	Moderate level of pollution
			Sulphates	606,1	6,1	
			Magnesium	83,32	2,1	
Sarybulak (Nur-Sultan city)		2,83	Ammonium saline	2,85	5,7	
			Nitrite nitrogen	0,045	2,3	
			Fluoride	0,96	1,3	
			Zinc	0,025	2,5	
			Copper	0,0017	1,7	
Bettybulak (Akmola)	9,65		Dissolved oxygen	10,30		Regulatory clean
	0,73		BOC _s	0,51		Regulatory clean
			Fluoride	0,867	1,2	Moderate level of pollution
	2,70	2,05	Common iron	0,159	1,6	
			Manganese	0,027	2,7	
Zhabay (Akmola)	8,30		Dissolved oxygen	8,90		Regulatory clean
	2,37		BOC _s	2,11		Regulatory clean
			Sulphates	151	1,5	High level of pollution
			Ammonium saline	0,761	1,5	
	4,06	6,0	Common iron	0,342	3,4	
			Nitrite nitrogen	0,046	2,3	
			Manganese	0,141	14,1	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Astana reservoir (Akmola)	11,92		Dissolved oxygen	11,60		Regulatory clean
	1,64		BOC _s	1,30		Regulatory clean
	1,35	1,7	Copper	0,0023	2,3	Moderate level of pollution
			Zinc	0,011	1,1	
Kopa lake (Akmola)	9,19		Dissolved oxygen	9,64		Regulatory clean
	4,04	3,75	BOC _s	1,68		Regulatory clean
	2,33		Sulphates	162	1,6	High level of pollution
			Manganese	0,059	5,9	
Sultankeldy lake (Akmola)	10,49		Dissolved oxygen	8,64		Regulatory clean
	2,26		BOC _s	1,96		Regulatory clean
			Sulphates	318,5	3,2	
			Magnesium	59,175	1,5	Moderate level of pollution
	1,49	1,69	Chlorides	360	1,2	
			Copper	0,0014	1,4	
	9,83		Dissolved oxygen	10,90		Regulatory clean
	1,63		BOC _s	1,25		Regulatory clean
Zerenda lake (Akmola)			Sulphates	122	1,2	
	2,30	2,68	Magnesium	60,7	1,5	Moderate level of pollution
			Fluoride	2,62	3,5	
			Manganese	0,032	3,2	
	6,28		Dissolved oxygen	8,41		Regulatory clean
	1,21		BOC _s	0,89		Regulatory clean
			Fluoride	2,29	3,1	
	8,40	4,43	Common iron	0,114	1,1	High level of pollution
Karasye lake (Akmola)			Ammonium saline	4,56	9,1	
	6,02		Dissolved oxygen	6,84		Regulatory clean
	2,48		BOC _s	2,0		Regulatory clean
			Common iron	0,733	7,3	
Sulukol lake (Akmola)	2,62	2,92	Ammonium saline	1,14	2,3	Moderate level of pollution
			Fluoride	3,46	4,6	
	11,13		Dissolved oxygen	7,20		Regulatory clean
	2,19		BOC _s	2,32		Regulatory clean
Nura-Ishim (Akmola)			Sulphates	449,96	4,5	
			Magnesium	60,13	1,5	
	2,14	2,45	Ammonium saline	1,245	2,5	Moderate level of pollution
			Nitrite nitrogen	0,031	1,6	
			Copper	0,0023	2,3	
	10,88		Dissolved oxygen	8,45		Regulatory clean
	2,33		BOC _s	2,81		Regulatory clean
			Sulphates	236,2	2,4	
Nura (Akmola)	1,42	2,25	Copper	0,0029	2,9	Moderate level of pollution
			Zinc	0,013	1,3	
			Dissolved oxygen	11,16		Regulatory clean
			BOC _s	1,07		Regulatory clean
Slety (Akmola)		4,80	Manganese	0,048	4,8	High level of pollution

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/CWPI)	2018(SLKI/CWPI)				
Aksu (Akmola)			Dissolved oxygen	8,43		Regulatory clean
			BOC ₅	3,76		Regulatory clean
		10,35	Chlorides	924	3,1	
			Sulphates	791	7,9	
			Magnesium	107	2,7	
			Ammonium saline	0,591	1,2	
			Common iron	0,193	1,9	
			Fluoride	0,871	1,2	
			Manganese	0,490	49,0	Moderate level of
			Copper	0,0011	1,1	pollution
Kylshykty (Akmola)			Dissolved oxygen	6,82		Regulatory clean
			BOC ₅	2,82		Regulatory clean
		106,42	Fluoride	1,39	1,9	
			Common iron	0,529	5,3	
			Ammonium saline	1,406	2,8	High level of pollution
			Manganese	2,095	209,5	
			Dissolved oxygen	8,87		Regulatory clean
Shagalaly (Akmola)			BOC ₅	1,69		Moderate level of pollution
		32,45	Common iron	0,150	1,5	High level of pollution
			Manganese	0,634	63,4	
Burabay (Akmola)			Dissolved oxygen	8,59		Нормативті таза Нормативно чистая
			BOC ₅	1,22		Moderate level of pollution
		3,85	Fluoride	3,08	4,1	High level of pollution
			Manganese	0,036	3,6	
			Dissolved oxygen	9,04		Regulatory clean
Big Shabakty (Akmola)			BOC ₅	1,07		Moderate level of pollution
		7,20	Sulphates	275	2,8	
			Magnesium	89,0	2,2	High level of pollution
			Fluoride	13,2	17,5	
			Manganese	0,016	1,6	
Shuchye (Akmola)			Dissolved oxygen	8,99		Regulatory clean
			BOC ₅	0,93		Regulatory clean
		5,00	Fluoride	6,01	8,0	High level of pollution
			Manganese	0,020	2,0	
			Dissolved oxygen	9,00		Regulatory clean
Small Shabakty (Akmola)			BOC ₅	1,25		Regulatory clean
		7,15	Sulphates	1 236	12,4	
			Magnesium	399	10,0	
			Chlorides	1 838	6,1	High level of pollution
			Fluoride	12,1	16,1	
			Ammonium saline	0,810	1,6	
			Manganese	0,050	5,0	
			Copper	0,0012	1,2	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/CWPI)	2018(SLKI/CWPI)				
Zhukey (Akmola)			Dissolved oxygen	8,14		Regulatory clean
			BOC ₅	1,19		Regulatory clean
			5,46 Sulphates	1 366	13,7	
			Magnesium	328	8,2	
			Chlorides	1 375	4,6	
			Fluoride	2,90	3,9	High level of pollution
			Ammonium saline	1,71	3,4	
			Manganese	0,039	3,9	
			Copper			
			Dissolved oxygen	8,70		Regulatory clean
Tekokol (Akmola)			BOC ₅	1,31		Regulatory clean
			6,93 Sulphates	135	1,4	
			Magnesium	83,3	2,1	High level of pollution
			Fluoride	9,11	12,1	
			Dissolved oxygen	4,29		Regulatory clean
			BOC ₅	3,57		Regulatory clean
Maybalyk (Akmola)			12,26 Sulphates	4 515	45,2	
			Magnesium	1 621	40,5	
			Chlorides	12 940	43,1	
			Fluoride	5,00	6,7	
			Ammonium saline	1,388	2,8	High level of pollution
			Nitrite nitrogen	0,044	2,2	
			Common iron	0,152	1,5	
			Copper	0,0017	1,7	
			Phenols	0,0011	1,1	
			Dissolved oxygen	7,88		Regulatory clean
			BOC ₅	2,98		Regulatory clean
			6,28 Sulphates	132	1,3	High level of pollution
			Magnesium	71,8	1,8	
Katarkol (Akmola)			Fluoride	8,25	11,0	
			Dissolved oxygen	7,25		Regulatory clean
			BOC ₅	1,44		Regulatory clean
			2,27 Common iron	0,393	3,9	
			Nitrite nitrogen	0,028	1,4	Moderate level of pollution
			Fluoride	3,50	4,7	
			Phenols	0,0012	1,2	
	8,63		Dissolved oxygen	9,85		Regulatory clean
	2,13		BOC ₅	2,42		Regulatory clean
			Zinc	0,019	1,9	
Nura (Karagandy)			Sulphates	163	1,6	
			Common iron	0,29	2,9	Moderate level of pollution
			Copper	0,0022	2,2	
			Manganese	0,068	6,8	
			Phenols	0,0011	1,1	
	2,08	2,31				

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Kara Kengir (Karagandy)	5,65		Dissolved oxygen	8,86		Regulatory clean
	4,60		BOC ₅	5,41		Regulatory clean
			Sulphates	391	3,9	
			Magnesium	45,7	1,1	
			Ammonium saline	5,58	11,2	
			Nitrite nitrogen	0,085	4,3	
	3,79	3,69	Common iron	0,25	2,5	High level of pollution
			Copper	0,0048	4,8	
			Zinc	0,018	1,8	
			Manganese	0,077	7,7	
			Oil products	0,08	1,5	
	8,33		Dissolved oxygen	9,11		Regulatory clean
	2,61		BOC ₅	2,91		Regulatory clean
			Sulphates	214	2,1	
Sherubainura (Karagandy)			Magnesium	43,4	1,1	
			Ammonium saline	2,88	5,8	
			Nitrite nitrogen	0,207	10,3	
	4,17	3,33	Common iron	0,20	2,0	High level of pollution
			Copper	0,0022	2,2	
			Zinc	0,022	2,2	
			Manganese	0,088	8,8	
			Phenols	0,0013	1,3	
	7,28		Dissolved oxygen	11,15		Regulatory clean
	2,40		BOC ₅	1,41		Regulatory clean
Kengir reservoir (Karagandy)			Sulphates	194	1,9	
			Common iron	0,14	1,4	
	1,98	1,91	Manganese	0,042	4,2	Moderate level of pollution
			Copper	0,0034	3,4	
			Zinc	0,015	1,5	
			Oil products	0,07	1,3	
	8,92		Dissolved oxygen	9,28		Regulatory clean
	1,94		BOC ₅	2,25		Regulatory clean
Samarkand reservoir (Karagandy)			Sulphates	159	1,6	
			Common iron	0,18	1,8	
	2,02	2,13	Manganese	0,050	5,0	Moderate level of pollution
			Zinc	0,020	2,0	
			Copper	0,0020	2,0	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Irtysh-Karagandy channel (Karagandy)	8,86		Dissolved oxygen	9,99		Regulatory clean
	1,85		BOC ₅	2,45		Regulatory clean
			Sulphates	113	1,1	
			Common iron	0,17	1,7	
	1,74	1,62	Zinc	0,011	1,1	Moderate level of pollution
			Manganese	0,028	2,8	
			Copper	0,0023	2,3	
			Dissolved oxygen	8,96		Regulatory clean
			BOC ₅	2,01		Regulatory clean
			Sulphates	969	9,7	
Sarysu (Karagandy)			Magnesium	159	4,0	
			Chlorides	1 582	5,3	
		4,12	Ammonium saline	0,77	1,5	High level of pollution
			Common iron	0,27	2,7	
			Copper	0,0035	3,5	
			Zinc	0,022	2,2	
			Manganese	0,061	6,1	
			Dissolved oxygen	9,52		Regulatory clean
			BOC ₅	2,89		Regulatory clean
			Sulphates	285	2,8	
Sokyr (Karagandy)			Magnesium	65,0	1,6	
			Chlorides	350	1,2	
			Ammonium saline	4,95	9,9	
		4,84	Nitrite nitrogen	0,237	11,9	High level of pollution
			Copper	0,0027	2,7	
			Zinc	0,022	2,2	
			Manganese	0,097	9,7	
			Phenols	0,0017	1,7	
			Dissolved oxygen	9,86		Regulatory clean
			BOC ₅	2,62		Regulatory clean
Kokpegti (Karagandy)			Sulphates	215	2,1	
			Ammonium saline	0,54	1,1	
		2,16	Copper	0,0026	2,6	Moderate level of pollution
			Zinc	0,021	2,1	
			Manganese	0,051	5,1	
			Dissolved oxygen	8,98		Regulatory clean
Sholak (Karagandy)			BOC ₅	2,10		Regulatory clean
			Sulphates	174	1,7	
			Copper	0,0023	2,3	Moderate level of pollution
		2,70	Zinc	0,020	2,0	
			Manganese	0,068	6,8	

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Esey (Karagandy)			Dissolved oxygen	8,0		Regulatory clean
			BOC ₅	2,19		Regulatory clean
			Sulphates	225	2,2	
			Chlorides	347	1,2	
			Magnesium	87,0	2,2	
		2,31	Nitrite nitrogen	0,038	1,9	Moderate level of pollution
			Copper	0,0019	1,9	
			Zinc	0,018	1,8	
			Manganese	0,058	5,8	
			Dissolved oxygen	9,10		Regulatory clean
Sultangeldi (Karagandy)			BOC ₅	1,80		Regulatory clean
			Sulphates	207	2,1	
			Chlorides	428	1,4	
		1,68	Magnesium	74,1	1,9	Moderate level of pollution
			Ammonium saline	0,54	1,1	
			Copper	0,0015	1,5	
			Zinc	0,018	1,8	
			Manganese	0,033	3,3	
			Dissolved oxygen	8,61		Regulatory clean
			BOC ₅	2,40		Regulatory clean
Kokoy (Karagandy)		2,24	Sulphates	175	1,8	
			Magnesium	68,3	1,7	
			Copper	0,0016	1,6	Moderate level of pollution
			Zinc	0,015	1,5	
			Manganese	0,051	5,1	
			Dissolved oxygen	8,04		Regulatory clean
			BOC ₅	2,16		Regulatory clean
		7,53	Sulphates	3 335	33,3	
			Chlorides	4 956	16,5	
			Magnesium	900	22,5	
Teniz (Karagandy)			Calcium	197	1,1	
			Ammonium saline	0,63	1,3	High level of pollution
			Copper	0,0030	3,0	
			Zinc	0,016	1,6	
			Manganese	0,042	4,2	
	7,96		Dissolved oxygen	7,96		Regulatory clean
	1,40		BOC ₅	0,88		Regulatory clean
			Sulphates	622	6,2	
			Magnesium	113	2,8	
		2,76	Fluoride	1,21	1,6	Moderate level of pollution
Balkhash lake (Karagandy)			Copper	0,0045	4,5	
			Zinc	0,018	1,8	
			Phenols	0,0018	1,8	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Ili (Almaty)	11,4		Dissolved oxygen	10,32		Regulatory clean
	1,37		BOC ₅	1,02		Regulatory clean
			Common iron	0,21	2,1	Moderate level of pollution
	2,0	1,7	Nitrite nitrogen	0,031	1,5	
			Copper	0,0016	1,6	
Tekes (Almaty)	10,7		Dissolved oxygen	11,81		Regulatory clean
	1,29		BOC ₅	1,06		Regulatory clean
			Common iron	0,17	1,7	Moderate level of pollution
		1,9	Nitrite nitrogen	0,033	1,7	
			Copper	0,0019	1,9	
			Manganese	0,023	2,3	
			Dissolved oxygen	11,33		Regulatory clean
			BOC ₅	1,42		Regulatory clean
		1,65	Common iron	0,18	1,8	Moderate level of pollution
Talgar (Almaty)			Nitrite nitrogen	0,027	1,4	
			Ammonium saline	0,67	1,4	
			Fluoride	1,47	2,0	
Temirli (Almaty)			Dissolved oxygen	10,9		Regulatory clean
			BOC ₅	1,26		Regulatory clean
		1,25	Common iron	0,12	1,2	Moderate level of pollution
			Copper	0,0013	1,3	
			Dissolved oxygen	10,85		Regulatory clean
Tentek (Almaty)			BOC ₅	1,15		Regulatory clean
		2,38	Common iron	0,39	3,9	Moderate level of pollution
			Nitrite nitrogen	0,026	1,3	
			Manganese	0,026	2,6	
			Copper	0,0017	1,7	
	11,2		Dissolved oxygen	11,02		Regulatory clean
Turgen (Almaty)	1,62		BOC ₅	1,37		Regulatory clean
	1,40	1,40	Common iron	0,16	1,6	Moderate level of pollution
			Nitrite nitrogen	0,028	1,4	
			Fluoride	1,15	1,5	
			Copper	0,0013	1,3	
Sharyn (Almaty)	11,3		Dissolved oxygen	11,3		Regulatory clean
	1,68		BOC ₅	0,97		Regulatory clean
	1,22	1,18	Common iron	0,12	1,2	Moderate level of pollution
			Copper	0,012	1,2	
			Nitrite nitrogen	0,022	1,1	
Chilik (Almaty)	9,83		Dissolved oxygen	10,92		Regulatory clean
	1,75		BOC ₅	1,16		Regulatory clean
	1,90	1,30	Common iron	0,14	1,4	Moderate level of pollution
			Fluoride	0,90	1,2	

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Korgas (Almaty)	10,6		Dissolved oxygen	10,24		Regulatory clean
	1,36		BOC ₅	1,19		Regulatory clean
			Manganese	0,018	1,8	
		2,33	Copper	0,0017	1,7	Moderate level of pollution
			Common iron	0,29	2,9	
Bayankol (Almaty)	11,0		Dissolved oxygen	11,27		Regulatory clean
	1,72		BOC ₅	1,53		Regulatory clean
			Common iron	0,19	1,9	Moderate level of pollution
Karkara (Almaty)	1,25	1,55	Fluoride	0,86	1,2	
	10,8		Dissolved oxygen	11,95		Regulatory clean
	1,37		BOC ₅	1,05		Regulatory clean
			Sulphates	110	1,1	
	1,3	1,43	Common iron	0,17	1,7	Moderate level of pollution
Issyk(Almaty)			Copper	0,0015	1,5	
	11,5		Dissolved oxygen	11,15		Regulatory clean
	2,01		BOC ₅	1,36		Regulatory clean
	1,50	1,83	Common iron	0,21	2,1	
			Nitrite nitrogen	0,038	1,9	Moderate level of pollution
Kaskelen (Almaty)			Fluoride	1,15	1,5	
	11,4		Dissolved oxygen	11,3		Regulatory clean
	1,58		BOC ₅	1,53		Regulatory clean
			Common iron	0,36	3,6	
			Nitrite nitrogen	0,038	1,9	Moderate level of pollution
Kapchagai reservoir (Almaty)	1,64	1,95	Fluoride	0,86	1,1	
			Copper	0,0017	1,7	
	11,1		Dissolved oxygen	11,20		Regulatory clean
	1,27		BOC ₅	1,26		Regulatory clean
			Common iron	0,13	1,3	Moderate level of pollution
Balkhash lake (Almaty)	1,20	1,3	Copper	0,0013	1,3	
			Dissolved oxygen	10,56		Regulatory clean
			BOC ₅	1,26		Regulatory clean
			Sulphates	1 639	16,4	
			Magnesium	275	6,9	
			Chlorides	1 167	3,9	
			Sodium	1 093	9,1	
			Fluoride	2,59	3,4	
		5,38	Ammonium saline	1,73	3,5	High level of pollution
			Common iron	0,11	1,1	
			Copper	0,0105	10,5	
			Zinc	0,014	1,4	
			Manganese	0,013	1,3	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Alakol lake (Almaty)			Dissolved oxygen	10,39		Regulatory clean
			BOC _s	1,33		Regulatory clean
		4,81	Sulphates	1 312	13,1	
			Magnesium	203	5,1	
			Chlorides	747	2,5	
			Натрий	761	6,3	
			Fluoride	1,50	2,0	
			Ammonium saline	1,21	2,4	High level of pollution
			Common iron	0,12	1,2	
			Copper	0,0146	14,6	
			Zinc	0,015	1,5	
			Manganese	0,013	1,3	
			Dissolved oxygen	10,89		Regulatory clean
Lepsy (Almaty)			BOC _s	1,23		Regulatory clean
		2,3	Common iron	0,24	2,4	Moderate level of pollution
			Copper	0,0022	2,2	
			Dissolved oxygen	11,15		Regulatory clean
			BOC _s	1,33		Regulatory clean
Aksu (Almaty)			Common iron	0,29	2,9	
		1,85	Nitrite nitrogen	0,021	1,1	Moderate level of pollution
			Manganese	0,014	1,4	
			Copper	0,0020	2,0	
			Dissolved oxygen	11,02		Regulatory clean
			BOC _s	1,19		Regulatory clean
Karatal (Almaty)		1,5	Common iron	0,24	2,4	
			Nitrite nitrogen	0,021	1,1	Moderate level of pollution
			Manganese	0,012	1,2	
			Copper	0,0013	1,3	
			Dissolved oxygen	10,15		Regulatory clean
			BOC _s	1,30		Regulatory clean
		4,12	Sulphates	1 369	13,7	
Zhalanashkol lake (Almaty)			Magnesium	83,4	2,1	
			Натрий	626	5,2	
			Fluoride	2,07	2,8	
			Ammonium saline	0,71	1,4	High level of pollution
			Common iron	0,24	2,4	
			Copper	0,0048	4,8	
			Manganese	0,015	1,5	

