



Monitoring of environmental indicators in Kazakhstan

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Environmental indicators on environmental statistics



**UNECE
Environmental
Indicators
(48 national
indicators of 49
UNECE indicators)**
https://stat.gov.kz/for_users/ecologic_indicators/ecologic_indicator



**OECD Green
Growth
Indicators (67
indicators, 44
correspond to
the OECD)**
<https://stat.gov.kz/official/industry/157/statistic/7>



**Environmental
SDG Indicators**
https://stat.gov.kz/for_users/sustainable_development_goals

Implementation of the System of Environmental-Economic Accounting 2012

Currently published accounts:

- ✓ The Air Emission Accounts;
- ✓ The Environmental Protection Expenditure Account;
- ✓ The Account of Environmentally Related Tax.

The data is available on the
Bureau's Internet resource
[https://stat.gov.kz /](https://stat.gov.kz/)

Further improvement:

- ✓ Publication of the abovementioned accounts as part of the Statistical Work Plan starting from 2023;
- ✓ Detailing the Environmental Protection Expenditure Account in terms of household expenses;
- ✓ Generation of the Account of Environmentally Related Tax by types of economic activity and sectors of the economy;
- ✓ Using the data of the Air Emission Accounts (after the inclusion of mobile emission sources) for the full compilation of the results of the JMP.

Implementation of the System of Environmental-Economic Accounting 2012

Upcoming pilot publications of the Accounts:

- ✓ Account of water resource flows;
- ✓ Asset accounting for forests;
- ✓ Material flow account;
- ✓ Asset accounting for mineral and energy resources;
- ✓ Energy resource flows account (based on the new IEA format).

Application of SEIS In Kazakhstan

In Kazakhstan, there are 48 indicators of 49 indicators proposed by SEIS

Interactive format	42 indicators
Interactive format	42 indicators
Availability of metadata	48 indicators
Easy accessibility for users	48 indicators

Added indicators

- D-2 Biosphere reserves and wetlands
- F-3 Concentration of nutrients in agricultural lands
- G-5 Final electricity consumption
- G-6 Power generation
- J-1 Costs of enterprises for environmental protection

Not implemented

- D-6 Invasive alien species

Components of the UNECE Environmental Indicators System

Interdepartmental cooperation:

- **About 30 state bodies and various institutions**
- **An interdepartmental Working Group on the development and formation of environmental statistics, ensuring the quality and reliability of data has been established**
- **Joint order with the authorized body in the field of environmental protection**
- **Agreement on integration with tax authorities, with the Cadastre of Wastes Production and Consumption of the Ministry of Ecology, Geology and Natural Resources**

Future directions:

- **Development of a Plan to improve environmental statistics until 2023 based on the revised Guidelines for the Application of Environmental Indicators**
- **Revision of the Methodology for the formation of Environmental Statistics indicators**

Current regulatory legal documents and strategic programs in the field of the environment

- ✓ *The new Environmental Code of the Republic of Kazakhstan, which entered into force in July 2021*
- ✓ *Waste Classifier <http://adilet.zan.kz/rus/docs/V2100023903>*

A number of draft laws are at the approval stage, the main ones are as follows:

- *The Concept of Development of the Ecological Sphere of the Republic of Kazakhstan for 2021-2025,*
- *Zhasyl Kazakhstan National Project*
- *Updated Nationally determined contributions (NDCs)*
- *The Doctrine of Carbon-Neutral Transition of the Republic of Kazakhstan until 2060*

Application of SEIS In Kazakhstan

Information is provided regarding the objects with the status of international importance, approved by the order of the Minister of the authorized body

D-2 Биосферные заповедники и водно-болотные угодья			
		Единица	2020
1	Площадь страны	1000 га	272 490
2	Общая площадь биосферных заповедников и водно-болотных угодий	га	6081952,7
3	водно-болотные угодья, всего	га	3 281 398
	из них:		
4	Тенгиз-Кургальжинская система озер	га	353 341
5	Дельта реки Урал	га	914 663
6	Койбагар-Тюнтюгурская система озер	га	976 630
7	Кулыколь-Талдыкольская система озер	га	348 000
8	Наурзумская система озер	га	111 500
9	Жарсор-Уркашские соры	га	41 250
10	Алаколь-Сасыккольская система озер	га	58 000
11	Озера Нижнего Тургая и Иргиз	га	8 300
12	Дельта реки Или и южная часть озера Балхаш	га	139 714
13	Малый Аральское море и дельты водно-болотных угодий реки Сырдарья	га	330 000
14	биосферные резерваты, всего	га	2800554,7
	из них:		
15	Коргалжынский заповедник	га	543 171
16	резерват Акжайык	га	111 500
17	Катон-Карагайский ГНПП	га	643 477
18	Аксу-Жабаглинский заповедник	га	131 934,30
19	Алакольский заповедник	га	65 672,01
20	Барсакельмесский запвоедник	га	160 826
21	Алтын-Эмель ГНПП	га	307 735,35
22	Каратауский заповдник	га	34 300
23	Чарынский ГНПП	га	127 050
24	Жонгар-Алатауский ГНПП	га	356 022
25	Алматинский заповедник	га	71 700
26	Западно-Алтайский заповедник	га	86 122
27	Кольсай колдери	га	161 045
28	Доля биосферных заповедников и водно-болотных угодий в общей площади страны	%	8 2,2

Application of SEIS In Kazakhstan

F-3 Concentration of nutrients in agricultural lands *

		2014	2015	2016	2017	2018	2019	2020	kg/ha
		Nitrogen concentration							
1.	Added kg of active substance per ha	2.46	2.65	2.56	3.