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Sasyk lake (Almaty)			Dissolved oxygen	9,75		Regulatory clean
			BOC _s	1,05		Regulatory clean
			2,09 Sulphates	149	1,5	
			Ammonium saline	1,33	2,7	
			Nitrite nitrogen	0,055	2,7	Moderate level of pollution
			Common iron	0,43	4,3	
			Fluoride	1,36	1,8	
			Copper	0,0020	2,0	
Zhamanty (Almaty)			Manganese	0,018	1,8	
			Dissolved oxygen	9,6		Regulatory clean
			BOC _s	0,85		Regulatory clean
			1,6 Common iron	0,16	1,6	Moderate level of pollution
Yrgayty (Almaty)			Dissolved oxygen	10,35		Regulatory clean
			BOC _s	1,60		Regulatory clean
			3,15 Common iron	0,43	4,3	High level of pollution
			Copper	0,0020	2,0	
Emel (Almaty)			Dissolved oxygen	10,25		Regulatory clean
			BOC _s	1,05		Regulatory clean
			1,77 Common iron	0,19	1,9	
			Fluoride	0,91	1,2	Moderate level of pollution
			Copper	0,0032	3,2	
			Manganese	0,013	1,3	
			Sulphates	149	1,5	
			Dissolved oxygen	10,25		Regulatory clean
Katynsu (Almaty)			BOC _s	1,40		Regulatory clean
			1,53 Ammonium saline	0,74	1,5	Moderate level of pollution
			Copper	0,0018	1,8	
			Manganese	0,013	1,3	
Urzhaz (Almaty)			Dissolved oxygen	10,65		Regulatory clean
			BOC _s	1,40		Regulatory clean
			2,20 Common iron	0,22	2,2	Moderate level of pollution
			Dissolved oxygen	10,65		Regulatory clean
Eginsu (Almaty)			BOC _s	1,80		Regulatory clean
			1,5 Copper	0,0015	1,5	Moderate level of pollution
	10,8		Dissolved oxygen	11,15		Regulatory clean
Kurta reservoir (Almaty)	1,25		BOC _s	1,44		Regulatory clean
			Sulphates	143	1,4	
	2,23	1,73	Nitrite nitrogen	0,037	1,8	Moderate level of pollution
			Common iron	0,16	1,6	
			Copper	0,0029	2,9	
			Manganese	0,013	1,3	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Bartogai reservoir (Almaty)	10,8		Dissolved oxygen	10,7		Regulatory clean
	1,17		BOC _s	1,04		Regulatory clean
			Common iron	0,26	2,6	Moderate level of pollution
	1,53	2,0	Nitrite nitrogen	0,027	1,4	
	11,2		Dissolved oxygen	10,60		Regulatory clean
Ulken Almaty (Almaty city)	1,22		BOC _s	1,37		Regulatory clean
			Common iron	0,19	1,9	
	2,60	1,30	Copper	0,0011	1,1	Moderate level of pollution
			Nitrite nitrogen	0,026	1,3	
			Fluoride	1,01	1,3	
Malenkaya Almatinka (Almaty city)	11,6		Dissolved oxygen	11,14		Regulatory clean
	1,4		BOC _s	1,35		Regulatory clean
			Copper	0,0013	1,3	
	1,8	1,62	Nitrite nitrogen	0,059	3,0	Moderate level of pollution
			Common iron	0,16	1,6	
Esentay (Almaty city)			Fluoride	0,93	1,2	
	11,7		Dissolved oxygen	11,26		Regulatory clean
	1,42		BOC _s	1,40		Regulatory clean
			Copper	0,0015	1,5	
	1,90	1,77	Nitrite nitrogen	0,059	3,0	Moderate level of pollution
Bolshaya Almatinka (Almaty city)			Common iron	0,20	2,0	
			Fluoride	0,83	1,1	
	11,5		Dissolved oxygen	11,04		Regulatory clean
	1,34		BOC _s	1,22		Regulatory clean
			Common iron	0,20	2,0	
Talas (Zhambyl)			Nitrite nitrogen	0,033	1,6	Moderate level of pollution
	1,80	1,4	Fluoride	0,90	1,2	
			Copper	0,0012	1,2	
	9,89		Dissolved oxygen	9,67		Regulatory clean
	3,24		BOC _s	3,12		Regulatory clean
Chu (Zhambyl)			Cooper	0,0017	1,7	
	1,53	1,55	Phenols	0,0015	1,5	Moderate level of pollution
			Oil products	0,065	1,3	
	9,61		Dissolved oxygen	9,27		Нормативті таза
						Нормативно чистая
Chu (Zhambyl)						Ластанудың орташа деңгейі
	3,59		BOC _s	3,30		Умеренного уровня загрязнения
			Copper	0,0024	2,4	
			Phenols	0,0013	1,3	
			Zinc	0,012	1,2	Ластанудың орташа деңгейі
Chu (Zhambyl)	1,83	1,5	Manganese	0,013	1,3	Умеренного уровня загрязнения
			Nitrite nitrogen	0,033	1,7	
			Common iron	0,12	1,2	
			Sulphates	167,5	1,7	

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Assa (Zhambyl)	9,83		Dissolved oxygen	9,34		Regulatory clean
	1,95		BOC ₅	2,34		Regulatory clean
	1,9	2,2	Copper	0,0022	2,2	Moderate level of pollution
	10,3		Dissolved oxygen	10,12		Regulatory clean
Aksu (Zhambyl)	3,76		BOC ₅	3,65		Ластанудың орташа деңгейі
						Умеренного уровня загрязнения
			Sulphates	231,2	2,3	
			Common iron	0,263	2,6	Ластанудың орташа деңгейі
	1,99	1,91	Fluoride	0,866	1,2	Умеренного уровня
			Copper	0,0023	2,3	загрязнения
			Phenols	0,0012	1,2	
Berrikara (Zhambyl)			Oil products	0,055	1,1	
	9,41		Dissolved oxygen	9,38		Regulatory clean
	1,55		BOC ₅	1,85		Regulatory clean
	1,8	1,3	Copper	0,0013	1,3	Moderate level of pollution
			Zinc	0,013	1,3	
	10,7		Dissolved oxygen	10,05		Regulatory clean
Karabalta (Zhambyl)	3,63		BOC ₅	2,70		Ластанудың орташа деңгейі
						Умеренного уровня загрязнения
			Sulphates	537,5	5,4	
	1,8		Magnesium	47,0	1,2	
			Fluoride	0,95	1,3	Ластанудың орташа деңгейі
		2,05	Common iron	0,137	1,4	Умеренного уровня
			Phenols	0,0017	1,7	загрязнения
			Oil products	0,07	1,4	
			Copper	0,0024	2,4	
			Manganese	0,016	1,6	
Toktash (Zhambyl)	10,2		Dissolved oxygen	10,02		Regulatory clean
	3,25		BOC ₅	2,35		Ластанудың орташа деңгейі
						Умеренного уровня загрязнения
			Sulphates	323,9	3,2	
			Common iron	0,133	1,3	Ластанудың орташа деңгейі
	2,28	1,9	Manganese	0,013	1,3	Умеренного уровня
			Copper	0,0024	2,4	загрязнения
			Zinc	0,011	1,1	
			Phenols	0,0018	1,8	
			Oil products	0,06	1,2	

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Byilikol (Zhambyl)	8,87		Dissolved oxygen	7,40		Нормативті таза
	14,5		BOC ₅	13,7		Нормативно чистая
			Sulphates	558,4	5,6	High level of pollution
			Magnesium	63,8	1,6	
			Fluoride	1,05	1,4	Ластанудың орташа деңгейі
	2,44	2,12	Copper	0,0025	2,5	
			Zinc	0,017	1,7	Умеренного уровня
			Manganese	0,014	1,4	загрязнения
			Oil products	0,075	1,5	
			Phenols	0,0017	1,7	
			Dissolved oxygen	10,15		Regulatory clean
			BOC ₅	5,39		Regulatory clean
		2,19	Common iron	0,23	2,3	
			Fluoride	1,09	1,5	
Sarykau (Zhambyl)			Magnesium	54,9	1,4	
			Sulphates	423,9	4,2	Ластанудың орташа деңгейі
			Copper	0,0033	3,3	
			Zinc	0,014	1,4	Умеренного уровня
			Manganese	0,028	2,8	загрязнения
			Phenols	0,0019	1,9	
			Oil products	0,06	1,2	
	11,5		Dissolved oxygen	10,05		Regulatory clean
						Ластанудың орташа деңгейі
	4,57		BOC5	3,61		Умеренного уровня
Tasotkel reservoir (Zhambyl)						загрязнения
			Sulphates	133,8	1,3	
			Nitrite nitrogen	0,025	1,2	
			Copper	0,003	3,0	Ластанудың орташа деңгейі
	1,73	1,51	Zinc	0,012	1,2	
			Manganese	0,018	1,8	Умеренного уровня
			Phenols	0,0018	1,8	загрязнения
			Oil products	0,067	1,3	
	10,2		Dissolved oxygen	10,59		Regulatory clean
	1,64		BOC ₅	1,85		Regulatory clean
Keles (Ontustik Kazakhstan)			Sulphates	603,0	6,0	
			Magnesium	64,3	1,6	
	3,45	2,30	Nitrite nitrogen	0,029	1,4	Moderate level of
			Copper	0,0017	1,7	pollution
			Phenols	0,0023	2,3	
	10,4		Dissolved oxygen	9,90		Regulatory clean
Badam (Ontustik Kazakhstan)	1,71		BOC ₅	1,78		Regulatory clean
			Sulphates	191,7	1,9	
	1,83	1,75	Nitrite nitrogen	0,035	1,8	Moderate level of
			Copper	0,0015	1,5	pollution
		Phenols	0,0018	1,8		

Continuation

Name of water body	Comprehensive Water Pollution Index (CWPI)		Ingredients and Water Quality Indicators	Average concentration, mg / l	Multiplicity exceeding MPC	Characteristic of water quality
	2017(SLKI/ CWPI)	2018(SLKI/ CWPI)				
Arys (Turkistan)			Dissolved oxygen	9,80		Regulatory clean
			BOC ₅	1,62		Regulatory clean
		1,58	Sulphates	189,7	1,9	
			Nitrite nitrogen	0,025	1,3	Moderate level of pollution
			Copper	0,0013	1,3	
Aksu (Turkistan)			Phenols	0,0018	1,8	
			Dissolved oxygen	9,94		Regulatory clean
			BOC ₅	1,82		Regulatory clean
		1,20	Copper	0,0012	1,2	Moderate level of pollution
			Phenols	0,0012	1,2	
Bogensy (Turkistan)			Dissolved oxygen	10,77		Regulatory clean
			BOC ₅	1,73		Regulatory clean
		1,20	Phenols	0,0012	1,2	Moderate level of pollution
	9,51		Dissolved oxygen	9,70		Regulatory clean
	1,67	0,0	BOC ₅	1,51		Regulatory clean
Shardara reservoir (Turkistan)	10,5		Dissolved oxygen	10,10		Regulatory clean
	1,74		BOC ₅	1,81		Regulatory clean
			Sulphates	553,1	5,5	
	2,13	2,37	Magnesium	60,0	1,5	Moderate level of pollution
			Nitrite nitrogen	0,036	1,8	
Syrdarya (Turkistan)			Phenols	0,0018	1,8	
	10,01		Dissolved oxygen	10,35		Regulatory clean
	1,64		BOC ₅	1,88		Regulatory clean
			Sulphates	510,7	5,1	
	2,8	2,38	Magnesium	60,7	1,5	Moderate level of pollution
Syrdarya (Kyzylorda)			Nitrite nitrogen	0,052	2,6	
			Copper	0,0013	1,3	
			Phenols	0,0023	2,3	
	5,34		Dissolved oxygen	5,40		Regulatory clean
	1,2		BOC ₅	1,21		Regulatory clean
Aral (Kyzylorda)			Sulphates	465,20	4,6	
	2,7	2,87	Copper	0,0024	2,4	Moderate level of pollution
			Common iron	0,15	1,5	
			Dissolved oxygen	5,26		Regulatory clean
			BOC ₅	1,17		High level of pollution
Aral (Kyzylorda)		2,17	Sulphates	471,7	4,7	
			Magnesium	44,73	1,1	Moderate level of pollution
			Common iron	0,129	1,3	
			Copper	0,0023	2,3	

6.7 Biochemical oxygen demand (BOD) and concentration of ammonium nitrogen in river water

	2014	2015	2016	2017	2018
BOC5, mg O2 / l					
r. Irtysh					
1. sample point - Boran	1,63	1,75	1,78	1,85	2,23
2. sample point - Ust-Kamenogorsk	3,19	1,67	1,76	1,13	1,31
3. sample point – Village Priirtyshskoe	1,77	1,71	1,78	1,83	1,87
Ammonium nitrogen, µg N / l					
r. Irtysh					
1. sample point - Boran	0,06	0,015	0,016	0,02	0,012
2. sample point - Ust-Kamenogorsk	1,89	1,25	0,28	0,27	0,15
3. sample point – Village Priirtyshskoe	0,22	0,21	0,20	0,23	0,24

6.8 Nutrients in fresh water

	2014	2015	2016	2017	2018
Total phosphorus content (P), µg / l					
r. Irtysh					
1. sample point - Boran	0,10	0,12	0,26	0,07	0,07
2. sample point - Ust-Kamenogorsk	0,94	1,006	0,505	0,380	0,268
3. sample point – Village Priirtyshskoe	0,021	0,026	0,064	0,020	0,031
Balkhash Lake					
1. sample point – Balkhash city, 8 km A175 from the shore	0,0052	0,018	0,008	0,004	0,017
2. sample point – Balkhash city, 20km A175 from the shore	0,0135	0,03	0,007	0,013	0,025
3. sample point – Balkhash city, 38,5 km A175 from the shore	0,013	0,018	0,008	0,005	0,024
Nitrates (NO3), mg / l					
r. Irtysh					
1. sample point - Boran	0,71	0,74	0,91	0,96	0,61
2. sample point - Ust-Kamenogorsk	1,21	1,42	1,70	1,90	2,20
3. sample point – Village Priirtyshskoe	0,53	0,36	0,39	0,46	0,35
Balkhash Lake					
1. sample point – Balkhash city, 8 km A175 from the shore	0,008	0,007	0,056	0,015	0,027
2. sample point – Balkhash city, 20km A175 from the shore	0,0066	0,0027	0,059	0,034	0,022
3. sample point – Balkhash city, 38,5 km A175 from the shore	0,003	0,007	0,074	0,01	0,03

6.9 Nutrients in coastal waters

	2014	2015	2016	2017	2018
The total phosphorus content (P) - summer mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0,004	0,004	0,004	0,004	0,004
Caspian (Tengiz), 11th station	0,003	0,006	0,004	0,004	-
Seaside Ural River, station 4	0,006	0,007	0,004	0,004	0,005
Shalygi-Kulaly, station 1	0,004	0,005	0,005	0,004	-
Total nitrogen content (N) - summer, mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	2,66	2,83	3,02	1,04	3,16
Caspian (Tengiz), 11th station	2,86	3,69	3,19	1,20	-
Seaside Ural River, station 4	3,68	3,13	3,19	2,15	4,01
Shalygi-Kulaly, station 1	3,70	3,06	2,92	2,72	-
The total phosphorus content (P) - autumn, mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0,04	0,003	0,003	0,005	0,004
Caspian (Tengiz), 11th station	0,04	0,002	0,003	0,005	-
Seaside Ural River, station 4	0,05	0,00	0,003	0,003	0,005
Shalygi-Kulaly, station 1	0,04	0,006	0,004	0,005	-
The total nitrogen content (N) - autumn, mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	2,83	2,70	3,23	0,94	4,17
Caspian (Tengiz), 11th station	3,04	2,93	2,83	2,12	-
Seaside Ural River, station 4	3,11	2,87	2,89	2,00	4,39
Seaside Ural River, station 4	3,68	3,47	3,01	2,47	-
The total phosphorus content (P) - spring mg / l					
Caspian Sea					
Maritime shipping channel					
1 km below the beginning of the navigable canal, station 1	0,005	0,003	0,003	0,004	-
Caspian (Tengiz), 11th station	0,006	0,006	0,003	0,003	-
Caspian (Tengiz), 11th station	0,005	0,005	0,005	0,004	-
Seaside Ural River, station 4	0,002	0,003	0,007	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	3,06	2,61	2,73	2,425	-
Caspian (Tengiz), 11th station	2,05	2,55	2,70	2,848	-
Seaside Ural River, station 4	2,96	2,49	3,05	2,445	-
Shalygi-Kulaly, station 1	2,66	3,31	2,64	2,535	-

6.10 Renewable Freshwater Resources

million cubic meters

	2014	2015	2016	2017	2018
Internal flow	61 200	71 400	105 000	64 000	66 500
Inflow of surface and groundwater	46 900 ¹⁾	44 200 ¹⁾	55 000 ¹⁾	58 100 ¹⁾	42 600 ¹⁾
Renewable freshwater resources	108 100 ²⁾	115 600 ²⁾	160 000 ¹⁾	122 100 ¹⁾	109 100 ¹⁾

¹⁾ The data given indicate the inflow of surface water excluding groundwater.

²⁾ The data indicates total water resources..

6.11 Reserves of underground water resources *

million cubic meters

	2014	2015	2016	2017	2018
Reserves of underground water resources	42,7	42,8	43,0	42,6	42,9

*According to the Committee of Geology and Subsoil Use of the Ministry of Investment and Development of the Republic of Kazakhstan.

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

million cubic meters

	2014	2015	2016	2017	2018
Water intake from natural water sources - total	23 266	22 852	24 623	25 279	25 096
from him :					
from underground horizons	1 051	1 056	1 051	1 032	1 020
Water loss during transportation	2 855	2 490	2 517	2 993	3 719
Water consumption (water use) - total	20 411	20 352	20 213	21 721	20 511
from him :					
for production needs	5 592	5 385	5 228	5 235	5 351
The volume of the explosive and consistent use of water	8 415	8 620	8 257	8 933	9 540
The share of recycled and about Borum waste water in the total volume of water used, as a percentage	41	42	41	41	47
Volume of discharge of treated water	271	227	196	197	309
The volume of discharge of polluted waste-water (without treatment and insufficiently treated)	153	197	149	50	...
of them :					
without cleaning	152	131	93	0,1	0,9

* Hereinafter, according to the Committee on Water Resources of the Ministry of Agriculture of the Republic of Kazakhstan.

6.13 Water intake from natural sources

million cubic meters

	2014	2015	2016	2017	2018
Republic of Kazakhstan	23 266	22 852	24 623	25 279	25 096
Akmola	60	57	54	71	58
Aktobe	291	327	442	731	270
Almaty	3 374	3 473	3 181	3 259	3 656
Atyrau	279	272	279	279	272
Batys Kazakhstan	641	420	595	715	633
Zhambyl	1 596	1 805	1 338	2 287	1 587
Karagandy	1 640	1 812	1 672	1 449	1 477
Kostanai	135	135	134	123	119
Kyzylorda	5 215	5 030	4 786	5 197	5 062
Mangystau	1 244	1 216	1 295	1 225	1 357
Ontustik Kazakhstan	4 284	4 125	6 684	5 457	-
Pavlodar	3 500	3 136	3 116	3 253	3 273
Soltustik Kazakhstan	63	61	61	198	181
Turkistan	-	-	-	-	5 883
Shygyz Kazakhstan	609	644	643	694	678
Nur-Sultan city	93	100	98	103	104
Almaty city	242	239	245	238	248
Shymkent city	-	-	-	-	238

6.14 Freshwater intake

million cubic meters/year

	2014	2015	2016	2017	2018
Total freshwater intake	23 266	22 852	24 623	24 077	23 542
retraction by:					
water supply industry	860	840	902	913	876
agriculture, forestry and fishing	14 887	15 522	16 336	14 431	15 815
manufacturing industries other than water supply	5 638	5 410	5 412	4 188	5 536
for other economic activities	1 881	1 080	1 973	4 545	1 315
including:					
volume of surface freshwater taken	22 214	20 606	21 837	23 045	19 224
retraction by:					
water supply industry	442	444	451	465	727
agriculture, forestry and fishing	14 977	15 278	14 483	15 844	12 760
manufacturing industries other than water supply	4 291	4 089	4 066	3 901	5 350
for other economic activities	2 504	795	2 837	2 835	387
freshwater abstracted	1 052	1 056	1 051	1 032	1 020
retraction by:					
water supply industry	417	393	444	430	429
agriculture, forestry and fishing	224	220	222	208	192
manufacturing industries other than water supply	267	231	224	285	297
for other economic activities	144	212	161	109	102

6.15 Water intake from natural sources per capita

	thousand cubic meters per capita				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	1,3	1,3	1,4	1,4	1,4
Akmola	0,1	0,1	0,1	0,1	0,1
Aktobe	0,4	0,4	0,5	0,9	0,3
Almaty	1,7	1,8	1,6	1,6	1,8
Atyrau	0,5	0,5	0,5	0,5	0,4
Batys	1,0	0,7	0,9	1,1	1,0
Zhambyl	1,5	1,6	1,2	2,0	1,4
Karagandy	1,2	1,3	1,2	1,0	1,1
Kostanai	0,2	0,2	0,2	0,1	0,1
Kyzylorda	7,0	6,6	6,2	6,7	6,4
Mangystau	2,1	2,0	2,0	1,9	2,0
Kazakhstan	1,6	1,5	2,3	1,9	-
Pavlodar	4,6	4,1	4,1	4,3	4,3
Ontustik Kazakhstan	0,1	0,1	0,1	0,4	0,3
Turkistan					3,0
Shygyz Kazakhstan	0,4	0,5	0,5	0,5	0,5
Nur-Sultan	0,1	0,1	0,1	0,1	0,1
Almaty	-	-	-	-	0,1
Shymkent	-	-	-	-	0,2

6.16 Household water use per capita

	million cubic meters/year				
	2014	2015	2016	2017	2018
Communal water supply					
Municipal water consumption in the country	463,3	467,5	470,4	493,1	516,9
Population connected to public water supply	15,6	15,9	16,3	16,6	17,0
Per capita water consumption per year	29,7	29,4	28,9	29,7	30,4
Self sufficiency					
Population not connected to municipal water supply (self-sustainment)	1,7	1,6	1,5	1,4	1,3
Estimated water consumption per capita	26,8	26,7	26,4	27,4	28,2
Water consumption in the communal sector in the country - self-sufficiency	45,6	42,7	39,6	38,4	36,7
Total water consumption (public water supply and self-sufficiency)					
Total water consumption	508,9	510,2	510,0	531,5	553,6
Total population	17,3	17,5	17,8	18,0	18,3
Per capita water consumption per year	29,4	29,2	28,7	29,5	30,3

6.17 The loss of water

	million cubic meters/year				
	2014	2015	2016	2017	2018
Communal water supply					
Collected water	23 266	22 852	24 623	25 279	25 096
Water delivered to end users	20 411	20 352	20 213	21 721	20 511
Water loss	2 855	2 490	2 517	2 993	3 719
Loss of water during transport Percentage					
Water loss	12,3	10,9	10,2	11,8	14,8

6.18 The loss of water during transport by region*

	million cubic meters				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	2 855	2 490	2 517	2 993	3 719
Akmola	5	5	5	5	7
Aktobe	7	4	4	4	8
Almaty	714	711	791	812	651
Atyrau	41	41	35	39	41
Batys Kazakhstan	40	34	28	26	103
Zhambyl	520	451	352	697	484
Karagandy	23	11	19	25	35
Kostanai	9	8	8	8	8
Kyzylorda	1 068	869	844	918	933
Mangystau	3	2	3	3	1
Ontustik Kazakhstan	291	252	319	334	-
Pavlodar	13	12	12	12	23
Soltustik Kazakhstan	4	3	3	3	3
Turkistan	-	-	-	-	1 284
Shygys Kazakhstan	77	51	61	80	75
Nur-Sultan	16	17	16	16	16
Almaty	24	19	17	11	12
Shymkent	-	-	-	-	35

* Hereinafter, according to the Committee on Water Resources of the Ministry of Agriculture of the Republic of Kazakhstan.

6.19 The use of water

	million cubic meters				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	20 411	20 352	20 213	21 721	20 511
Akmola	57	52	53	65	51
Aktobe	283	315	427	717	257
Almaty	2 670	2 754	2 569	2 636	3 004
Atyrau	222	212	227	222	231
Batys Kazakhstan	501	344	504	623	530
Zhambyl	1 111	1 366	993	1 590	1 100
Karagandy	1 687	1 716	1 620	1 404	1 410
Kostanai	91	85	83	78	81
Kyzylorda	4 176	4 016	3 943	4 277	4 128
Mangystau	1 258	1 231	1 291	1 262	1 356
Ontustik Kazakhstan	4 201	4 249	4 587	4 573	-
Pavlodar	3 293	3 109	3 038	3 191	3 189
Soltustik Kazakhstan	51	51	53	187	178
Turkistan	-	-	-	-	3 903
Shygys Kazakhstan	516	549	538	582	576
Nur-Sultan city	77	83	53	87	88
Almaty city	217	220	234	227	237
Shymkent city	-	-	-	-	192

6.20 Reuse and recycling of freshwater

	2014	2015	2016	2017	2018
Total amount of used fresh water, million cubic meters	20 411	20 352	20 213	21 721	20 511
Reuse and recycling of freshwater - the total volume, million cubic meters	8 415	8 620	8 257	8 934	9 540
proportion of reused and recycled water in the total volume of fresh water used, percentage	41	42	41	41	47

6.21 Use of fresh water for industrial needs

	million cubic meters				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	5 592	5 385	5 228	5 235	5 351
Akmola	23	22	22	29	24
Aktobe	17	17	11	13	12
Almaty	52	57	66	62	74
Atyrau	79	73	89	90	96
Batys Kazakhstan	10	9	10	12	9
Zhambyl	34	37	31	29	30
Karagandy	1 500	1 536	1 454	1 202	1 188
Kostanai	37	32	33	27	30
Kyzylorda	12	11	11	13	12
Mangystau	1 223	1 192	1 248	1 199	1 281
Ontustik Kazakhstan	39	30	30	31	-
Pavlodar	2 306	2 065	1 970	2 093	2 142
Soltustik Kazakhstan	18	17	19	164	157
Turkistan					13
Batys Kazakhstan	168	187	172	195	181
Nur-Sultan city	22	23	8	15	13
Almaty city	52	77	54	61	68
Shymkent city	-	-	-	-	21

6.22 Use of fresh water for drinking needs

	million cubic meters				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	731	730	728	762	741
Akmola	15	15	17	20	17
Aktobe	36	36	36	35	35
Almaty	38	45	40	46	42
Atyrau	21	27	25	22	24
Batys Kazakhstan	16	18	19	21	21
Zhambyl	24	24	23	29	27
Karagandy	94	91	84	97	81
Kostanai	38	36	34	37	35
Kyzylorda	24	23	20	20	20
Mangystau	18	23	26	27	34
Ontustik Kazakhstan	66	68	71	66	-
Pavlodar	43	41	41	42	40

	2014	2015	2016	2017	2018
Soltustik Kazakhstan	17	17	18	16	16
Turkistan	-	-	-	-	20
Shygys Kazakhstan	64	65	60	60	67
Nur-Sultan city	55	59	45	66	69
Almaty city	162	142	169	158	161
Shymkent city	-	-	-	-	32

6.23 Use of water for household needs per capita

thousand cubic meters per capita

	2014	2015	2016	2017	2018
Republic of Kazakhstan	0,04	0,04	0,04	0,04	0,04
Akmola	0,02	0,02	0,02	0,03	0,02
Aktobe	0,04	0,04	0,04	0,04	0,04
Almaty	0,02	0,02	0,02	0,02	0,02
Atyrau	0,04	0,05	0,04	0,04	0,04
Batys Kazakhstan	0,03	0,03	0,03	0,03	0,03
Zhambyl	0,02	0,02	0,02	0,03	0,02
Karagandy	0,07	0,07	0,06	0,07	0,06
Kostanai	0,04	0,04	0,04	0,04	0,04
Kyzylorda	0,03	0,03	0,03	0,03	0,03
Mangystau	0,03	0,04	0,04	0,04	0,05
Ontustik Kazakhstan	0,02	0,02	0,02	0,02	-
Pavlodar	0,06	0,05	0,05	0,06	0,05
Soltustik Kazakhstan	0,03	0,03	0,03	0,03	0,03
Turkistan	-	-	-	-	0,01
Shygys Kazakhstan	0,05	0,05	0,04	0,04	0,05
Nur-Sultan city	0,07	0,07	0,05	0,07	0,07
Almaty city	0,10	0,08	0,10	0,09	0,09
Shymkent city	-	-	-	-	0,03

6.24 Used water for irrigation (regular and estuary)

million cubic meters

	2014	2015	2016	2017	2018
Republic of Kazakhstan	9 704	10 165	9 350	9 833	9 782
Akmola	10	7	6	5	4
Aktobe	12	32	16	13	18
Almaty	2 513	2 587	2 401	2 473	2 839
Atyrau	78	70	69	65	69
Batys Kazakhstan	15	10	15	18	17
Zhambyl	688	871	608	679	587
Karagandy	75	68	57	70	61
Kostanai	14	14	14	13	13
Kyzylorda	3 004	3 016	2 907	3 244	3 106
Ontustik Kazakhstan	2 817	3 015	2 770	2 728	-
Pavlodar	269	276	275	287	261
Soltustik Kazakhstan	1	2	2	3	2
Turkistan	-	-	-	-	2 490
Shygys Kazakhstan	207	196	209	230	226

Continuation

	2014	2015	2016	2017	2018
Nur-Sultan city	-	-	-	5	6
Almaty city	1	1	1	-	-
Shymkent city	-	-	-	-	83

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

million cubic meters

	2014	2015	2016	2017	2018
Republic of Kazakhstan	9 985	10 445	9 629	13 222	12 760
Akmola	18	15	13	14	8
Aktobe	12	32	16	13	18
Almaty	2 565	2 633	2 446	2 519	2 876
Atyrau	82	72	71	70	71
Batys Kazakhstan	15	10	15	18	17
Zhambyl	690	873	609	1 532	1 044
Karagandy	78	71	60	73	63
Kostanai	16	16	16	14	15
Kyzylorda	3 004	3 026	2 918	4 239	4 089
Mangystau	-	-	-	-	0,1
Ontustik Kazakhstan	2 951	3 147	2 903	3 335	-
Pavlodar	291	298	298	1 057	1 008
Soltustik Kazakhstan	17	16	15	7	5
Turkistan	-	-	-	-	3 130
Shygys Kazakhstan	244	234	247	326	327
Nur-Sultan city	1	1	-	5	6
Almaty city	1	1	2	-	0,06
Shymkent city	-	-	-	-	83

6.26 Used water on irrigation of pastures

million cubic meters

	2014	2015	2016	2017	2018
Republic of Kazakhstan	91	95	94	94	94
Akmola	-	-	-	-	-
Aktobe	-	-	-	-	-
Almaty	3	3	2	2	2
Atyrau	2	2	2	2	2
Batys Kazakhstan	-	-	-	-	-
Zhambyl	-	-	-	-	-
Karagandy	-	-	-	-	-
Kostanai	-	-	-	-	-
Kyzylorda	7	7	7	7	7
Mangystau	-	-	-	-	-
Ontustik Kazakhstan	54	56	56	56	-
Pavlodar	10	11	11	11	11
Soltustik Kazakhstan	-	-	-	-	-
Turkistan	-	-	-	-	56
Shygys Kazakhstan	15	16	16	16	16
Nur-Sultan city	-	-	-	-	-

Continuation

	2014	2015	2016	2017	2018
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	-

6.27 Volume of circulating and sequential water supply

million cubic meters

	2014	2015	2016	2017	2018
Republic of Kazakhstan	8 415	8 620	8 257	8 934	9 540
Akmola	163	172	175	222	182
Aktobe	58	31	190	32	178
Almaty	305	279	464	253	164
Atyrau	229	242	202	197	248
Batys Kazakhstan	4	-	4	4	4
Zhambyl	286	266	133	150	191
Karagandy	1 646	1 831	2 362	2 474	2 554
Kostanai	614	546	521	284	443
Kyzylorda	-	33	-	-	-
Mangystau	1	1	-	1	1
Ontustik Kazakhstan	209	154	193	142	-
Pavlodar	3 969	4 153	3 403	3 933	4 105
Soltustik Kazakhstan	5	5	5	166	161
Turkistan	-	-	-	-	181
Shygys Kazakhstan	365	332	325	388	442
Nur-Sultan city	294	314	4	405	405
Almaty city	267	261	276	283	281
Shymkent city	-	-	-	-	-

6.28 Polluted wastewater

	2014	2015	2016	2017	2018
Total volume of wastewater, million cubic meters	6 205	5 935	5 205	5 502	5 408
total amount of wastewater discharged into water bodies that has not been treated, million cubic meters	153	197	149	50	-
proportion of untreated wastewater discharged into water bodies in the total volume of wastewater, in percent	2,5	3,3	2,9	0,9	-

6.29 Discharge of polluted wastewater to surface water bodies

	million cubic meters				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	153	197	149	50	-
Akmola	-	-	-	-	-
Aktobe	-	-	2	2	-
Almaty	127	129	93	-	-
Atyrau	-	-	-	-	-
Zhambyl	-	-	-	-	-
Karagandy	-	-	-	1	-
Kostanai	-	-	-	-	-
Mangystau	14	15	-	-	-
Turkistan	-	-	-	-	-
Shygys Kazakhstan	-	-	-	-	-
Almaty city	-	-	-	-	-
Shymkent city	-	-	-	-	-

7. Atmospheric air

7.1 Air quality in urban areas*

	Atmospheric pollution index (API5)				
	2013	2014	2015	2016	2017
Aktau	2,9	4,0	3,0	6,0	7,0
Aktobe	5,0	3,3	5,0	6,0	7,0
Almaty	10,0	7,6	7,0	6,0	7,0
Nur-Sultan	3,7	4,2	7,0	6,0	7,0
Atyrau	5,6	4,1	4,0	4,0	8,0
Balkhash	2,9	5,2	7,0	6,0	7,0
Glubokoe village	5,4	5,3	6,0	8,0	5,0
Zhezkazgan	7,3	7,5	7,0	8,0	7,0
Karagandy	7,7	9,6	8,0	8,0	10,0
Kostanai	1,7	3,9	4,0	2,0	5,0
Kyzylorda	4,1	3,4	5,0	4,0	5,0
Pavlodar	6,2	4,3	3,0	2,0	5,0
Petropavlovsk	4,5	3,4	4,0	4,0	7,0
Rydder	5,7	7,4	6,0	5,0	5,0
Semei	4,0	5,8	5,0	6,0	5,0
Taraz	6,9	5,5	6,0	6,0	6,0
Temirtau	8,1	7,9	8,0	8,0	8,0
Ust-Kamenogorsk	10,4	7,0	6,0	9,0	9,0
Shymkent	10,7	8,1	7,0	10,0	5,0
Ekibastuz	3,9	5,1	4,0	3,0	7,0

* Hereinafter, according to RGP «Kazhydromet» of the Ministry of Energy of the Republic of Kazakhstan.

7.2 Air quality in urban areas

	mg / m ³				
	2014	2015	2016	2017	2018
Karagandy city					
Dust - Average Daily MPC	0,15	0,15	0,15	0,15	0,15
Dust - the average annual value of the MPC, the MPC multiplicity	0,71	0,79	0,80	0,92	0,90
Dust - Annual Average Concentration	0,11	0,12	0,10	0,13	0,14
Dust - Maximum Daily Average Concentration	1,0	12,8	0,9	0,7	3,0
Dust - the number of cases exceeding more than 1 MPC	3	7	10	16	90
SO2 - sulfur dioxide					
Average daily MPC	0,05	0,05	0,05	0,05	0,05
Average annual value of the MPC, the rate of excess MPC	0,25	0,19	0,32	0,44	0,60
Annual concentration	0,01	0,01	0,02	0,02	0,03
Maximum daily average concentration	0,22	0,66	0,48	0,46	0,30
NO2 - nitrogen dioxide					
Average daily MPC	0,04	0,04	0,04	0,04	0,04
Average annual value of the MPC, the rate of excess MPC	1,05	0,83	0,95	1,10	1,26
Annual concentration	0,04	0,03	0,04	0,05	0,05

	2014	2015	2016	2017	2018
Maximum daily average concentration	0,31	0,62	0,52	0,46	0,30
Число случаев с превышением более 1 ПДК	93	14	151	444	11
NOx - nitrogen oxides					
Average daily MPC	0,06	0,06	0,06	0,06	0,06
Average annual value of the MPC, the rate of excess MPC	0,25	0,12	0,13	0,14	0,14
Annual concentration	0,02	0,007	0,008	0,008	0,009
Maximum daily average concentration	0,38	0,31	0,56	0,52	0,31
CO - carbon monoxide					
Average daily MPC	3,0	3,0	3,0	3,0	3,0
Average annual value of the MPC, the rate of excess MPC	0,61	0,4	0,3	0,5	0,7
Annual concentration	1,83	1,22	1,0	1,0	1,9
Maximum daily average concentration	15,0	15,7	83,0	72,0	27,2
The number of cases with excess of more than 1 MPC	64	36	1 778	642	4 179

7.3 The concentration of ground-level ozone in cities

	Dobson (units)				
	2014	2015	2016	2017	2018
Nur-Sultan	-	-	-	-	-
Almaty	-	-	-	-	-
Shymkent	-	0,057	0,029	0,056	0,075
Kokshetau	-	-	-	-	-
Aktobe	0,063	0,051	0,60	0,083	0,061
Taldykorgan	-	-	-	-	-
Atyrau	0,001	0,035	0,035	0,033	0,028
Oral	0,034	0,017	0,042	0,029	0,016
Taraz	0,004	0,040	0,039	0,040	0,38
Karagandy	-	0,080	0,048	0,025	0,015
Balkhash	-	0,039	0,035	0,037	0,037
Zheskazgan	-	0,051	0,024	0,014	0,037
Temertau	-	-	-	-	-
Kostanai	-	-	-	-	-
Arkalyk	0,042	0,063	-	-	-
Rudnyi	-	-	-	-	-
Kyzylorda	-	-	-	-	-
Aktau	-	0,043	0,037	0,054	0,035
Pavlodar	0,067	0,035	0,035	0,021	0,022
Aksu	-	-	-	-	-
Ekibastuz	-	0,054	0,050	0,035	-
Petropavl	0,040	0,036	0,038	0,0	0,027
Ust-Kamenogorsk	0,031	0,054	0,036	0,042	0,038
Ryder	0,042	0,057	0,051	0,036	0,039
Semey	0,037	0,041	0,021	0,046	0,031
Glubokoe village	-	0,132	0,047	0,086	0,046

Continuation

7.4 The quality of atmospheric air of cities depending on the influence of industries

City Industries that have an impact on air pollution	air pollution index (API)				
	2014	2015	2016	2017	2018
	Aktau				
chemical	2,9	4,0	3,0	6,0	7,0
	Aktobe				
ferrous metallurgy, chemical	5,0	3,3	5,0	6,0	7,0
	Almaty				
energy, automotive industry	10,0	7,6	7,0	6,0	7,0
	Nur-Sultan				
energy, automotive industry	3,7	4,2	7,0	6,0	7,0
	Atyrau				
oil refining	5,6	4,1	4,0	4,0	8,0
	Balkhash				
non-ferrous metallurgy, energy	2,9	5,2	7,0	6,0	8,0
	Zhezkazgan				
non-ferrous metallurgy, energy	7,3	7,5	7,0	8,0	7,0
	Karagandy				
energy, coal mining, automotive industry	7,7	9,6	8,0	8,0	10,0
	Kostanai				
energy	1,7	3,9	4,0	2,0	5,0
	Ridder				
non-ferrous metallurgy, energy	5,7	7,4	6,0	5,0	5,0
	Pavlodar				
oil refining, energy	6,2	4,3	3,0	2,0	5,0
	Petropavl				
energy, instrumentation	4,5	3,4	4,0	4,0	
	Semey				
energy, construction materials	4,5	3,4	4,0	4,0	7,0
	Taraz				
chemical	6,9	5,5	6,0	6,0	5,0
	Temirtau				
ferrous metallurgy, chemical	8,1	7,9	8,0	8,0	8,0
	Uralsk				
energy	3,5	1,4	3,0	2,0	5,0
	Ust-Kamenogorsk				
non-ferrous metallurgy, energy	10,4	7,0	6,0	9,0	
	Shymkent				
non-ferrous metallurgy, chemical, oil refining	10,7	8,1	7,0	10,0	5,0
	Ekibastuz				
energy, coal mining	3,9	5,1	4,0	3,0	7,0

7.5 Pollution of the air basin of cities of Kazakhstan in 2018

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration		Repeatability of impurity concentrations above MPC, in percentage
			mg / m3	frequency ratio exceeding the maximum permissible concentration	mg / m3	frequency ratio exceeding the maximum permissible concentration	
Aktau	7,0	Weighted	0,182	1,2	0,420	0,8	1,0
		Hydrocarbon	-	-	-	-	-
		Formaldehyde	0,003	0,326	0,037	0,74	-
		Nitrogen dioxide	0,026	0,66	0,355	1,78	-
Aktobe	7,0	Hydrogen sulphide	0,0006	-	0,0317	3,96	-
		Carbon monoxide	1,060	0,4	63,874	12,8	29,0
		Weighted	0,145	0,97	0,980	1,96	-
		Carbon monoxide	0,773	0,26	12,552	2,51	-
Almaty	7,0	Nitrogen dioxide	0,059	1,47	1,81	9,05	-
		Formaldehyde	0,012	1,21	0,051	1,02	-
		Weighted	0,4	2,7	6,3	12,6	-
		Carbon monoxide	0,53	0,18	12,92	2,6	-
Nur-Sultan	7,0	Nitrogen dioxide	0,95	2,25	1,68	8,40	-
		Hydrogen fluoride	-	-	-	-	-
		Weighted	0,1	0,916	1,35	2,7	18,0
		Nitrogen dioxide	0,042	1,067	0,17	0,87	-
Atyrau	8,0	Weighted	0,177	1,178	4,0	8,0	-
		Carbon monoxide	0,863	0,288	35,5	7,1	-
		Sulphur dioxide	0,031	0,622	3,183	6,36	-
		Nitrogen dioxide	0,016	0,406	0,72	3,6	-
Balkhash	7,0	Weighted	0,05	0,38	0,4	0,8	7,0
		Nitrogen dioxide	0,03	0,86	0,51	2,58	-
		Phenol	0,001	0,34	0,005	0,50	-
		Weighted	0,225	1,5	1,1	2,2	-
Zhezkazgan	7,0	Sulphur dioxide	0,016	0,313	4,310	8,62	-
		Nitrogen dioxide	0,043	1,07	0,34	1,7	-
		Phenol	0,007	2,32	0,033	3,3	-
		Weighted	0,135	0,9	3,0	6,0	31,0
Karagandy	10,0	Sulphur dioxide	0,030	0,60	0,303	0,61	-
		Carbon monoxide	1,96	0,65	27,25	5,45	-
		Nitrogen dioxide	0,050	1,26	0,304	1,52	-
		Phenol	0,006	2,08	0,050	5,0	-
Kostanai	5,0	Formaldehyde	0,012	1,22	0,021	0,42	-
		Carbon monoxide	0,6	0,2	9,0	1,7	6,0
		Nitrogen dioxide	0,03	0,68	0,29	1,44	-
		Sulfur dioxide	0,0395	0,79	0,40	0,80	0,0
Kyzylorda	5,0	Nitrogen dioxide	0,0391	0,98	0,21	1,05	-

	Atmospheric pollution index (API5)	Name of impurities exceeding MPC	Average concentration		Maximum concentration		Repeatability of impurity concentrations above MPC, in percentage
			mg / m3	frequency ratio exceeding the maximum permissible concentration	mg / m3	frequency ratio exceeding the maximum permissible concentration	
Pavlodar	5,0	Weighted	0,097	0,64	0,70	1,4	1,0
		Carbon monoxide	0,411	0,13	11,56	2,31	
		Nitrogen dioxide	0,027	0,695	0,33	1,6	
		Phenol	0,001	0,34	0,018	1,8	
		Hydrogen sulphide	0,0005	-	0,011	1,41	
		Hydrogen chloride	0,020	0,20	0,09	0,45	
Petropavlovsk	7,0	Nitrogen dioxide	0,022	0,55	0,42	2,09	4,0
		Carbon monoxide	1,0	0,3	6,0	1,2	
		Formaldehyde	0,009	0,93	0,045	0,9	
		Carbon monoxide	0,703	0,234	6,0	1,2	
		Sulphur dioxide	0,045	0,90	0,358	0,71	
		Nitrogen dioxide	0,034	0,853	0,15	0,80	
Ridder	5,0	Phenol	0,0023	0,76	0,014	1,4	9,0
		Formaldehyde	0,036	0,362	0,013	0,26	
		Weighted	0,092	0,615	0,6	1,2	
		Carbon monoxide	0,53	0,179	10,25	2,05	
		Nitrogen dioxide	0,02	0,51	0,19	0,99	
		Phenol	0,005	1,67	0,03	3,1	
Semey	5,0	Sulphur dioxide	0,011	0,22	0,26	0,53	4,0
		Weighted	0,146	0,97	1,0	2,0	
		Carbon monoxide	1,4	0,46	11,0	2,2	
		Nitrogen dioxide	0,07	1,87	0,65	3,23	
		Hydrogen fluoride	0,003	0,512	0,023	1,15	
		Formaldehyde	0,007	0,7	0,043	0,86	
Taraz	6,0	Weighted	0,23	1,53	1,5	3,0	-
		Carbon monoxide	0,986	0,33	15,0	3,0	
		Nitrogen dioxide	0,029	0,73	1,218	6,09	
		Hydrogen sulphide	0,002	-	0,108	13,5	
		Phenol	0,008	2,73	0,047	4,7	
		Ammonia	0,053	1,33	0,36	1,80	
Temirtau	8,0	Weighted	0,126	0,8	2,2	4,4	-
		Sulphur dioxide	0,118	2,36	5,70	11,40	
		Carbon monoxide	0,74	0,2	28,69	5,7	
		Nitrogen dioxide	0,072	1,82	0,56	2,8	
		Phenol	0,0016	0,546	0,02	2,1	
		Chlorine	0,0039	0,13	0,07	0,70	
Ust-Kamenogorsk	9,0	Formaldehyde	0,0046	0,45	0,072	1,44	11,0
		Weighted	0,282	1,88	0,90	1,8	
		Carbon monoxide	2,14	0,71	18,03	3,61	
		Nitrogen dioxide	0,077	1,92	0,65	3,26	
		Formaldehyde	0,025	2,5	0,044	0,88	
		Nitrogen dioxide	0,024	0,610	0,17	0,88	
Ekibastuz	7,0	Nitrogen dioxide	0,024	0,610	0,17	0,88	2,0

7.6 Atmospheric precipitation

	mm				
	2014	2015	2016	2017	2018
Republic of Kazakhstan					
The long-term average amount of precipitation for the period 1961-1990.			326		
Annual precipitation	309	377	450	314	335
Average annual deviations from the long-term average amount of precipitation	95	115	137	96	103
Largest monthly amount of precipitation	50	48	60	42	46
Smallest monthly amount of precipitation	11	19	10	15	11
Capital: Nur-Sultan					
The long-term average amount of precipitation for the period 1961-1990.			319		
Annual precipitation	344	396	417	255	429
Average annual deviations from the long-term average amount of precipitation	108	124	131	80	135
Largest monthly amount of precipitation	71	113	105	35	74
Smallest monthly amount of precipitation	3	9	4	6	8
Second largest city: Almaty					
The long-term average amount of precipitation for the period 1961-1990.			662		
Annual precipitation	625	671	1 012	685	620
Average annual deviations from the long-term average amount of precipitation	94	101	153	104	94
Largest monthly amount of precipitation	139	112	214	217	119
Smallest monthly amount of precipitation	0	6	0,4	10	17
Terrain (region) with the largest long-term average amount of precipitation for the period 1961 - 1990: Southern region, Almaty region, Mynzhilki station (3017 m above sea level)					
The long-term average amount of precipitation for the period 1961-1990.			863		
Annual precipitation	711	908	1 239	683	1 024
Average annual deviations from the long-term average amount of precipitation	82	105	143	80	119
Largest monthly amount of precipitation	127	190	270	150	185
Smallest monthly amount of precipitation	14	19	11	12	17
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)					
The long-term average amount of precipitation for the period 1961-1990.			103		
Annual precipitation	100	137	131	87	106
Average annual deviations from the long-term average amount of precipitation	97	133	127	84	103
Largest monthly amount of precipitation	26	29	28	18	23
Smallest monthly amount of precipitation	0	0	0	0	0

7.7 Atmospheric precipitation

In percentage

	2013	2014	2015	2016	2017
Republic of Kazakhstan	100,0	100,0	100,0	100,0	100,0
Akmola	134,0	122,0	114,0	100,0	151,0
Aktobe	80,0	74,0	99,0	90,0	55,0
Almaty	146,0	138,0	164,0	144,0	167,0
Atyrau	40,0	55,0	66,0	97,0	33,0
Batys Kazakhstan	61,0	70,0	101,0	106,0	79,0
Zhambyl	118,0	104,0	114,0	123,0	99,0
Karagandy	89,0	94,0	85,0	82,0	92,0
Kostanai	98,0	105,0	98,0	94,0	92,0
Kyzylorda	49,0	55,0	48,0	49,0	41,0
Mangystau	28,0	36,0	52,0	37,0	29,0
Ontustik Kazakhstan	170,0	165,0	137,0	169,0	-
Pavlodar	109,0	104,0	88,0	113,0	135,0
Soltustik Kazakhstan	150,0	147,0	114,0	112,0	161,0
Turkistan	-	-	-	-	138,0
Shygyz Kazakhstan	126,0	130,0	120,0	84,0	127,0
Nur-Sultan city	112,0	129,0	135,0	83,0	139,0
Almaty city	96,0	103,0	155,0	105,0	95,0
Shymkent city	-	-	-	-	-

7.8 Monthly precipitation in 2018

In mm

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Aktau	27,0	8,4	13,1	15,7	0,0	0,0	18,4	15,4	0,0	9,3	10,3	15,3
Aktobe	5,2	16,1	43,6	24,3	12,7	16,7	9,6	10,7	15,7	20,9	11,9	20,7
Almaty	15,1	7,8	35,0	49,3	36,8	47,0	42,4	73,6	11,6	55,8	42,4	12,5
Atyrau	22,1	35,3	119,2	83,7	118,4	23,8	33,5	40,2	17,4	48,3	50,0	28,9
Nur-Sultan	11,5	2,7	11,5	20,3	1,1	2,3	13,9	0,6	0,4	10,7	4,8	17,5
Zhambyl	37,9	19,0	49,8	36,2	17,1	29,1	0,0	2,9	0,0	25,1	44,0	16,6
Karagandy	19,6	14,2	62,1	33,8	23,8	44,2	26,0	88,5	34,5	72,8	47,9	15,6
Kokshetau	13,3	6,0	17,7	16,9	36,6	56,1	71,2	127,8	20,2	35,3	15,6	8,8
Kostanai	2,1	6,5	38,3	33,1	44,7	76,4	35,7	82,4	11,7	39,6	20,2	10,2
Kyzylorda	4,6	29,4	30,6	25,3	0,3	0,0	2,8	0,0	4,6	3,2	5,9	24,0
Uralsk	5,2	23,8	26,2	20,3	29,9	6,2	62,7	11,2	12,3	20,6	23,7	30,3
Ust-Kamenogorsk	4,1	28,6	103,1	41,5	62,1	12,4	46,4	84,0	43,9	56,7	60,3	14,3
Pavlodar	9,7	6,8	22,9	29,6	50,9	82,1	60,4	37,3	41,5	39,1	27,9	11,2
Petropavlovsk	3,6	7,3	26,3	26,3	62,6	45,2	21,7	107,9	10,8	32,9	34,8	17,7
Taldykorgan	19,4	22,3	111,9	58,8	53,4	55,0	4,6	29,9	25,7	29,9	83,2	32,1
Shymkent	23,8	52,2	112,5	51,1	26,9	24,2	0,0	2,2	0,8	43,6	85,3	67,2

7.9 Quantity of atmospheric precipitation

	mm				
	2013	2014	2015	2016	2017
Republic of Kazakhstan	274	333	397	288	293
Akmola	366	405	454	289	441
Aktobe	220	248	392	259	162
Almaty	401	459	653	416	488
Atyrau	109	184	262	280	98
Batys Kazakhstan	167	234	399	305	231
Zhambyl	323	345	451	354	291
Karagandy	244	314	339	235	271
Kostanai	269	348	388	271	270
Kyzylorda	134	183	190	142	120
Mangystau	78	120	206	106	85
Ontustik Kazakhstan	467	551	544	487	-
Pavlodar	300	345	349	326	395
Soltustik Kazakhstan	410	488	454	322	471
Turkistan	-	-	-	-	405
Shygyz Kazakhstan	344	432	477	241	373
Nur-Sultan city	344	396	417	255	429
Almaty city	625	671	1 012	685	621
Shymkent city	704	701	705	680	490

7.10 Snow cover

	cm				
	2013	2014	2015	2016	2017
Republic of Kazakhstan	32	29	35	27	16
Akmola	45	43	47	36	19
Aktobe	42	33	35	31	17
Almaty	46	33	43	37	22
Atyrau	5	7	20	12	4
Batys Kazakhstan	35	27	32	40	21
Zhambyl	33	20	29	15	14
Karagandy	40	38	45	35	24
Kostanai	44	35	46	32	20
Kyzylorda	15	9	9	9	9
Mangystau	5	5	19	2	1
Ontustik Kazakhstan	34	27	29	19	-
Pavlodar	30	33	32	27	20
Soltustik Kazakhstan	36	46	45	36	19
Turkistan	-	-	-	-	8
Shygyz Kazakhstan	39	49	55	45	19
Nur-Sultan city	21	17	14	30	18
Almaty city	44	29	42	24	16
Shymkent city	29	14	11	14	12

7.11 Air temperature

	°C				
	2014	2015	2016	2017	2018
Republic of Kazakhstan					
Average long-term annual temperature for the period 1961-1990.			5,5		
Average annual temperature	5,7	7,1	7,0	6,8	5,5
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	0,2	1,7	1,3	1,3	0,1
Highest average monthly temperature	22,7	23,5	22,4	23,4	23,7
Lowest monthly average temperature	-15,6	-10,2	-10,3	-10,1	-15,6
Capital: Nur-Sultan					
Average long-term annual temperature for the period 1961-1990.			2,7		
Average annual temperature	3,3	4,8	4,6	5,2	2,5
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	0,6	2,1	1,9	2,5	-0,2
Highest average monthly temperature	21,7	21,4	20,1	22,1	21,4
Lowest monthly average temperature	-18,9	-13,1	-14,5	-13,4	-19,1
Second largest city: Almaty					
Average long-term annual temperature for the period 1961-1990.			9,2		
Average annual temperature	9,8	11,7	11,4	11,1	10,2
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	0,6	2,5	2,2	1,9	1,0
Highest average monthly temperature	24,9	27,3	23,8	27,1	25,2
Lowest monthly average temperature	-8,9	-2,7	-1,0	-2,9	-10,4
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	13,3	15,2	15,7	14,8	14,5
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	-0,3	1,6	2,1	1,2	0,9
Highest average monthly temperature	27,8	30,5	29,9	29,9	30,7
Lowest monthly average temperature	-5,7	0,4	2,9	-0,9	-0,9
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	-1,7	-0,5	-0,1	-0,6	-1,0
Deviation of the average annual temperature from the average multi-year values for the period 1961-1990.	0,1	1,3	1,7	1,2	0,8
Highest average monthly temperature	8,1	11,5	8,3	10,1	8,8
Lowest monthly average temperature	-14,2	-10,0	-8,3	-10,7	-12,1

7.12 Average annual air temperature

°C

	2014	2015	2016	2017	2018
Republic of Kazakhstan	6,4	7,7	7,6	7,5	6,2
Akmola	2,0	3,1	2,8	3,5	1,1
Aktobe	5,6	6,5	7,0	6,5	5,5
Almaty	6,9	8,5	8,1	7,9	6,8
Atyrau	9,8	10,5	10,9	10,7	10,0
Batys Kazakhstan	6,9	8,2	8,2	7,8	7,0
Zhambyl	9,1	11,3	11,1	10,5	9,3
Karagandy	3,5	5,4	5,0	5,0	2,9
Kostanai	3,3	3,9	4,0	3,8	2,3
Kyzylorda	9,4	11,8	12,1	11,1	10,2
Mangystau	12,9	13,2	13,3	13,6	13,3
Ontustik Kazakhstan	11,5	13,3	13,5	12,7	-
Pavlodar	2,8	4,1	3,5	3,8	1,6
Soltustik Kazakhstan	1,9	2,8	2,7	2,9	1,1
Turkistan	-	-	-	-	12,6
Shygys Kazakhstan	3,6	5,2	4,3	4,8	3,2
Nur-Sultan city	3,3	4,8	4,6	5,2	2,5
Almaty city	9,8	11,7	11,4	11,1	10,2
Shymkent city	12,4	13,9	14,5	13,6	13,6

7.13 Change and deviation of the average annual air temperature from the average multi-year value

°C

	2014	2015	2016	2017	2018
Republic of Kazakhstan	0,1	1,4	1,3	1,2	-0,1
Akmola	-0,1	1,1	0,8	1,5	-0,9
Aktobe	0,2	1,1	1,6	1,1	0,1
Almaty	-0,1	1,7	1,3	1,1	0,0
Atyrau	0,5	1,2	1,6	1,4	0,7
Batys Kazakhstan	0,3	1,6	1,6	1,2	0,4
Zhambyl	-0,5	1,7	1,5	0,9	-0,3
Karagandy	-0,5	1,4	1,0	1,0	-1,1
Kostanai	0,4	1,0	1,1	0,9	-0,6
Kyzylorda	-0,5	1,9	2,2	1,2	0,3
Mangystau	1,0	1,3	1,4	1,7	1,4
Ontustik Kazakstan	-0,3	1,5	1,7	0,9	-
Pavlodar	0,1	1,4	0,8	1,1	-1,1
Soltustik Kazakhstan	-0,1	0,8	0,7	0,9	-0,9
Turkistan	-	-	-	-	0,8
Shygys Kazakhstan	0,1	1,7	0,8	1,3	-0,3
Nur-Sultan city	0,4	1,9	1,7	2,3	-0,4
қород Almaty	0,4	2,3	2,0	1,7	0,8
Shymkent city	-0,2	1,3	1,9	1,0	1,0

7.14 Average monthly air temperature by city in 2018

°C

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Aktau	-0,8	2,3	5,7	11,2	21,4	23,9	29,0	25,1	21,7	14,4	4,8	2,4
Aktobe	-15,5	-11,7	-7,8	6,7	16,4	18,8	25,9	20,6	15,3	6,8	-4,5	-9,9
Almaty	-10,4	-2,4	8,6	12,5	16,4	22,3	25,2	24,4	17,4	11,0	0,2	-2,8
Atyrau	-9,2	-5,6	0,0	11,0	22,0	24,4	31,2	25,1	20,1	11,5	0,5	-3,7
Nur-Sultan	-19,1	-13,6	-7,2	5,0	10,5	18,5	21,4	18,1	12,0	5,2	-6,6	-14,3
Zhambyl	-9,3	-3,1	9,5	12,3	17,2	23,3	26,4	24,1	16,8	10,8	0,0	-1,6
Karagandy	-18,1	-12,7	-5,5	4,8	10,0	18,2	20,0	17,5	10,7	4,4	-7,5	-13,9
Kokshetau	-18,6	-14,7	-8,2	3,5	9,5	17,1	20,3	16,6	12,0	5,2	-4,9	-14,0
Kostanai	-18,3	-15,0	-9,9	4,5	11,8	16,5	22,1	18,1	13,2	6,2	-4,3	-15,1
Kyzylorda	-8,7	-5,7	5,7	13,4	20,1	25,7	30,8	25,9	18,2	11,5	-0,5	-5,7
Uralsk	-11,2	-10,9	-9,2	7,2	17,8	19,8	25,7	21,3	16,8	7,8	-3,5	-9,2
Ust-Kamenogorsk	-20,6	-13,3	-1,7	7,1	11,0	20,7	19,8	19,1	11,2	6,4	-5,2	-16,8
Pavlodar	-22,6	-16,3	-6,5	5,9	9,9	19,3	20,5	18,4	11,6	5,0	-5,4	-17,1
Petropavlovsk	-20,6	-15,7	-9,1	3,2	9,4	16,1	21,0	16,3	11,9	4,9	-5,6	-16,5
Taldykorgan	-18,0	-7,1	7,0	10,5	14,3	21,7	23,1	22,7	14,6	8,1	-3,8	-8,4
Shymkent	-0,2	1,8	11,1	14,1	19,2	24,1	29,1	25,7	20,0	12,3	3,7	2,0

7.15 Average annual wind speed

m/s

	2014	2015	2016	2017	2018
Republic of Kazakhstan	3,1	2,9	2,9	2,9	3,0
Akmola	3,7	3,5	3,3	3,1	3,3
Aktobe	3,1	3,2	3,3	3,2	3,2
Almaty	1,5	1,5	1,6	1,5	1,8
Atyrau	3,7	3,7	3,4	3,4	3,6
Batys Kazakhstan	3,2	3,3	3,0	3,1	2,9
Zhambyl	2,0	2,0	1,8	2,1	2,1
Karagandy	2,8	3,0	3,0	2,7	2,8
Kostanai	3,7	3,8	3,7	3,6	3,7
Kyzylorda	2,7	2,8	2,3	2,8	3,1
Mangystau	4,3	4,1	4,4	4,4	4,3
Ontustik Kazakhstan	2,1	2,2	2,1	2,1	-
Pavlodar	3,4	3,4	3,3	3,2	3,2
Soltustik Kazakhstan	3,9	3,7	3,3	3,4	3,5
Turkistan	-	-	-	-	2,1
Shygyz Kazakhstan	2,7	2,7	2,5	2,5	2,5
Nur-Sultan city	2,6	2,6	2,3	2,2	2,2
Almaty city	0,4	0,4	0,4	0,3	0,3
Shymkent city	1,6	1,6	1,6	1,5	1,4

7.16 Average annual air humidity

In percentage

	2013	2014	2015	2016	2017
Republic of Kazakhstan	62	64	67	64	63
Akmola	70	72	74	69	72
Aktobe	61	63	68	64	60
Almaty	58	61	66	62	61
Atyrau	61	63	67	63	61
Batys Kazakhstan	63	63	69	66	62
Zhambyl	55	57	63	60	58
Karagandy	62	65	66	63	65
Kostanai	67	68	69	68	68
Kyzylorda	54	56	57	54	52
Mangystau	63	64	67	63	61
Ontustik Kazakhstan	54	57	59	56	-
Pavlodar	66	68	69	70	70
Soltustik Kazakhstan	72	73	73	72	72
Turkistan	-	-	-	-	54
Batys Kazakhstan	63	64	69	66	65
Nur-Sultan city	66	67	67	64	68
Almaty city	58	58	64	61	60
Shymkent city	55	57	59	56	54

7.17 Atmosphere pressure

mmHg

	2013	2014	2015	2016	2017
Republic of Kazakhstan	982	981	981	982	982
Akmola	978	977	979	979	979
Aktobe	995	993	993	995	996
Almaty	914	913	913	914	913
Atyrau	1 019	1 018	1 017	1 021	1 022
Batys Kazakhstan	1 015	1 013	1 013	1 014	1 016
Zhambyl	942	941	942	942	937
Karagandy	954	953	954	954	951
Kostanai	995	993	995	995	996
Kyzylorda	1 006	1 004	1 004	1 006	1 006
Mangystau	1 021	1 021	1 020	1 021	1 021
Ontustik Kazakhstan	951	951	951	951	-
Pavlodar	996	995	997	997	997
Soltustik Kazakhstan	997	996	999	998	999
Turkistan	-	-	-	-	951
Shygyz Kazakhstan	961	960	961	962	961
Nur-Sultan city	978	976	978	978	978
Almaty city	921	920	920	921	921
Shymkent city	946	946	947	946	946

7.18 Average annual total solar radiation

	kcal / cm2			
	2015	2016	2017	2018
Republic of Kazakhstan	130,340	156,940	119,570	106,650
Akmola	80,402	132,106	99,481	103,996
Aktobe	149,012	128,977	136,569	83,080
Almaty	115,169	153,673	124,656	124,720
Atyrau	-	-	-	-
Batys Kazakhstan	124,502	137,151	106,916	103,040
Zhambyl	128,347	104,455	150,644	140,030
Karagandy	148,087	197,727	130,001	123,420
Kostanai	-	-	-	-
Kyzylorda	174,828	223,456	145,073	134,420
Mangystau	140,849	-	127,477	117,760
Ontustik Kazakhstan	153,105	153,134	140,387	-
Pavlodar	116,933	126,653	106,605	92,170
Soltustik Kazakhstan	117,679	141,573	82,060	113,770
Turkistan	-	-	-	148,880
Shygyz Kazakhstan	102,715	194,959	94,461	185,850
Nur-Sultan city	133,844	128,402	117,762	125,710
Almaty city	139,295	217,991	112,319	109,530
Shymkent city	-	-	-	124,470

7.19 Greenhouse gas emissions:

	2013	2014	2015	2016	2017
Carbon monoxide, million tons/year	240,136	256,672	263,590	267,693	283,291
Nitrous oxide (N2O), MMT/year	0,052	0,053	0,054	0,053	0,054
Methane (CH4), mln.t / year	2,112	2,082	2,019	2,055	2,107
HFC (specify in the note), 1000t / year	638,69	634,56	664,92	651,85	664,56
PFC (specify in the note), 1000t / year	629,28	525,97	556,28	591,36	640,13
Sulfur hexafluoride (SF6), 1000 tons / year	0,084	0,088	0,088	0,090	0,092
Cumulative emissions (in CO2 equivalent), mln.t / year	298,471	316,179	319,730	328,055	346,155
GHG absorption trends in land use, land use change and forestry (LULUCF)	-11,373	-9,450	-11,621	-7,981	-7,079
Sum of cumulative GHG emissions minus LULUCF (in CO2 equivalent), mln.t / year	309,844	325,629	331,351	336,035	353,234
Energy (total), million tons / year	252,145	266,953	270,499	273,327	288,813
Of them:					
combustion in stationary sources	197,606	217,128	221,658	223,294	237,543
combustion in mobile sources	22,697	20,126	21,452	22,631	23,738
non-combustion emissions	31,843	29,699	27,388	27,402	27,533
Industrial processes and use of products, mln.t / year	22,768	22,854	24,287	25,458	26,101
Agriculture, mln.t / year	31,151	31,907	32,549	33,160	34,268
Land use and forestry, mln.t / year	-11,373	-9,450	-11,621	-7,981	-7,079
Waste, mln.t / year	3,780	3,915	4,017	4,091	4,051
The population of the country, man	17 035 550	17 288 285	17 542 806	17 794 055	18 037 776
Total greenhouse gas emissions per capita, t CO2 - eq / per capita	17,52	18,29	18,29	18,44	19,19

	2013	2014	2015	2016	2017
Area of the country, 1000 km ²	2 724,9	2 724,9	2 724,9	2 724,9	2 724,9
Cumulative greenhouse gas emissions per country area, 1000 tons of CO ₂ - eq / km ²	109,5	116,0	117,3	120,4	127,0
GDP at constant prices in 2011 (PPP), billion dollars	391,3	407,8	412,7	417,2	434,3
Cumulative greenhouse gas emissions per unit of GDP, t CO ₂ - eq / 1000 dollars	0,76	0,78	0,77	0,79	0,80

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

7.20 Greenhouse gas emissions from all types of transport

	million tons of CO ₂ per year equivalent				
	2013	2014	2015	2016	2017
From road transport	18,781	16,137	18,135	19,111	19,951
From off-road vehicles	0,151	0,145	0,132	0,104	0,102
From railway transport	1,628	1,908	1,185	1,231	1,484
From water transport	0,012	0,01	0,021	0,014	0,016
From air and pipeline transport	0,963	0,845	0,836	0,809	0,756
Total national emissions without LULUCF	0,776	0,708	0,867	0,929	0,986

**Here, according to the data of Zhasyl Damu JSC of the Ministry of Energy of the Republic of Kazakhstan.*

7.21 Consumption of ozone-depleting substances

	ODP tonnes									
Вещества	2014		2015		2016		2017		2018	
	volume of production	import of ODS	volume of production	import of ODS	volume of production	import of ODS	volume of production	import of ODS	volume of production	import of ODS
HCFC	-	24,8	-	12,11	-	4,96	-	6,82	-	7,15
Bromochloro-methane	-	-	-	-	-	-	-	-	-	-
Methyl bromide	-	6,0	-	-	-	-	-	-	-	-
Total	-	30,8	-	12,11	-	4,96	-	6,82	-	7,15

7.22 Emissions and capture of air polluting substances from stationary sources

	Amount of pollutants from all stationary sources of pollution, thousand tons	Pollutants released to the atmosphere during the reporting period, th. tonnes	Contaminated and neutralized pollutants	
			thousand tons	as a percentage of total waste pollutants from stationary sources
2014	31 930,2	2 256,7	29 673,5	92,9
2015	30 129,8	2 180,0	27 949,7	92,8
2016	29 757,4	2 271,6	27 485,8	92,4
2017	30 564,5	2 357,8	28 206,7	92,3
2018	34 819,1	2 446,7	32 372,3	93,0

Continuation

7.23 Emissions of air pollutants from stationary sources

thousand tons

	2014	2015	2016	2017	2018
Republic of Kazakhstan	2 256,7	2 180,0	2 271,6	2 357,8	2 446,7
Akmola	84,6	85,7	94,5	86,9	84,5
Aktobe	121,8	134,3	155,6	169,5	158,1
Almaty	51,6	55,1	50,3	43,4	50,2
Atyrau	109,1	110,7	167,1	177,0	172,3
Batys Kazakhstan	44,7	42,4	42,5	41,5	48,2
Zhambyl	38,2	41,9	52,4	52,0	52,0
Karagandy	603,6	596,3	593,0	598,7	587,5
Kostanai	103,8	91,6	98,7	114,8	124,0
Kyzylorda	30,8	30,1	30,0	27,5	26,0
Mangystau	88,3	72,5	65,8	62,6	65,5
Pavlodar	610,2	552,9	542,7	609,8	709,2
Soltustik Kazakhstan	71,9	74,9	77,7	76,4	75,5
Turkistan	28,3	27,8	30,2	27,6	30,0
Shygys Kazakhstan	129,6	127,2	128,6	129,3	130,7
Nur-Sultan city	65,1	56,3	61,6	59,2	56,4
Almaty city	43,5	39,1	38,8	41,1	43,0
Shymkent city	31,5	41,2	41,7	40,6	33,4

7.24 Atmospheric pollutants emissions from stationary sources, per capita

kg

	2014	2015	2016	2017	2018
Republic of Kazakhstan	131	124	128	131	134
Akmola	115	116	128	118	114
Aktobe	149	162	185	199	183
Almaty	26	28	26	22	25
Atyrau	190	188	278	288	275
Batys Kazakhstan	71	67	66	64	74
Zhambyl	35	38	47	47	46
Karagandy	439	432	429	433	426
Kostanai	118	104	112	131	142
Kyzylorda	41	40	39	35	33
Mangystau	148	118	104	96	98
Pavlodar	809	730	716	807	940
Soltustik Kazakhstan	125	131	137	136	136
Turkistan	...	...	...	14	15
Shygys Kazakhstan	93	91	92	93	95
Nur-Sultan city	78	65	67	59	54
Almaty city	28	23	22	23	24
Shymkent city	...	...	...	43	34

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

	thousand tons				
	2014	2015	2016	2017	2018
Kokshetau	10,2	10,8	11,9	12,7	9,3
Aktobe	16,2	16,3	18,7	22,5	27,2
Taldykorgan	8,9	8,4	8,8	7,8	7,5
Atyrau	14,6	18,3	77,3	86,0	62,7
Uralsk	10,7	10,8	6,7	10,1	17,7
Taraz	20,1	22,9	28,9	30,0	26,4
Karagandy	67,8	50,2	54,2	55,1	53,5
Balkhash	96,8	97,4	79,7	88,0	89,3
Zhezkazgan	27,3	52,1	53,2	52,1	53,7
Temirtau	267,8	252,1	263,9	247,1	233,7
Kostanai	5,5	6,2	15,8	16,6	17,4
Arkalyk	2,4	2,9	2,4	2,0	2,0
Rudnyi	49,4	32,2	28,6	37,3	44,7
Kyzylorda	8,3	5,1	6,2	4,9	4,6
Aktau	9,9	2,6	3,7	2,5	2,9
Pavlodar	163,1	155,9	156,5	168,6	203,1
Aksu	214,6	188,7	176,4	184,0	190,3
Ekibastuz	159,5	148,5	123,4	167,1	223,1
Petropavlsk	39,5	40,6	43,6	42,1	42,7
Turkestan	...	...	...	...	2,5
Kentau	...	...	...	...	74,7
Ust-Kamenogorsk	55,7	50,9	51,1	53,8	54,4
Ridder	9,2	9,4	7,8	7,4	7,3
Semey	21,5	21,7	23,4	21,4	22,1
Glubokoe village	0,9	0,7	0,7	0,8	0,8

7.26 Emissions of the most common air pollutants from stationary sources

	tons thousand				
	2014	2015	2016	2017	2018
Total, thousand tons	2 256,7	2 180,0	2 271,6	2 357,8	2 446,7
including:					
solids	494,2	466,0	460,6	475,7	508,0
gaseous and liquid substances	1 762,5	1 714,0	1 811,0	1 882,1	1 938,7
of them:					
sulfurous anhydride	729,1	710,6	767,5	786,4	838,3
carbon monoxide	478,8	451,2	473,0	492,0	476,9
nitrogen oxides	256,5	243,4	246,6	264,7	272,2
Hydrocarbons (without volatile compound forms)	62,0	66,1	63,0	45,2	35,3
	114,4	105,1	100,4	87,2	91,7

7.27 Emissions of main pollutants per capita

	2014	2015	2016	2017	2018
Population, million people	17,3	17,5	17,7	18,0	18,3
Sulfur dioxide, kg / person	42,1	40,6	43,4	43,6	45,8
Nitrogen oxides, kg / person	14,8	13,9	13,9	14,7	14,9

	2014	2015	2016	2017	2018
NM VOC, kg / person	6,6	6,0	5,7	4,8	5,0
Ammonia, kg / person	0,1	0,1	0,1	0,1	0,1
Carbon monoxide, kg / person	27,7	25,8	26,7	27,3	26,1
Hydrocarbons, kg / person	3,6	3,8	3,6	2,5	1,9
VHF, kg / person	28,6	26,6	26,0	26,4	27,8

7.28 Emissions of main pollutants per unit area of the country

	2014	2015	2016	2017	2018
The area of the country, 1000km ²	2 724,9	2 724,9	2 724,9	2 724,9	2 724,9
Sulfur dioxide, t / km ²	0,3	0,3	0,3	0,3	0,3
Nitrogen oxides, t / km ²	0,1	0,1	0,1	0,1	0,1
NM VOC, t / km ²	0,04	0,04	0,04	0,03	0,03
Ammonia, t / km ²	0,001	0,001	0,001	0,001	0,001
Carbon monoxide, t / km ²	0,2	0,2	0,2	0,2	0,2
Hydrocarbons, t / km ²	0,023	0,024	0,023	0,017	0,013
VHF, t / km ²	0,181	0,171	0,169	0,175	0,186

7.29 Emissions of main pollutants per unit of GDP

	2014	2015	2016	2017	2018
GDP at constant prices in 2011 (PPP), billion.					
Between dollars	407,8	412,7	417,2	434,3	452,1
Sulfur dioxide, kg / 1000 dollars	1,8	1,7	1,8	1,8	1,9
Nitrogen oxides, kg / 1000 dollars	0,6	0,6	0,6	0,6	0,6
NM VOC, kg / 1000 dollars	0,28	0,25	0,24	0,20	0,20
Ammonia, kg / 1000 dollars	0,005	0,006	0,006	0,006	0,006
Carbon monoxide, kg / 1000 dollars	1,2	1,1	1,1	1,1	1,1
Hydrocarbons, kg / 1000 dollars	0,2	0,2	0,2	0,1	0,1
VHF, kg / 1000 dollars	1,212	1,129	1, 104	1,096	1,124

7.30 Emissions of pollutants into the atmosphere by type

	2014	2015	2016	2017	2018
Total	2 256 674,1	2 180 039,0	2 271 609,9	2 357 820,9	2 446 698,9
including:					
sulfurous anhydride	729 053,1	710 553,7	767 438,9	786 379,2	838 314,7
hydrogen sulfide	2 573,3	2 345,8	2 671,9	2 514,1	2 388,7
carbon monoxide	478 804,0	451 197,0	473 024,7	491 932,2	476 869,6
nitrogen oxides (in terms of NO ₂)	256 491,3	243 432,0	246 566,9	264 682,9	272 164,2
ammonia	2 230,1	2 315,9	2 457,2	2 572,6	2 473,5
barium carbonate (in terms of barium)	16,6	15,8	19,8	4,5	4,1
beryllium and its compounds (in terms of beryllium)	0,1	0,1	x	0,0	X
DiVanadium pentoxide (dust) (Vanadium pentoxide)	8,6	6,6	8,9	11,1	9,4
Cadmium and its compounds (in terms of cadmium)	1,2	1,2	1,3	6,5	0,8
magnesium oxide	51,2	53,9	54,1	61,4	63,7

	Continuation				
	2014	2015	2016	2017	2018
copper and its compounds (in terms of copper)	162,5	254,5	-	-	-
manganese and its compounds (calculated as manganese diuoksid)	85,1	66,7	100,7	143,4	147,7
copper oxide (in terms of copper)	332,6	200,8	217,7	32,9	32,2
sodium chloride	5,3	12,2	12,3	57,1	139,3
metal nickel	0,6	0,3	0,0	0,1	0,0
mercury and its compounds (in terms of mercury)	0,2	0,2	0,5	0,3	0,2
Lead and its inorganic compounds (in terms of lead)	699,4	636,3	224,5	254,8	241,4
chromium hexavalent (in terms of chromium trioxide)	8,8	5,3	6,1	7,2	6,6
Zinc diacetate (in terms of zinc) (Zinc acetate)	122,3	125,5	113,8	115,2	18,1
Chlorum trivalent compounds (in terms of Cr 3+)	206,8	157,7	-	-	-
Barium and its salts (acetate, nitrate, nitrite, chloride) in terms of barium	0,3	0,3	2,2	4,9	4,8
Nitric acid	25,0	18,2	12,7	19,1	19,5
ammonium nitrate	218,6	255,7	262,8	298,4	257,2
Bromine (Br)	-	-	x	-	-
Arsine (arsenic hydrogen)	0,1	30,9	36,8	36,8	36,8
Hydrochloride (Hydrochloric acid, Hydrogen chloride)	128,8	138,3	138,9	144,7	147,7
Hydrocyanide (Hydrocyanic acid, Formic acid nitrile, Hydrogen cyanide)	53,3	61,5	87,9	74,4	156,6
sulfuric acid molecule $H_2SO_4 \cdot SO_4$	406,9	381,2	544,7	530,5	531,3
Arsenic, inorganic compounds (in terms of arsenic)	87,7	40,5	13,4	7,9	41,6
ozone	0,6	1,4	1,5	1,3	5,7
Carbon (Soot, carbon black)	8 913,9	7 309,5	7 975,4	8 715,8	7 634,0
Selenium dioxide (in terms of selenium)					
(Selenium (IV) oxide)	18,7	1,0	0,7	1,0	0,2
Carbon bisulfide	122,1	105,7	940,5	112,9	96,4
Fluoride gaseous compounds (in terms of fluorine)	284,0	272,0	225,2	251,9	284,0
inorganic poorly soluble fluorides (aluminum fluoride, calcium fluoride, sodium hexafluoroaluminate)	115,4	168,1	202,3	180,3	189,6
chlorine	42,7	48,3	52,5	40,9	41,0
Bhutan (C4H10)	512,8	784,6	804,4	1 262,6	1 776,0
Polyethylene (polyethylene)	20,2	15,6	15,4	12,1	17,6
Cyclohexane (C6H12)	0,3	0,2	0,5	3,3	1,0
Benzene (C6H6)	1 040,9	1 032,0	995,4	1 018,9	1 134,3
Xylene (mixture of isomers of o-, m-, p-) (dimethylbenzene (mixture of o-, mn-isomers)	1 850,1	2 204,3	2 142,6	2 710,6	2 739,9
Vinylbenzene (Styrene, Ethinylbenzene)	28,6	18,0	15,7	18,0	15,4
Toluo I (C7H8)	2 075,9	2 174,1	1 941,7	2 354,9	2 339,6
1,2,4-trimethylbenzene (pseudocumene)	1,6	37,2	12,1	4,4	82,2
Ethylbenzene (C8H10)	92,2	101,7	95,9	80,8	95,3

Continuation

	2014	2015	2016	2017	2018
Benz / a / pyrene (3,4-Benzpyrene)	23,2	49,6	22,8	24,7	28,0
Naphthalene (Platidium, Cisplatin)	55,0	54,5	56,2	58,7	61,2
1,2-Dichloroethane (Dichloroethane)	0,1	1,2	1,2	1,1	1,1
1,2-dichloropropane	36,4	19,6	20,4	19,6	x
Triiodomethane (Iodoform)	-	x	-	-	x
Pentafluorobenzene	0,1	x	0,3	0,2	0,3
Trichlorethylene (C2HCl3)	13,1	15,0	15,9	14,1	9,5
Carbon tetrachloride (tetrahydrid carbon, carbon etyrehloristy H)	2,3	12,4	28,0	17,4	112,6
Propane-2-ol (Isopropyl alcohol)	219,3	178,4	269,2	238,9	239,1
Methanol (Methyl alcohol) (CH4O)	93,7	103,6	166,4	171,9	432,8
Hydroosimethylbenzene (mixture of isomers o-, m-, p-) (Tricresol)	0,1	0,1	0,5	0,2	0,2
Phenol	39,5	39,0	39,8	42,9	43,4
Butyl acetate (Acetic acid butyl ester)	292,7	347,2	331,4	314,6	348,7
Methyl acetate (Acetic acid methyl ester)	0,4	0,4	14,8	0,0	0,1
Propyl acetate (acetic acid propyl ether)	0,0	0,2	1,2	2,4	3,6
Cyan- (3-phenoxyphenyl) methyl-4-chloro-a- (1-methylethyl) phenylacetate (Somicidin, Fenvalerate , 1-Isopropyl-4-chlorophenyl acetic acid 3-phenoxy-1-cyanobenzyl ether)	-	-	0,1	x	0,0
Ethyl acetate (C4H8O2)	191,3	125,6	165,5	134,9	130,0
Ethylprop-2-enoate (Acrylic acid ethyl ester, ethyl acrylate)	0,0	5,5	4,8	3,8	4,4
Ethyl Pentanoate (Ethylvalerate , Pentanoic Acid Ethyl Ester)	0,0	0,0	0,0	0,1	0,0
Prop-2-en-1-al (Acrolein, Acryldehyde)	14,0	13,4	19,6	22,4	9,7
Benzaldehyde (benzoic aldehyde)	0,5	0,5	0,1	0,4	0,3
Formaldehyde (Metanal)	209,4	194,5	202,5	201,9	237,6
Propan-2-one (Acetone)	686,8	331,7	301,3	299,5	363,8
1-phenylethanol	0,4	0,3	39,0	4,8	3,8
4-Methylenoxetan-2-one (Diketen , B uthen-3-olid-1,3)	-	0,9	4,0	68,1	-
Pentane-3-one (Diethylketone)	7,2	8,1	7,4	11,5	3,5
4-Methylpentan-2-one (Methylisobutyl ketone) (C6H12O)	0,6	12,0	7,0	6,4	7,3
Cyclohexanone	1,2	13,4	10,4	14,2	21,3
1,3-Isobenzofurandione (Phthalic anhydride)	0,7	0,2	0,9	0,3	0,3
1,4-Benzenedicarboxylic acid (terephthalic acid)	0,0	-	x	x	X
Acetic Acid (Ethanic Acid)	181,0	185,9	375,3	258,5	180,2
Methanethiol (methyl mercaptan)	9,1	52,3	13,6	255,5	632,0
Ethanethiol	30,6	3,4	4,2	5,3	4,2
ethenesulfide (ethylene sulfide)	0,0	-	0,0	0,0	-
Benzamide	44,6	0,0	0,0	0,0	-
Azodicarbonamide	0,0	x	-	-	-
dust belkovitiminnogo protein concentrate	-	x	-	-	-
Ammophos (a mixture of could about - and diammonium phosphate mixed with ammonium sulfate)	18,4	21,8	x	25,9	20,6

	2014	2015	2016	2017	2018
gasoline (petroleum, low-sulfur in terms of carbon)	2 445,9	2 440,9	2 592,5	988,8	966,3
Gasoline fraction of light resin of high-speed pyrolysis of brown coal (in terms of carbon)	0,3	0,3	0,6	0,4	0,3
Epoxy powder paint	0,5	0,1	0,1	1,2	1,3
Mineral oil oil (spindle, machine, etc.)	221,5	247,6	261,4	313,4	311,3
Phenolic fraction of light resin of high-speed pyrolysis of brown coal	-	17,3	60,8	-	0,1
Weighted substance	38 070,8	36 841,3	32 694,8	30 816,6	26 902,5
Ash shale	43,2	-	-	-	-
Black Ash (in terms of vanadium)	74,4	61,4	95,5	73,4	80,2
Inorganic dust containing silica in%> 70	20 128,6	18 344,7	12 869,1	10 998,8	10 476,0
Inorganic dust containing silicon dioxide in%: 70-20 (chamotte, cement, dust, cement production — clay, shale, blast-furnace slag, sand, clinker, ash silica, coal ash from Kazakhstan deposits)	314 146,7	303 014,5	311 886,1	324 220,3	340 094,0
Carbide dry glue dust	0,7	0,1	0,1	0,0	0,0
Feed dust (in terms of protein)	1 655,3	1 881,2	1 598,5	1 403,9	1 192,2
Dust (inorganic) phosphogypsum gypsum binder with cement	1 167,8	1 093,1	746,6	640,8	640,8
Dust fiberglass	54,2	49,6	54,2	24,4	24,6
Cotton dust (Linen dust)	110,8	111,7	74,2	122,5	128,5
Dust tsem entnogo production (Table of Contents calcium oxide la 60%)	583,6	394,1	251,2	225,7	60,7
The coal ash of thermal power stations (anien C contains 35-40% calcium oxide, dispersibility to 3 microns and below at least 97%)	14 437,1	8 588,412	8 615,3	14 188,2	13 470,5
Aluminosilicates (zeolites, zeolite tuffs)	0,9	14,2	13,9	16,2	16,2
Wood dust	1 636,2	1 724,5	1 526,9	1 612,9	1 641,0
Bacitricin	0,2	0,1	0,0	0,0	-
Benzyl benzoate (Benzoic acid benzyl ester)	0,0	0,5	2,7	1,7	1,3
Polycyclic aromatic hydrocarbons (PAHs)	284,6	1 668,8	-	-	-
Calcium oxide (quicklime)	-	-	953,3	1 606,7	1 706,1
Zinc manganese ferrite (in terms of manganese)	-	-	0,0	0,1	0,1
Zinc carbonate (in terms of zinc)	-	-	x	0,1	0,2
But-1-en (Butylene)	-	-	10,1	10,5	20,2
Benzoyl chloride (benzoyl chloride)	-	-	-	x	x
Propane-1-ol (Propyl Alcohol)	-	-	14,8	29,6	39,9
Solvent wood alcohol brand A (acetone) / acetone /	-	-	2,3	5,5	3,4
Acrylic (Propenic) Acid	-	-	0,5	0,5	0,5
Dimethylamine	-	-	0,7	0,6	0,7
3-Chloraniline	-	-	x	x	-
Prop-2-ennitrile	-	-	0,1	0,2	0,0
Formamide (Formic acid amide)	-	-	x	x	x
0,0-Dimethyl-0- (3-methyl-4-nitrophenyl) phosphate (Methylnitrophos)	-	-	1,6	52,2	1,2
Pyridine	-	-	x	0,1	0,1

	Continuation				
	2014	2015	2016	2017	2018
Furan-2-aldehyde (Furfural, 2-Furaldehyde, Furfural, 2-Furfuraldehyde)	-	-	0,0	5,3	x
2- (2-1 Hydroxy-5-methylphenyl) -benztrazole (Hydroxymethylbenzene (mixture of isomers of o-, m-, p) Tricresol)	-	-	4,0	0,2	2,0
Chlortetracycline Feed	-	-	x	-	-
Butylformant solvent (by sum of acetates) (BEF)	-	-	18,7	0,0	10,9
Turpentine (in terms of carbon)	-	-	11,1	11,1	16,2
Activated rosin flux (control on rosin) (FCT, activated rosin flux)	-	-	2,5	-	0,0
Meliorant (mixture: calcium carbonate, chloride, sulphate-79%, silicon dioxide -10-13%, magnesium oxide-3.5%, iron oxide-1.6%, etc.)	-	-	4,7	12,1	158,9
Dust of bone meal (in terms of protein)	-	-	1,1	11,9	16,4
Fiberglass dust	-	-	0,7	14,5	5,3
Grain dust / mushroom storage /	-	-	1 784,6	3 397,6	4 783,0
Hexane	-	-	30,1	50,9	91,0
Flotation agent floocr-3	-	-	-	-	0,0
Inorganic dust, containing silicon dioxide in%: less than 20 (dolomite, cement production dust — limestone, chalk, cinder, raw mix, rotary kiln dust, bauxite)	-	-	30 049,7	39 876,8	84 838,0
Abrasive dust	-	-	-	-	147,0
Alkanes C12-19/ in terms of C/ (limit hydrocarbons c12-c19	-	-	-	-	16 677,8
Iron oxide (II-III)	-	-	-	-	2 185,6
PROPANAL (C3H6O)	-	-	-	-	6,8
PROPIONALDEHYDE, PROPIONALDEHYDE, METHYLACETIC ALDEHYDE	-	-	-	-	23 556,2
NITROGEN OXIDE	-	-	-	-	302 982,2
Other	372 545,3	375 171,4	353 793,1	358 202,2	302 982,2

7.31 Emissions of pollutants and established standards for pollutant emissions in 2018

	Emission of pollutants into the atmosphere	Established standards of pollutants	Reduction, increase of pollutants emissions as compared to permitted emissions
		admissible emission	
Total	2 446 698,889	4 171 359,078	-1 724 660,189
including:			
sulfurous anhydride	838 314,707	1 360 390,605	-522 075,898
hydrogen sulfide	2 388,666	5 779,199	-3 390,533
carbon monoxide	476 869,607	824 488,274	-347 618,667
nitrogen oxides (in terms of NO ₂)	272 164,235	465 444,224	-193 279,989
Ammonia	2 473,500	4 011,168	-1 537,668
barium carbonate (in terms of barium)	4,126	4,126	-
beryllium and its compounds (in terms of beryllium)	x	x	x
pentoxide (dust) (vanadium pentoxide)	9,427	14,935	-5,508
Cadmium and its compounds (in terms of cadmium)	0,853	1,190	-0,337
Magnesium oxide	63,746	69,633	-5,887
Manganese and its compounds (in terms of manganese dioxide)	147,711	304,318	-156,607
Copper oxide (in terms of copper)	32,258	181,208	-148,950
Sodium chloride	139,340	142,475	-3,135
Nickel metal	0,038	0,215	0,177
Mercury and its compounds (in terms of mercury)	0,180	0,255	0,075
Lead and its inorganic compounds (in terms of lead)	241,449	688,841	-447,392
Hexavalent chromium (in terms of chromium trioxide)	6,630	18,160	-11,530
Zinc diacetate (in terms of zinc) (Zinc acetate)	18,098	37,482	-19,384
Barium and its salts (acetate, nitrate, nitrite, chloride) in terms of barium	4,767	35,354	-30,587
Nitric acid	19,510	34,088	-14,578
Ammonium Nitrate	257,203	257,806	-0,603
Arsin (Arsenic Hydrogen)	36,800	36,800	-
Hydrochloride (Hydrochloric acid, Hydrogen chloride)	147,698	214,032	-66,334
Hydrocyanide (Hydrocyanic acid, Formic acid nitrile, Hydrogen cyanide)	156,627	193,566	-36,939
Sulfuric acid (H ₂ SO ₄ molecule)	531,354	875,257	-343,903
Arsenic, inorganic compounds (in terms of arsenic)	41,644	89,771	-48,127
Ozone	5,724	6,463	-0,739
Carbon (Soot, carbon black)	7 634,050	13 591,527	-5 957,477
Selenium dioxide (in terms of selenium) (Selenium (IV) oxide)	0,175	1,047	-0,872
Carbon disulfide	96,457	152,330	-55,873
Fluoride gaseous compounds (in terms of fluorine)	283,984	452,035	-168,051

	Emission of pollutants into the atmosphere	Established standards of pollutants	Reduction, increase of pollutants emissions as compared to permitted emissions
		admissible emission	
Inorganic fluoride poorly soluble (aluminum fluoride, calcium fluoride, sodium hexafluoroaluminate)	189,590	255,368	-65,778
Chlorine (Cl)	40,983	78,632	-37,649
Bhutan (C4H10)	1 776,048	2 881,308	1 105,260
Polyethene (polyethylene)	17,569	30,528	-12,959
Cyclohexane (C6H12)	0,934	1,222	-0,288
Benzene (C6H6)	1 134,270	1 668,262	-533,992
Xylene (mixture of isomers o-, m-, p-) (dimethylbenzene (mixture of o-, m- isomers)	2 739,956	5 047,022	-2 307,066
Vinylbenzene (Styrene, Ethinylbenzene)	15,381	21,698	-6,317
Toluene (C7H8)	2 339,630	4 618,415	2 278,785
1,2,4-trimethylbenzene (pseudocumene)	82,166	162,291	-80,125
Ethylbenzene (C8H10)	95,292	145,031	-49,739
Benz / a / pyrene (3,4-Benzpyrene)	27,943	42,000	-14,057
Naphthalene (Platidium , Cisplatin)	61,229	66,903	-5,674
Dichloroethane (Dichloroethane)	1,087	1,146	-0,059
1,2-Dichloropropane	x	x	x
Triodometon (iodoform)	x	x	x
Pentafluorobenzene	0,273	0,273	
Trichlorethylene (C2HCl3)	9,488	13,999	-4,511
Carbon tetrachloride (tetrachlorid Carbon, Carbon Tetrachloride)	112,600	550,408	-437,808
Propane-2-ol (Isopropyl alcohol)	239,072	479,478	-240,406
Methanol (Methyl alcohol) (CH4O) -	432,764	1 055,960	-623,196
Hydroisomethylbenzene (mixture of isomers o-, m-, p-) (Tricresol)	0,229	0,342	-0,113
Phenol	43,450	84,353	-40,903
Butyl acetate (Acetic acid butyl ester)	348,733	726,119	-377,386
Methyl acetate (Acetic acid methyl ester)	0,062	0,223	-0,161
Propyl acetate (acetic acid propyl ether)	3,629	6,971	-3,342
Cyan- (3-phenoxyphenyl) methyl-4-chloro-a (1-methylethyl) phenylacetate (Sumicidin, Fenvalerate, 1-Isopropyl-4-chlorophenyl acetic acid 3-phenoxy-1-cyanobenzyl ester)	0,049	0,049	-
Ethyl acetate (C4H8O2)	129,952	308,536	-178,584
Ethylprop-2-enoate (Acrylic acid ethyl ester, ethyl acrylate)	4,443	9,547	-5,104
Ethyl pentanoate (Ethylvalerate , Pentanoic acid ethyl ester)	0,029	0,029	-
Prop-2-en-1-al (Acrolein , Acryldehyde)	9,666	53,797	-44,131
Benzaldehyde (Aldehyde-Benzoic Guide)	0,331	0,827	-0,496
Formaldehyde (Metanal)	237,651	615,078	-377,427
Propan-2-one (Acetone)	363,825	1 209,109	-845,284
1-Phenylethanol	3,825	4,927	-1,102
Pentane-3-one (Diethylketone)	3,531	6,518	-2,987
4-Methylenoxetan-2-one (Diketen , Buten-3-olid-1,3)	7,305	8,415	-1,110
Cyclohexanone	21,308	24,010	-2,702

	Emission of pollutants into the atmosphere	Established standards of pollutants	Reduction, increase of pollutants emissions as compared to permitted emissions
		admissible emission	
1,3-Isobenzofurandione (Phthalic anhydride)	0,340	0,831	-0,491
1,4-Benzenedicarboxylic acid (terephthalic acid)	x	x	x
Acetic Acid (Ethanic Acid)	180,214	424,259	-244,045
Methanethiol (methyl mercaptan)	631,958	5 619,866	-4 987,908
Ethanethiol	4,193	8,089	-3,896
diammonium phosphate mixed with ammonium sulfate)	20,563	33,596	-13,033
Gasoline (petroleum, low-sulfur in terms of carbon)	966,260	2 032,101	-1 065,841
Gasoline fraction of light resin of high-speed pyrolysis of brown coal (in terms of carbon)	0,270	0,272	0,002
Epoxy powder paint	1,275	1,286	0,011
Mineral oil oil (spindle, machine, etc.)	311,348	429,300	-117,952
Phenol fraction of light tar of high-speed pyrolysis of brown coal	0,134	1,125	-0,991
Suspended substances	26 902,501	34 824,244	-7 921,743
Black Ash (in terms of vanadium)	80,259	285,142	-204,883
Inorganic dust containing silica in%> 70	10 475,935	15 869,942	-5 394,007
Inorganic dust containing silicon dioxide in%: 70-20 (chamotte, cement, dust, cement production — clay , shale, blast-furnace slag, sand, clinker, ash silica, coal ash from Kazakhstan deposits)	340 094,027	520 880,388	-180 786,361
Carbide dry glue dust	0,015	0,015	-
Feed dust (in terms of protein)	1 192,196	1 500,873	-308,677
Dust (inorganic) phosphogypsum gypsum binder with cement	640,770	1 141,556	-500,786
Dust fiberglass	24,567	26,948	-2,381
Cotton dust (Linen dust)	128,466	323,385	-194,919
Dust cement pro-duction (calcium oxide content 60%)	60,689	151,306	-90,617
Coal ash of heat and power plants (with a calcium oxide content of 35-40%, dispersion up to 3 microns and below not less than 97%)	13 470,556	15 266,503	-1 795,947
Aluminosilicates (zeolites, zeolite tuffs)	16,162	16,349	-0,187
Wood dust	1 640,922	3 190,887	-1 549,965
Benzyl benzoate (Benzoic acid benzyl ester)	1,254	60,933	-59,679
Calcium oxide (quicklime)	1 706,090	3 688,315	-1 982,225
Zinc manganese ferrite (in terms of manganese)	0,074	0,084	-0,010
Zinc carbon t (in terms of zinc)	0,244	0,307	-0,063
But-1-en (Butylene)	20,157	26,184	-6,027
Benzoyl chloride (benzoyl chloride)	x	x	x
Propane-1-o l (Propyl alcohol)	39,891	83,114	-43,223
Solvent wood alcohol brand A (acetone) / acetone /	3,388	6,980	-3,592
Acrylic l (Propenic) Acid	0,489	4,093	-3,604
Dimethylamine	0,665	1,355	-0,690
Prop-2-ennitrile	0,004	0,007	-0,003
Forms d (Formic acid amide)	x	x	x

Continuation

	Emission of pollutants into the atmosphere	Established standards of pollutants	Reduction, increase of pollutants emissions as compared to permitted emissions
		admissible emission	
0,0-Dimethyl-0- (3-methyl-4-nitrophenyl) phosphate (Methylnitrophos)	1,219	1,816	-0,597
Pyridine	0,055	0,058	-0,003
Furan-2-aldehyde (Furfu-rol, 2-Fural-dehyd, Fur-fural, 2-Furfuraldehyde)	x	x	x
2- (2-1 Hydroxy-5-methylphenyl) - benzi-razol (Hydroxymethylbenzene (mixture of isomers o-, m-, n-) Tricresol)	2,022	2,209	-0,187
The solvent is butylformant th (by sum of acetates) (BEF)	10,868	10,869	-0,001
Turpentine (in terms of carbon)	16,207	17,889	-1,682
Flux rosin activated	0,022	0,049	-0,027
Melioran t (mixture: calcium carbonate, chloride, sulphate-79%, silicon dioxide -10-13%, magnesium oxide-3.5%, iron oxide-1.6%, etc.)	158,870	179,387	-20,517
Dust of bone meal (in terms of protein)	16,400	25,297	-8,897
Fiberglass dust	5,275	7,706	-2,431
Grain dust / mushroom storage /	4 782,936	7 947,275	-3 164,339
Hexane	91,046	782,939	-691,893
Flotation agent floocr-3	0,005	0,078	-0,073
Inorganic dust containing silicon dioxide in%: less than 20 (dolomite, cement production dust is limestone , coal , cinder, raw materials mix, dust rotary kilns, bauxite)	84 837,915	129 920,255	-45 082,340
Abrasive dust	146,967	299,140	-152,173
Alkanes C12-19/ in terms of C/ (limit hydrocarbons c12-c19	16 677,788	34 190,664	-17 512,876
Iron oxide (II-III)	2 185,643	5 215,281	-3 029,638
PROPANAL (C3H6O)			
PROPIONALDEHYDE, PROPIONALDEHYDE, METHYLACETIC ALDEHYDE	6,795	14,676	-7,881
NITROGEN OXIDE	23 556,169	34 907,765	-11 351,596
Other	302 982,213	654 192,862	-351 210,649

7.32 Emissions of the most common air pollutants from stationary sources in 2018

thousand tons

	Total	Including						
		solids	gaseous and liquid - total	of them				
				sulfurous anhydride	carbon monoxide	nitrogen oxides	Hydrocarbons (without VOC)	volatile organic compounds (VOC)
Republic of Kazakhstan	2 446,7	508,0	1 938,7	838,3	476,9	272,2	35,3	91,7
Akmola	84,5	33,5	51,0	19,4	19,7	5,1	0,2	0,9
Aktobe	158,1	22,0	136,1	28,4	42,3	14,6	4,5	11,1
Almaty	50,2	11,3	38,9	11,5	13,9	6,2	0,3	2,9
Atyrau	172,3	3,2	169,1	50,7	51,3	17,0	3,0	12,6

	Total	Including						
		solids	gaseous and liquid - total	of them				
				sulfurous anhydride	carbon monoxide	nitrogen oxides	Hydrocarbons (without VOC)	volatile organic compounds (VOC)
Batys Kazakhstan	48,2	2,4	45,8	3,9	8,1	5,8	2,8	2,8
Zhambyl	52,1	13,0	39,1	3,0	5,6	4,7	1,0	1,0
Karagandy	587,5	120,7	466,9	251,0	149,1	44,6	0,7	8,0
Kostanai	124,0	52,0	72,0	22,6	18,1	3,7	0,4	1,8
Kyzylorda	26,0	4,2	21,8	2,3	9,9	4,0	0,1	0,8
Mangystau	65,5	3,1	62,4	1,3	9,5	10,3	10,9	21,6
Pavlodar	709,3	158,5	550,8	325,0	81,8	105,7	4,8	3,6
SoltustikKazakhstan	75,5	25,6	49,9	25,1	13,6	6,6	0,2	2,3
Turkistan	30,0	9,6	20,4	3,0	8,5	2,3	0,2	0,2
Shygys Kazakhstan	130,7	30,2	100,5	41,6	33,6	17,1	0,4	2,5
Nur-Sultan city	56,4	11,0	45,4	28,3	3,6	11,5	0,2	1,2
Almaty city	42,9	6,2	36,7	20,1	4,3	8,8	0,1	1,5
Shymkent city	33,4	1,5	31,9	1,1	3,9	4,0	5,4	16,8

7.33 Capturing and recycling of air pollutants emitted from stationary sources in 2017

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percentage of total waste pollut- ants from stationary sources	actually, thousand tons	as a percentage of the total captured and neutralized pol- lutants
Republic of Kazakhstan	32 372,3	93,0	8 000,7	24,7
Akmola	515,5	85,9	23,5	4,6
Aktobe	245,9	60,9	119,0	48,4
Almaty	434,6	89,6	28,9	6,6
Atyrau	...	...	...	...
Batys Kazakhstan	47,6	49,7	4,1	8,6
Zhambyl	160,6	75,5	15,8	9,8
Karagandy	7 219,6	92,5	1 085,1	15,0
Kostanai	657,7	84,1	222,6	33,8
Kyzylorda	0,1	0,3	0,0	3,9
Mangystau	12,3	15,8	2,5	20,6
Pavlodar	17 953,1	96,2	5 244,9	29,2
Soltustik Kazakhstan	1 116,5	93,7	21,0	1,9
Turkistan	21,3	41,4	18,7	87,7
Shygys Kazakhstan	1 556,3	92,3	1 086,9	69,8
Nur-Sultan city	1 354,3	96,0	0,2	0,0
Almaty city	954,1	95,7	5,3	0,6
Shymkent city	122,8	78,6	122,1	99,4

Continuation

7.34 Capturing and recycling of air pollutants emitted from stationary sources in the individual cities in 2018

	Contaminated and neutralized pollutants		Recycled Pollutants	
	actually, thousand tons	as a percentage of total waste pollutants from stationary sources	actually, thousand tons	as a percentage of the total captured and neutralized pollutants
Kokshetau	154,9	94,3	-	-
Aktobe	229,1	89,4	108,0	47,1
Taldykorgan	4,0	34,6	3,4	85,0
Atyrau	-	-	-	-
Uralsk	41,9	70,3	3,4	8,2
Taraz	155,9	85,5	13,1	8,4
Karagandy	1 496,0	96,5	1,1	0,1
Balkhash	1 276,4	93,5	563,8	44,2
Zhezkazgan	624,3	92,1	0,0	0,0
Temirtau	1 813,3	88,6	184,2	10,2
Kostanai	29,4	62,8	0,1	0,3
Arkalyk	0,2	7,9	-	-
Rudnyi	491,4	91,7	221,4	45,1
Kyzylorda	0,1	1,5	0,0	2,5
Aktau	1,1	28,5	1,1	99,5
Shymkent	7 594,5	97,4	4 787,2	63,0
Pavlodar	4 183,6	95,6	454,6	10,9
Aksu	4 837,8	95,6	1,6	0,0
Ekibastuz	1 102,2	96,3	13,4	1,2
Petropavl	0,0	1,5	0,0	100
Turkistan	0,0	8,8	x	0,0
Ust-Kamenogorsk	799,8	93,6	524,2	65,5
Ridder	248,5	97,1	248,1	99,8
Semey	172,6	88,7	0,1	0,1
Glubokoe village	0,5	38,4	0,0	5,8

7.35 Capturing and recycling of air pollutants emitted from stationary sources, by type of activity in 2018

	Contaminated and neutralized pollutants		Recycled pollutants	
	actually, thousand tons	as a percentage of total waste pollutants from stationary sources	actually, thousand tons	as a percentage of total waste pollutants from stationary sources
Agriculture and Fisheries	10,5	22,2	4,3	41,4
Industry	32 201,1	93,9	7 905,9	24,7
Mining and quarrying	671,5	67,9	256,3	38,2
Manufacturing industry	12 201,4	94,5	7 636,5	62,6
Electricity, gas, steam and air conditioning	19 314,5	95,4	72,4	0,4
Water supply; sewage system, control over the collection and distribution of waste	13,7	19,0	0,6	4,7
Building	105,8	79,0	19,6	18,6
Wholesale and retail trade; car and motor-cycle repair	1,6	7,7	0,6	35,7

	Contaminated and neutralized pollutants		Recycled pollutants	
	actually, thousand tons	as a percentage of total waste pollutants from stationary sources	actually, thousand tons	as a percentage of total waste pollutants from stationary sources
Transportation and warehousing	41,3	25,9	5,0	12,0
Accommodation and Food Services	0,0	1,1	-	-
Information and communication	-	-	-	-
Financial and insurance activities	0,0	4,9	x	-
Real estate transaction	2,4	18,2	0,9	35,9
Professional, scientific and technical activities	0,8	8,2	0,8	91,6
Administrative and support services	0,3	6,5	0,3	88,1
Public administration and Boromona; compulsory social security	2,6	6,2	0,4	14,7
Education	3,1	4,0	1,1	36,7
Health and social services	2,7	12,8	1,8	66,4
Arts, entertainment and recreation	0,1	1,8	-	-
Provision of other services	0,0	0,2	-	-

7.36 Number of permits for emissions into the environment*

	units				
	2014	2015	2016	2017	2018
Number of permits for emissions into the environment	1 616	1 364	1 197	2 042	2 272

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

7.37 Number of licenses issued for the performance of work and the provision of services in the field of environmental protection

	units				
	2014	2015	2016	2017	2018
Number of issued certificates, licenses, patents in the field of environmental protection	144	115	118	95	101

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

	2014	2015	2016	2017	2018
number of patents issued in the field of the environment	205	260	270	293	357
including:					
On energy technology	60	68	71	71	95
On environmental technology	145	192	199	222	262

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

7.39 Number of approved projects impact assessment on the environment*

	units				
	2014	2015	2016	2017	2018

Continuation

Number of approved projects impact assessment on the environment	11 593	3 086	2 909	3 514	3 402
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7.40 Number of publications in the field of the environment*

units

	2014	2015	2016	2017	2018
Number of publications in the field of the environment	337	341	441	220	220

7.41 Number of environmental education programs / projects*

units

	2014	2015	2016	2017	2018
Number of environmental education programs / projects	58	58	84	24	26

* According to the Committee for Environmental Regulation and Control of the Ministry of Energy of the Republic of Kazakhstan.

8. Wastes

8.1 Education, the use and disposal of hazardous waste products*

	million tons / year		
	Generation of hazardous waste	Use of hazardous waste in enterprises	Hazardous waste disposal
2014	337,4	110,1	0,3
2015	251,6	74,1	0,4
2016	151,4	33,3	0,3
2017	126,9	190,8	0,3
2018	150,0	30,0	0,5

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

8.2 Presence of hazardous waste products in enterprises

	at the end of the year, thousand tons				
	2014	2015	2016	2017	2018
Total waste of all hazard levels	2 712 167,8	2 877 364,3	2 975 552,5	2 904 857,9	2 518 278,5
Including hazard lists					
«red»	94,5	90,8	91,0	86,3	84,8
«amber»	1 916 840,5	1 988 087,9	1 592 979,2	1 258 695,8	638 717,4
«green»	795 232,8	889 185,6	1 382 482,3	1 646 075,7	1 879 476,3

8.3 Presence of hazardous waste products in enterprises

	at the end of the year, thousand tons				
	2014	2015	2016	2017	2018
Republic of Kazakhstan	2 712 167,8	2 877 364,3	2 975 552,5	2 904 857,9	2 518 278,5
Akmola	8 582,7	8 550,6	9 383,2	10 226,1	17 710,4
Aktobe	4 511,7	4 272,7	4 857,1	4 946,7	6 496,8
Almaty	1 270,2	3 598,9	4 058,0	4 503,2	5 027,4
Atyrau	21,3	29,1	86,8	179,5	425,8
Batys Kazakhstan	158,2	138,4	309,6	338,2	358,0
Zhambyl	6 786,0	6 862,6	8 325,3	12 025,1	12 429,9
Karagandy	617 461,3	624 596,2	718 782,4	725 276,6	731 615,2
Kostanai	1 317 703,5	1 606 778,7	1 580 682,8	1 605 746,1	1 063 531,1
Kyzylorda	8,3	8,0	19,3	61,9	205,8
Mangystau	306,5	527,1	268,8	187,3	216,0
Ontustik Kazakhstan	32,2	430,4	1 126,4	1 159,0	-
Pavlodar	346 778,7	209 542,5	226 094,6	451 261,8	585 630,4
Soltustik Kazakhstan	33 820,1	34 889,5	34 717,7	35 811,9	36 988,2
Turkistan	0,0	0,0	0,0	0,0	784,0
Shygyz Kazakhstan	353 495,8	354 848,6	356 446,8	20 472,4	22 824,9
Nur-Sultan city	21 231,1	22 288,3	24 603,3	25 932,9	27 503,2
Almaty city	0,2	2,7	5 790,4	6 729,2	6 082,6
Shymkent city	0,0	0,0	0,0	0,0	448,8

8.4 Volume of hazardous waste

	thousand tons				
	2014	2015	2016	2017	2018
Hazardous waste generated during the year	337 414,8	251 565,6	151 391,1	126 874,6	149 962,4
Received hazardous waste	1 736,7	1 937,3	3 806,8	5 097,4	11 698,7
of them: imported hazardous waste	4,6	0,1	12,4	-	0,3
Used (recycled) waste	110 138,4	74 131,6	33 279,7	190 785,7	29 993,2
Recycling and reuse, in percentage	32,6	29,5	22,0	150,4	20,0
Neutralized waste	341,2	382,9	327,7	295,5	451,4
Transferred to industrial processing	3 124,3	3 059,6	23 383,5	213 833,8	11 113,4
including: exported hazardous waste	-	-	5,0	-	0,3
directed:					
to places organized warehousing and burials	86 640,0	70 183,1	85 120,0	92 387,4	120 783,1
to authorized landfills and polygons for household waste	581,8	676,5	679,1	454,9	775,8
Volume of hazardous waste at the end of the year	2 712 167,8	2 877 364,3	2 975 552,5	2 904 857,9	2 518 278,5

8.5 Cross-border transport of hazardous waste

	thousand tons				
	2014	2015	2016	2017	2018
Hazardous waste generated during the year	337 414,8	251 565,6	151 391,1	126 874,6	149 962,4
of them:					
imported hazardous waste	4,6	0,1	12,4	-	0,3
exported hazardous waste	-	-	5,0	-	0,3
Used (recycled) waste	110 138,4	74 131,6	33 279,7	190 785,7	29 993,2
Neutralized waste	341,2	382,9	327,7	295,5	451,4

8.6 Hazardous waste generation

	1000 tons / year				
	2014	2015	2016	2017	2018
Hazardous waste	337 414,8	251 565,6	151 391,1	126 874,6	149 962,4
Including:					
Agriculture, forestry and fishing	1 049,5	1 410,8	1 804,3	2 025,0	2 077,2
Mining industry and quarrying	268 367,1	185 300,0	88 486,7	88 271,0	102 389,5
Manufacturing industry	44 918,2	42 929,5	39 160,9	13 302,3	19 358,0
Electricity, gas, steam	18 844,3	17 942,8	17 920,0	19 211,0	20 720,5
Construction	247,4	225,6	285,6	108,3	82,2
Other types of economic activities	3 988,3	3 756,9	3 733,6	3 957,0	5 335,0
GDP in comparable prices in 2011, million dollars	407 784,6	412 678,0	417 217,5	434 323,4	452 130,7

8.7 Electronic waste

	thousand tons		
	2016	2017	2018
Large household equipment	0,1347	9,7945	0,0749
small household equipment	0,1044	0,1480	0,0638
Information Technology and Telecommunications Equipment	0,2284	0,0864	0,7454
consumer equipment	0,0917	0,0086	0,010
Lightning equipment	0,0339	0,1023	0,6173
electrical and electronic devices	0,0822	0,0274	0,7485
other electronic and electrical equipment waste	0,2191	0,1611	0,0197

8.8 Municipal waste generation

	thousands tons				
	2014	2015	2016	2017	2018
Total amount of municipal waste	3 446,3	3 235,5	2 813,6	2 983,9	2 821,5
of which household waste	2 421,0	2 318,0	1 988,5	2 073,4	2 091,0
Recycling and reuse	383,0	372,5	346,1	442,7	427,1
Recycling and reuse, in percentage	11,1	11,5	12,3	14,8	15,1
Volume of buried waste	3 024,5	2 884,1	2582,4	2 596,6	2 374,6
Municipal waste collected in urban areas	...	...	...	2 563,0	2 368,5
Municipal waste buried in urban areas	...	...	...	2 084,4	1 750,3
Share of buried municipal waste to the total volume of municipal waste in urban areas	...	...	...	81,3	73,9
Population, people	17 288 285	17 542 806	17 794 055	18 037 776	18 276 452
Municipal waste per capita, kg / capita	199,3	184,4	158,1	165,4	154,4

8.9 Industrial waste generation and level of processing

	2015	2016	2017	2018
Industrial waste generation	982 236,4	792 860,0	737 342,6	830 271
Processing and recycling of industrial waste	227 114,4	212 511,3	227 919,5	267 029
Share recycling of industrial waste, %	23,1	26,8	30,9	32,2
Industrial waste per GDP unit, kg/thousand dollars at comparable prices in 2011 year	2 380,0	1 900,4	1 697,7	1 836,5

8.10 Municipal solid waste generation and recycling rate

	Thousands tons			
	2015	2016	2017	2018
Generation of municipal solid waste	5 467,3	5 400,9	4 864,3	4 319,2
Processing and recycling of municipal solid waste	99,67	140,3	440	497,1
Share recycling of municipal solid waste, %	1,8	2,6	9,0	11,5
Municipal Solid waste generation per capita, kg/ per capita	311,7	303,5	269,7	236,3

9. Forest resources

9.1 Main indicators of the forest fund

	at the end of the year				
	2014	2015	2016	2017	2018
Forest area (including forests transferred for temporary use), million hectares	29,3	29,3	29,4	29,8	30,1
Forest land, million hectares	12,6	12,7	12,7	12,9	12,9
Total stock of standing timber, million cubic meters	409,1	418,8	418,0	421,9	421,9
Лесистость территории, в процентах к общей площади страны Forest area, in percentage	4,6	4,6	4,7	4,7	4,7

* Hereinafter, according to the Committee for Forestry and Fauna of the Ministry of Agriculture of the Republic of Kazakhstan.

9.2 Forest Fund

	on January 1, 2019			
	Total forest area, million hectares	Forest land, million hectares	Total standing timber, million cubic meters	Percentage of forest land
Republic of Kazakhstan	30,1	12,9	421,9	4,7
Akmola	1,1	0,4	44,8	2,6
Aktobe	1,4	0,1	1,1	0,2
Almaty	5,4	1,9	49,4	8,7
Atyrau	0,2	0,2	0,5	0,2
Batys Kazakhstan	0,2	0,1	7,7	0,6
Zhambyl	4,4	2,3	3,4	16,1
Karagandy	0,6	0,1	5,5	0,4
Kostanai	1,2	0,2	17,3	1,2
Kyzylorda	6,7	3,1	5,9	13,8
Mangystau	0,5	0,1	0,1	0,8
Pavlodar	0,5	0,3	26,9	2,1
Soltustik Kazakhstan	0,7	0,5	49,6	5,5
Turkistan	3,4	1,6	3,2	14,1
Sygyys Kazakhstan	3,8	2,0	206,5	7,1

9.3 Distribution of areas of the main forest-forming species of the state forest fund in 2018

	thousand hectares				
	Area, thousand hectares	Of these, the main prevailing breeds			
		coniferous	hardwood	softwood	saxaul
Republic of Kazakhstan	9 716,9	1 765,3	93,6	1 537,8	6 320,2
Akmola	357,5	187,5	2,9	167,1	0,0
Aktobe	31,2	1,4	19,4	5,2	5,2
Almaty	1 429,1	201,9	5,4	41,6	1 180,2
Atyrau	5,8	0,0	0,2	5,6	0,0
Batys Kazakhstan	75,3	0,7	21,4	53,2	0,0

	Area, thousand hectares	Of these, the main prevailing breeds			
		coniferous	hardwood	softwood	saxaul
Zhambyl	1 189,1	3,5	5,8	0,5	1 179,3
Karagandy	66,6	30,9	7,4	28,2	0,1
Kostanai	209,3	77,9	3,1	128,2	0,1
Kyzylorda	2 759,2	0,0	0,5	0,5	2 758,2
Mangystau	18,4	0,0	0,0	0,0	18,4
Pavlodar	1 189,5	8,1	1,6	1,1	1 178,7
Soltustik Kazakhstan	240,8	153,1	12,2	75,5	0,0
Turkistan	518,2	39,7	4,2	474,3	0,0
Shygys Kazakhstan	1 626,9	1 060,6	9,5	556,8	0,0

9.4 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	
2014	80,38	68,3	85,0
2015	60,23	51,0	84,7
2016	57,19	47,4	82,9
2017	57,21	44,9	78,5
2018	52,70	42,9	81,4

9.5 Reforestation in state forests

	thousand hectares					
	2014	2015	2016	2017	2018	
Republic of Kazakhstan	80,38	60,23	57,19	57,21	52,7	
Akmola	6,95	5,22	3,61	4,62	7,7	
Aktobe	1,0	0,8	0,85	0,85	0,9	
Almaty	3,35	0,75	0,69	0,68	0,5	
Atyrau	0,2	0,2	0,2	0,21	0,2	
Batys Kazakhstan	0,5	0,5	0,5	0,5	0,5	
Zhambyl	6,5	5,0	5,0	5,0	4,8	
Karagandy	0,21	0,36	0,32	0,43	0,5	
Kostanai	2,8	1,5	1,7	1,6	1,5	
Kyzylorda	24,0	13,4	13,4	13,0	12,9	
Mangystau	0,3	0,3	0,3	0,3	0,3	
Ontustik Kazakhstan	24,69	22,94	22,24	20,99	-	
Pavlodar	2,95	2,04	2,94	2,58	2,7	
Soltustik Kazakhstan	1,85	2,09	1,51	1,91	1,4	
Turkistan	-	-	-	-	14,2	
Shygys Kazakhstan	5,08	5,13	3,93	4,54	4,6	

9.6 Forests and other wooded land

	2014	2015	2016	2017	2018
Area of forests and other wooded land, thousand hectares	29 301,7	29 318,7	29 423,1	29 843,3	30 056,7
of them are protected, in percent	22,0	22,0	22,4	20,0	30,0
The ratio of the total area of forests and other forest land to the total land area, in percentage	10,8	10,8	10,8	10,9	11,0
Forest reserves and composition:					
coniferous, thousand cubic meters	252 594,8	258 743,0	258 574,3	266 060,0	266 060,0
deciduous, thousand cubic meters	138 335,3	141 942,0	140 969,9	137 510,0	137 510,0
standing forest stocks of 10 most common species:					
pine, thousand cubic meters	405 266,7	415 026,0	414 107,1	417 960,0	417 960,0
the fir, thousand cubic m	104 707,4	108 401,3	108 278,6	110 080,0	110 080,0
fir, thousand cubic meters	35 129,1	37 692,3	37 701,4	43 480,0	43 480,0
larch, thousand cubic meters	64 416,2	64 304,9	64 250,2	64 160,0	64 160,0
cedar, thousand cubic meters	35 130,2	35 133,2	35 132,8	35 140,0	35 140,0
birch, thousand cubic meters	12 972,5	12 971,9	12 971,9	12 970,0	12 970,0
aspen, thousand cubic meters	87 545,5	91 118,9	90 294,4	86 670,0	86 670,0
poplar, thousand cubic meters	34 166,0	34 176,0	34 042,0	34 250,0	34 250,0
willow, thousand cubic meters	10 066,9	10 127,2	10 110,9	10 480,0	10 480,0
saxaul, thousand cubic meters	6 336,2	6 293,4	6 288,1	5 870,0	5 870,0
other, thousand cubic meters	14 796,7	14 806,9	15 036,8	14 860,0	14 860,0
Reforestation area, thousand hectares	3 446,1	3 342,0	3 378,3	3 900,0	3 910,0
Forest plantations, thousand hectares	58,7	58,7	58,7	135,6	44,9
	2,9	2,5	2,5	2,1	2,5

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
2014	581	3 304	74,5	5,7
2015	476	9 626	119,0	20,2
2016	306	640	28,7	2,1
2017	563	13 369	215,2	23,7
2018	358	120 991	209,8	338,0

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

thousand hectares

	2014	2015	2016	2017	2018
Republic of Kazakhstan	0,7	0,7	0,7	0,7	0,7
Akmola	-	-	-	-	-
Atyrau	0,2	0,2	0,2	0,2	0,2
Batys Kazakhstan	0,5	0,5	0,5	0,5	0,5
Kyzylorda	-	-	-	-	-

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

thousand hectares

	2014	2015	2016	2017	2018
Republic of Kazakhstan	32,1	33,9	34,0	34,1	34,1
Akmola	1,7	2,2	2,3	2,4	2,4
Aktobe	0,5	1,2	1,1	1,1	1,1
Almaty	2,5	4,2	6,0	6,0	6,0
Atyrau	0,04	-	-	-	-
Batys -Kazakhstan	0,13	0,7	0,8	0,8	0,8
Zhambyl	3,7	4,5	2,6	2,6	2,6
Karagandy	5,0	-	-	-	-
Kostanai	-	3,5	3,3	3,3	3,3
Kyzylorda	7,4	1,6	5,2	5,2	5,2
Mangystau					
Ontustik Kazakhstan	0,6	7,0	6,2	6,2	-
Pavlodar	2,8	1,5	-	-	-
Soltustik Kazakhstan	0,1	6,2	5,7	5,7	5,7
Turkistan					6,2
Shygyz Kazakhstan	7,6	1,3	0,8	0,8	0,8

9.10 Thinning and selective-sanitary felling

	The area of felling, total, hectares	Felled timber, th. Solid cubic meters		
		total	of them liquid	of them business
2014	17 128,1	325,1	311,9	51,9
2015	14 243,1	268,1	254,6	41,1
2016	17 075,1	252,3	243,8	39,5
2017	7 187,3	128,1	118,9	33,8
2018	5 905,3	108,9	104,1	11,7

9.11 Thinning and selective-sanitary felling in 2018

	Felling area - total, hectares	Felled timber, th. Solid cubic meters		
		total	of them liquid	of them business
Republic of Kazakhstan	5 905,3	108,9	104,1	11,7
Akmola	866,1	15,7	15,2	2,9
Aktobe	104,0	2,4	2,4	
Almaty	229,1	0,7	0,7	0,2
Atyrau	48,5	0,8	0,7	
Batys Kazakhstan	432,0	11,4	9,7	0,8
Zhambyl	36,2	0,2	0,2	
Karagandy	472,0	2,9	2,8	
Kostanai	706,0	25,6	25,4	3,7
Kyzylorda	3,4	0,2	0,2	
Ontustik Kazakhstan	-	-	-	-
Pavlodar	627,4	7,1	6,8	
Soltustik Kazakhstan	542,0	6,9	6,7	
Turkistan	198,6	0,3	0,3	

Shygys Kazakhstan	1 640,0	34,7	33	4,1
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10. Specially Protected Natural Areas

10.1 Specially Protected Natural Areas *

	2014	2015	2016	2017	2018
Total area of specially protected natural areas, thousand hectares	23 873,2	24 018,8	24 428,7	24 428,7	26 249,2
of them share, in percent:					
strict natural reserves and wildlife areas (reserves)	6,7	6,7	6,6	6,6	6,1
nature reserve	9,7	9,6	11,1	11,1	11,9
national park	10	10,5	10,3	10,3	10,2
botanical garden	0,002	0,002	0,002	0,002	0,002
regional park	0,8	0,8	0,8	0,8	0,7
natural monument	0,002	0,002	0,002	0,002	0,002
areas of species or habitat management (nature reserves, protected areas)	72,796	72,396	71,196	71,196	71,1

* Hereinafter, according to the Committee for Forestry and Fauna of the Ministry of Agriculture of the Republic of Kazakhstan.

10.2 Main characteristics of state nature reserves in 2018

Name of reserves (region)	Total area, ha mammals	Number of protected species			
		birds	fishes	plants	
Korgalzhyn (Akmola)	543 171	43	354	15	443
Almaty (Almaty)	71 700	65	11	-	1 140
Alakol (Almaty)	65 672,1	33	269	17	274
Batys-Altay (Shygys Kazakhstan)	86 122	57	162	5	883
Markakol (Shygys Kazakhstan)	102 971	58	261	6	720
Nauruzum (Kostanai)	191 381	45	317	10	687
Barsakelmes (Kyzylorda)	160 826	28	178	-	306
Ustyurt (Mangystau)	223 342	29	166	-	403
Aksu-Zhabagly (Ontustik Kazakhsta)	131 934	52	267	5	1 737
Karatau (Ontustik Kazakhstan)	34 300	20	122	5	1 212

10.3 Main characteristics of state national parks and nature reserves in 2018

	Total area, ha	Number of protected species			
		mammals	birds	fishes	plants
State National Parks					
«Burabay» (Akmola)	129 935	47	209	17	840
«Kokshetau» (Akmola)	182 076	50	222	19	624
Ile-Alatau (Almaty)	198 669	48	175	8	1 033
«Altyn Emel» (Almaty)	307 653	78	260	26	1 800
«Charyn » (Almat)	127 050	15	168	10	264
Katon-Karagay (Batys Kazakhstan)	643 477	67	281	17	1 000
Karkaraly (Karagandy)	112 120	46	234	91	787
Bayanaul (Pavlodar)	68 453	45	117	13	552
Sayram-Ugam (Ontustik Kazakhstan)	149 053	59	300	2	1 635
«Kolsay lakes» (Almaty)	161 045	48	197	2	704

	Total area, ha	Number of protected species			
		mammals	birds	fishes	plants
«Zhongar-Alatau» (Almaty)	356 022	49	169	3	826
«Buiratau» (Akmola)	88 968	55	227	-	504
State Forest Natural Reserves					
«Semey forres» (Shygys Kazakhstan)	654 179,8	82	235	25	209
«Irtys forrest» (Pavlodar)	277 961	20	40	-	218
«Irgiz-Turgai» (Aktobe)	1 173 511	42	-	-	422
«Akzhayk» (Atyrau)	111 500	-	-	-	227
«Altyn dala»(Kostanai)	489 766	42	275	8	370

11. Protection of animal world

11.1 Aquaculture stocks

	tons				
	2014	2015	2016	2017	2018
Aquaculture stocks (by species):					
in natural expression	289,0	200,6	893,0	1 244,0	3 971,6
Trout	46,9	53,2	160,0	260,0	438,0
Carp	198,4	89,0	23,0	159,0	1 420,0
Sazan	15,3	0,2	28,0	16,0	655,0
Sturgeon	1,7	7,1	14,0	83,0	162,0
Crucian	-	0,5	1,0	x	-
Salmon	-	0,1	1,0	4,0	1,0
Beluga	-	1,0	2,0	-	22,0
silver carp	-	0,5	304,0	83,0	180,0
Perch	-	0,1	74,0	0,1	49,0
Roach	-	-	95	0,1	63,0
Sterlet	-	-	10	10,0	7,0
grass carp	23,5	-	-	103,0	194,0
Pike	-	-	-	-	-
other species	3,3	49,1	183,0	254,0	569,0

11.2 Types of endangered and protected species

	heads				
	2014	2015	2016	2017	2018
Class mammals					
Little shrew baby	275	...	252	...	...
Muskkrat	1 733	...	1 796	...	...
Asian wide	75	...	78	...	...
Kozhanok Bobrinsky	661	...	630	...	...
Tien Shan Brown Bear	440	...	44	492	516
Stone marten	1 823	...	1 915	371	392
Pine marten	142	...	162	...	...
European mink	485	...	508	...	...
Dressing	501	...	480	33	32
Central Asian River Otter	145	...	140	...	...
Dune cat	63	...	68	3	3
Manul	175	...	180	38	38
Caracal	67	...	65	...	...
Central Asian or Turkistan region lynx	736	...	705	173	175
Snow Leopard	146	120	110	150	223
Turkmen Kulan	3 420	3 595	3 807	3 984	4 103
Tugai Deer	481	503	716	825	856
Jeyran	12 994	13 197	13 218	13 727	14 055
Ustyurk mountain sheep	1 465	1 463	1 500	1 509	1 523
Kazakhstan mountain sheep	11 069	11 790	11 921	12 337	12 410
Tien Shan mountain sheep	1 853	2 127	2 217	2 467	2 472
Karatau mountain sheep:	350	320	331	479	565

	2014	2015	2016	2017	2018
The Menzbier Marmot	17 800	...	18 330	13 186	14 113
Indian Porcupine	186	...	181	94	97
Lick	87	...	93	...	...
Five-toed dwarf jerboa	101	...	91	...	...
Pale dwarf jerboa	2 733	...	2 811	...	...
Fatty dwarf jerboa	-	...	-	...	...
Giant mole rat	13 121	...	13 356	810	975
Bird class					
Pink Pelican	4 610	...	4 890	3 315	4 352
Curly pelican	3 950	...	4 105	2 782	3 033
Little Egret	139	...	152	...	...
Spoonbill	1 315	...	1 310	196	192
Loaf	375	...	370	453	530
Turkestan White Stork	17	...	16	...	...
Black stork	210	...	215	151	161
Flamingo	2 735	...	2 831	5 605	3 947
Goose squirrel	345	...	356	...	...
Red-breasted Goose	704	...	760	44	...
Whooper swan	6 550	...	6 670	1 516	2 154
Marbled Teal	376	...	381	...	...
White-eyed blacken	652	...	680	1 472	1 424
Savka	788	...	812	10 135	8 240
Osprey	125	...	132	34	28
Snake eater	642	...	650	52	65
Eagle dwarf	37	...	38	55	50
Steppe eagle	2 931	...	2 950	136	146
Burial ground	348	...	138	209	227
Golden eagle	718	...	725	343	368
Long-tailed eagle	53	...	56	...	...
White-tailed eagle	264	...	272	129	111
Borumodach	110	...	115	76	77
Vulture	82	...	86	78	87
Kumai	108	...	103	106	109
Krechet	27	...	29	...	...
Saker	295	...	312	125	137
Shahin	43	...	45	2	2
Sapsan	107	...	121	2	3
Altai Ular	79	...	283	...	17 174
Sterh	-	...	-	...	...
Gray Crane	1 768	...	1 862	815	887
Crane belle	2 735	...	3 215	8 120	6 076
Sultanka	-	...	-	...	...
Bustard	8 991	9 376	9 555	9 638	139
Strepeta	10 755	...	10 890	1 031	873
Jack	9 120	...	9 243	12	14
Krechatka	831	...	850	87	96
Serpoklyuv	61	...	68	15	14
Curlew-baby	182	...	201	...	...
Curly Curlew	189	...	180	...	...
Asian Snipe Spin	325	...	367	...	...
Black-headed Laugh	4 285	...	4 369	11 794	14 664

Continuation					
	2014	2015	2016	2017	2018
Relic gull	75	...	84	...	...
Black-bellied speck	12 210	...	12 368	1 895	1 936
White-tailed Grouse	915	...	1 056	337	353
Saja	12 823	...	12 987	462	475
Brown dove	1 010	...	1 250	781	792
Owl	1 027	...	1 056	252	268
Ili saxaul jay	146	...	151	...	...
Blue bird	772	...	802	163	167
Big lentils	108	...	110	...	...

** Hereinafter, according to the Committee for Forestry and Fauna of the Ministry of Agriculture of the Republic of Kazakhstan*

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

heads					
	2014	2015	2016	2017	2018
Key species: Saiga tatarika	256 700	295 400	108 300	152 600	215 100
Ovis ammon	14 737	15 710	15 979	16 802	17 065
Species of International Importance: Cervus elaphus bactrianus,	481	503	716	825	856
Most important species: Endemic species: Gazella subgutturosa	12 994	13 197	13 218	13 727	14 055
Other species: Equus hemionus	3 420	3 595	3 807	3 984	4 103

11.4 Area of hunting grounds

thousand hectares					
	2014	2015	2016	2017	2018
Total area of hunting grounds	147 000	259 521	252 646	232 060	253 197
Area of the fixed hunting lands for hunting	10 454	105 746	103 387	105 657	111 203
Area of fixed hunting grounds covered by on-farm hunting	64 382	69 324	67 308	57 705	64 353
Area of hunting grounds, where the number of wild animals is recorded	72 164	84 451	81 951	68 698	77 641

11.5 Graduates of higher education institutions for environmental professions

people					
Name of specialties	2014	2015	2016	2017	2018
Ecology	1 523	1 352	957	926	960
Life safety and environmental protection	743	746	708	673	949
Water resources and water use	276	271	217	282	300
Land management	401	375	203	154	173
Forest resources and forestry	214	161	134	147	189

Continuation

12. International comparisons

12.1 The main socio-economic indicators of the CIS countries in 2018

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

	Kazakhstan	Azerbaijan	Armenia	Belarus
Territory, thousand square meters. km	2 724,9	86,6	29,7	207,6
Population density, people per 1 square. km	6,8	116,6	102,4	45,8
Population size at the beginning of 2019 million	18,4	10,0	3,0	9,5
Percentage of urban population	58,2	53	64	79
Percentage of rural population	41,8	47	36	21
Life expectancy at birth, number of years	73,2	75,8	75,4 ²⁾	74,5
Infant mortality rate, per 1000 live births	8,1	11,1	7,1	2,5
Unemployment rate, percent	4,9	4,9	20,4	4,8
Number of doctors per 10,000 population	39,6	33	45	45
Crime rate per 10,000 population	159	265	760	884
State budget expenditures on education, as a percentage of GDP	3,2	2,5	2,0	4,6
State budget expenditures on health care, as a percentage of GDP	1,9	0,9	1,3	4,0
Index of physical volume of GDP, 2018 as a percentage of 2006	168,4	176,0	125,2 ³⁾	117,5 ⁴⁾
Index of physical volume of GDP, 2018 as a percentage of 1991	238,4	264,1	...	...

Continuation

	Kyrgyzstan	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Territory, thousand square meters. km	200,0	33,9	17 125,4	142,6	488,1	447,4	576,3
Population density, people per 1 square. km	31,0	120,0	8,6	62,9	11,4	69,4	73,4
Population size at the beginning of 2019 million	6,4	2,7 ¹⁾	146,8	9,1	...	33,3	42,0
Percentage of urban population	34	43	74	26	...	51	69
Percentage of rural population	66	57	26	74	...	49	31,0
Life expectancy at birth, number of years	71,3	73,2	72,9	74,9 ²⁾	...	74,6	71,8
Infant mortality rate, per 1000 live births	14,8	9,1	5,1	...	...	9,9	7,0
Unemployment rate, percent	6,2	3,0	4,8	...	...	9,3	8,8
Number of doctors per 10,000 population	22	36	48	21	...	27	44
Crime rate per 10,000 population	470	1 184	1 356	243	...	149	1 157
State budget expenditures on education, as a percentage of GDP	6,0	5,4	3,5	5,6	...	5,1	5,9
State budget expenditures on health care, as a percentage of GDP	2,4	4,1	3,2	2,3	...	2,4	3,3
Index of physical volume of GDP, 2018 as a percentage of 2006	172,7	136,4 ⁵⁾	108,2 ⁶⁾	221,7	292,3 ⁷⁾	231,3	94,3 ⁸⁾

	Kyrgyzstan	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Index of physical volume of GDP, 2018 as a percentage of 1991	154,8	94,8	...	153,2	...	318,0	69,5

¹⁾ Data are calculated with results of the 2014 population census.

²⁾ 2017.

³⁾ In terms of 2012, subject to certain provisions of the 2008 SNA.

⁴⁾ As a percentage of 2009; subject to certain provisions of the 2008 SNA.

⁵⁾ As a percentage of 2010, subject to certain provisions of the 2008 SNA.

⁶⁾ As a percentage of 2011; subject to certain provisions of the 2008 SNA.

⁷⁾ According to the IMF.

⁸⁾ Subject to certain provisions of the 2008 SNA.

12.2 Number of births, deaths and natural population growth

	thousand people				
	Kazakhstan	Azerbaijan	Armenia	Belarus	Kyrgyzstan
Number of births					
2014	400	171	43	119	162
2015	398	166	42	119	163
2016	401	160	41	118	158
2017	390	144	38	102	154
2018	398	139	37	94	171
Number of deaths					
2014	132	56	28	122	36
2015	130	55	28	120	35
2016	131	57	28	119	33
2017	129	57	27	119	33
2018	130	57	26	120	33
Natural increase, decrease (-)					
2014	267	115	15	-3	126
2015	268	111	14	-1	128
2016	269	103	13	-1	125
2017	261	87	11	-17	120
2018	267	82	11	-14	138

Continuation

	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Number of births						
2014	38	1 943	230	...	718	466
2015	41	1 941	237	...	734	412
2016	40	1 889	230	...	726	397
2017	37	1 690	224	...	716	364
2018	35	1 604	...	...	768	336
Number of deaths						
2014	39	1 912	33	...	148	632
2015	40	1 909	33	...	152	595
2016	38	1 891	34	...	155	584
2017	37	1 826	32	...	161	574
2018	37	1 829	...	...	154	588
Natural increase, decrease (-)						

	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
2014	-1	31	197	...	568	-166
2015	1	32	204	...	582	-183
2016	2	-2	196	...	571	-187
2017	0	-136	192	...	555	-210
2018	-2	-225	...	...	614	-252

12.3 General birth, death and natural population rates

per 1000 population

	Kazakhstan	Azerbaijan	Armenia	Belarus	Kyrgyzstan
Number of births					
2014	23,1	18,1	14,3	12,5	27,7
2015	22,7	17,4	13,9	12,5	27,4
2016	22,5	16,5	13,5	12,4	26,0
2017	21,6	14,8	12,6	10,8	24,8
2018	21,8	14,2	12,3	9,9	27,1
Number of deaths					
2014	7,7	5,9	9,2	12,8	6,1
2015	7,5	5,7	9,3	12,6	5,8
2016	7,4	5,9	9,4	12,6	5,5
2017	7,2	5,9	9,1	12,6	5,4
2018	7,1	5,8	8,7	12,7	5,2
Natural increase, decrease (-)					
2014	15,5	12,2	5,1	-0,3	21,6
2015	15,3	11,7	4,6	-0,1	21,6
2016	15,2	10,6	4,1	-0,2	20,5
2017	14,5	8,9	3,5	-1,8	19,4
2018	14,6	8,4	3,6	-2,8	21,9

Continuation

	Moldova	Russia	Tajikistan	Turkmenistan	Uzbekistan	Ukraine
Number of births						
2014	10,9	13,3	27,8	...	23,3	10,8
2015	14,4	13,3	28,1	...	23,5	10,7
2016	14,3	12,9	26,6	...	22,8	10,3
2017	13,3	11,5	25,4	...	22,1	9,4
2018	12,8	10,9	...	...	23,3	8,7
Number of deaths						
2014	11,1	13,1	4,0	...	4,9	14,7
2015	14,1	13,0	4,0	...	4,9	14,9
2016	13,7	12,9	3,9	...	4,9	14,7
2017	13,4	12,4	3,6	...	5,0	14,5
2018	13,9	12,5	...	...	4,7	14,8
Natural increase, decrease (-)						
2014	-0,2	0,2	23,8	...	18,4	-3,9
2015	0,3	0,3	24,1	...	18,6	-4,2
2016	0,6	-0,01	22,7	...	17,9	-4,4
2017	-0,1	-0,9	21,7	...	17,1	-5,1
2018	-1,1	-1,6	...	...	18,6	-5,1

12.4 Infant mortality

number of deaths of children under 1 year per 1 000 live births

	2014	2015	2016	2017	2018
Kazakhstan	9,8	9,4	8,6	7,9	8,1
Azerbaijan	10,2	11,0	11,4	11,1	11,1
Armenia	8,8	8,8	8,6	8,2	7,1
Belarus	3,5	3,0	3,2	3,2	2,5
Kyrgyzstan	20,2	18,0	16,6	15,6	14,8
Moldova	9,6	9,7	9,4	9,7	9,1
Russia	7,4	6,5	6,0	5,6	5,1
Tajikistan	...	...	...	...	...
Turkmenistan	...	...	...	...	...
Uzbekistan	10,8	11,4	10,7	11,5	9,9
Ukraine	7,8	7,9	7,4	7,6	7,0

12.5 Incidence of malignant neoplasms

number of cases per 100 000 population

	2014	2015	2016	2017	2018
Kazakhstan	199	208	207	198	196
Azerbaijan	101	107	112	115	113
Armenia	278	279	280	282	231
Belarus	484	513	522	538	555
Kyrgyzstan	95	92	90	89	90
Moldova	249	245	280	285	289
Russia	357	374	409	420	426
Tajikistan	37	36	36	35	35
Turkmenistan	...	...	...	...	...
Uzbekistan	...	...	...	...	152
Ukraine	314	314	316	320	...

12.6 Morbidity of active tuberculosis

number of cases per 100 000 population

	2014	2015	2016	2017	2018
Kazakhstan	66	59	53	52	48
Azerbaijan	38	33	31	40	38
Armenia	35	28	21	23	21
Belarus	35	33	28	24	20
Kyrgyzstan	101	98	93	91	83
Moldova	77	67	65	61	58
Russia	60	58	53	48	44
Tajikistan	61	60	61	59	57
Turkmenistan	...	...	...	...	...
Uzbekistan	...	...	...	48	41
Ukraine	60	56	55	52	...

12.7 Number of victims of work-related accidents

per 10 000 employees

	2014	2015	2016	2017	2018
Kazakhstan	5,7	5,0	4,0	4,2	4,2
Azerbaijan	1,8	1,1	1,6	1,2	1,3
Armenia	5,5	4,3	5,7	5,6	6,4
Belarus	5,1	4,3	4,3	4,1	5,0
Kyrgyzstan	3,3	2,6	3,0	2,4	2,7
Moldova	9,1	7,6	6,6	7,9	8,8
Russia	14,5	13,5	12,9	12,6	11,9
Tajikistan	1,7	1,7	1,5	3,4	2,1
Turkmenistan	...	...	...	...	...
Uzbekistan	...	...	...	...	...
Ukraine	6,0	6,0	6,0	6,0	5,0

12.8 Number of deaths from accidents involving work

per 10 000 employees

	2014	2015	2016	2017	2018
Kazakhstan	0,6	0,5	0,5	0,4	0,4
Azerbaijan	0,6	0,3	0,4	0,4	0,3
Armenia	0,9	0,5	0,6	0,7	1,4
Belarus	0,3	0,2	0,2	0,2	0,3
Kyrgyzstan	0,4	0,4	0,5	0,7	0,2
Moldova	0,6	0,6	0,5	0,7	0,7
Russia	0,7	0,6	0,6	0,6	0,5
Tajikistan	0,6	0,6	0,6	0,6	0,2
Turkmenistan	...	...	...	...	...
Uzbekistan	...	...	...	...	...
Ukraine	0,4	0,4	0,5	0,4	0,4

12.9 Average size of pensions in the CIS countries

for December

	2016		2017		2018	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Kazakhstan, tenge	42 476,0	124,1	50 850,0	156,0	54 384,0	157,8
Azerbaijan, manat	192,2	108,5	208,4	122,6	221,4	130,2
Armenia, drams	40 397,0	83,5	40 634,0	83,9	40 478,0	83,7
Belarus, belarusian rubles	297,0	151,6	314,3	159,3	381,2	176,5
Kyrgyzstan, soms	7 613,0	110,0	7 915,0	115,0	8 934,0	127,9
Moldova, lei	1 275,2	63,8	1 527,9	89,3	1 709,2	99,7
Russia, rubles	12 429,0	204,9	12 950,0	224,8	13 409,0	193,0
Tajikistan, somoni	272,1	34,6	270,7	30,7	309,9	32,9
Uzbekistan, soums	494,2	152,9	556,8	68,6	640,5	78,3
Ukraine, hryvnia	1 784,7	66,4	2 458,3	87,6	2 542,3	91,8

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

for December

	2016		2017		2018	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Kazakhstan, tenge	25 824,0	75,5	31 245,0	95,8	33 745,0	97,9
Azerbaijan, manat	110,0	62,1	110,0	64,7	110	64,7
Armenia, drams	16 000,0	33,1	16 000,0	33,1	16 000,0	33,1
Belarus, belarusian rubles	221,6	113,1	221,6	120,0	279,3	129,3
Kyrgyzstan, soms	1 500,0	21,7	1 500,0	25,9	1 880,0	26,9
Moldova, lei	948,8	47,5	949,0	56,2	1 025,0	59,8
Russia, rubles	4 558,9	75,2	4 558,9	83,7	4 982,9	71,7
Tajikistan, somoni	156,0	19,8	156,0	17,7	180,0	19,1
Uzbekistan, soums	292,9	90,7	292,9	41,5	396,5	48,5
Ukraine, hryvnia	1 247,0	46,4	1 247,0	48,9	1 497,0	54,1

12.11 Minimum subsistence level in the CIS countries

	2016		2017		2018	
	in national currency	in US dollars	in national currency	in US dollars	in national currency	in US dollars
Kazakhstan, tenge	21 612	63,2	23 783	73,0	27 072	78,5
Azerbaijan, manat	136	85	155	90	173	102
Armenia, drams	...	...	...	...	...	...
Belarus, тыс. belarusian rubles	173	87	192	100	211	103
Kyrgyzstan, soms	4 794	69	4 901	71	4 793	70
Moldova, lei	1 799	90	1 862	101	1 891	113
Russia, rubles	9 828	147	10 088	173	10 287	164
Tajikistan, somoni	...	...	...	...	...	...
Uzbekistan, soums	...	...	...	...	...	...
Ukraine, hryvnia	1 388	54	1 604	62	1 745	65

12.12 Area of arable land in 2018

	Area of arable land, million hectares per 100 population, ha
Kazakhstan	24,2
Azerbaijan	21,0
Armenia	15,0
Belarus	60,0
Kyrgyzstan	20,0
Moldova	69,0
Russia*	80,0
Tajikistan	9,0
Turkmenistan	...
Uzbekistan	12,0
Ukraine	77,0

* 2017.

12.13 Structure of the acreage of the main types of grain and leguminous crops in 2018

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

	Wheat	Rye	Corn	Barley	Oats	Rice	Other
Kazakhstan	75,3	0,2	1,0	16,8	1,6	0,7	4,5
Azerbaijan	62,7	0,0	2,9	31,1	0,4	0,4	2,5
Armenia	51,2	0,3	1,1	40,3	1,8	-	5,3
Belarus	28,5	10,8	7,5	18,9	6,6	-	27,7
Kyrgyzstan	40,6	-	16,8	30,7	0,2	1,8	9,9
Moldova	38,3	0,03	50,4	6,7	0,1	-	4,5
Russia	58,8	2,1	5,3	18,0	6,2	0,4	9,2
Tajikistan	68,1	0,04	4,3	19,3	0,6	3,1	4,6
Turkmenistan	...	...	...	...	...	...	...
Uzbekistan ¹⁾	84,4	0,01	2,5	6,5	0,01	2,8	3,8
Ukraine	44,6	1,0	30,9	16,8	1,3	0,1	5,3

12.14 Gross collection of main crops in 2018

mln. tons

	Grain and leguminous crops	Potatoes	Vegetables and melons
Kazakhstan	20,3	3,8	6,2
Azerbaijan	3,2	0,9	1,9
Armenia	0,3	0,4	0,8
Belarus	6,2	5,9	1,7
Kyrgyzstan	1,9	1,4	1,3
Moldova	3,5	0,2	0,3
Russia	113,3	22,4	15,7
Tajikistan	1,3	1,0	2,8
Turkmenistan	1,2	0,3	...
Uzbekistan ¹⁾	6,5	2,9	11,6
Ukraine	70,1	22,5	9,9

¹⁾ 2016, according to FAO.

²⁾ Total water intake.

12.15 Productivity of grain and leguminous crops

quintals per hectare of harvested area

	2014	2015	2016	2017	2018
Kazakhstan	11,7	12,7	13,5	13,4	14,5
Azerbaijan	23,4	30,7	29,9	29,0	29,2
Armenia	31,8	31,3	30,7	19,8	26,7
Belarus	36,7	36,5	31,5	33,2	26,7
Kyrgyzstan	22,0	28,6	29,8	29,6	30,2
Moldova	31,2	23,4	31,6	35,9	35,8
Russia	24,1	23,7	26,2	29,2	25,4
Tajikistan	31,7	32,3	28,7	29,3	28,2
Turkmenistan	...	...	...	...	...
Uzbekistan	...	...	...	...	...
Ukraine	43,7	41,1	46,1	42,5	47,4

12.16 Number of cattle

	million heads on January 1				
	2014	2015	2016	2017	2018
Kazakhstan	6,0	6,2	6,4	6,7	7,2
Azerbaijan	2,7	2,7	2,7	2,7	2,7
Armenia	0,7	0,7	0,7	0,6	0,6
Belarus	4,3	4,4	4,4	4,3	4,4
Kyrgyzstan	1,4	1,5	1,5	1,5	1,6
Moldova	0,2	0,2	0,2	0,2	0,2
Russia	19,3	18,9	18,6	18,3	18,3
Tajikistan	2,1	2,1	2,2	2,3	2,3
Turkmenistan	...	...	...	...	...
Uzbekistan	10,6	11,0	11,6	12,2	12,5
Ukraine	4,5	3,9	3,8	3,7	3,5

12.17 Production of main livestock products in 2018

	Meat (slaughter weight)		Milk		Eggs	
	thousand tons	per capita kg	thousand tons	per capita kg	million pieces	per capita pieces
Kazakhstan	1 059,6	58	5 686,2	311	5 591,4	306
Azerbaijan	326	33	2 080	212	1 676	171
Armenia	108	36	698	235	727	245
Belarus	1 226	129	7 345	775	3 363	355
Kyrgyzstan	221	35	1 590	251	533	84
Moldova	122	45	412	152	689	254
Russia	10 629	72	30 611	208	44 901	306
Tajikistan	131	15	983	109	450	50
Turkmenistan	...	...	...	...	...	...
Uzbekistan	...	...	10 466	318	7 459	226
Ukraine	2 355	56	10 064	238	16 132	382

12.18 Water intake, water use and discharge of polluted wastewater in 2018

	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	25 096	20 511	...	0,9
Azerbaijan	13 040	9 440	330	...
Armenia	2 865	2 040	231	64
Belarus	1 390	1 247	4	-
Kyrgyzstan	7 758	5 089	1,9	1,8
Moldova	837	777	9	1,6
Russia	61 276	54 693	14 719	3 422
Tajikistan	...	...	...	...
Turkmenistan	...	...	...	...
Uzbekistan	...	...	...	...
Ukraine	9 224 ²⁾	6 853	997	158

¹⁾ In Armenia and Tajikistan - 2016.

²⁾ Total water intake.

12.19 Emissions of harmful substances into the atmosphere from stationary sources in 2018 godu

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	2 446,7	508,0	1 938,7	838,3	476,9	272,2
Azerbaijan	184,0	6,0	178,0	5,0	22,0	26,0
Armenia ¹⁾	141,0	5,0	136,0	39,0	2,0	3,0
Belarus	453,0	26,0	427,0	47,0	46,0	77,0
Kyrgyzstan	57,0	18,0	39,0	18,0	4,6	12,0
Moldova ²⁾	15,0	2,4	12,8	0,7	1,7	4,6
Russia	17 068,0	1 509,0	15 559,0	3 617,0	1 771,0	4 868,0
Tajikistan ¹⁾	37,0	17,0	20,0	4,0	0,8	14,0
Turkmenistan	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...
Ukraine	2 508,0	...	...	698,0	215,0	728,0

¹⁾ In Armenia and Tajikistan - 2016.²⁾ Without data on the territory of the left bank of the r. Dniester and Bender city.

Methodological notes

Sustainable development - the socio-economic development of the state without damaging the environment.

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

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

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

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

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

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

Unemployment rate - the proportion of the unemployed in the economically active population, measured in 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.

NumberMaternal Mortality - Number of deaths of women from complications of pregnancy, childbirth and the postpartum period per 100,000 live-born children .

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

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

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

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

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

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

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

The volume of industrial production (goods and services) of the enterprise is determined by factory methods without the cost of intra-on Borum ota. 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. В их состав входят пашни, земли под многолетними культурами, сенокосы и пастбища. 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); т.е. perennial grasses sowing past years in the area that will be harvested in the current year, i.e. cutting area, preserved by spring.

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

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

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

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

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

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

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

precipitation and strong gusts of wind.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The maximum permissible discharge (MPD) is the maximum amount of substances in wastewater allowed for discharge at a given point of a water body in units of time that does not violate the water quality standards at a given site (pond). In statistics, the ratio of actual discharge and MPD is the main indicator characterizing the degree (category) of wastewater contamination.

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

$$IZA5 = S (q \text{ cf.i} / MPCi) Ci, \text{ where}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The forest fund is a part of the territory of a country (region) occupied by the forest, as well as unoccupied by it, but intended for the needs of forestry. The forest fund includes forest area, i.e. the territory covered with forest (actually occupied by tree species forming the stands) and uncovered by the forest, but intended for growing (burning, cutting, wasteland, clearing, openings, area of dead stands).

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

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

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

The State Natural Conservancy area is a specially protected natural area, intended to preserve and study in its natural state and development of natural processes, typical and unique ecological systems,

biological diversity and the genetic stock of the flora and fauna.

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

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

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

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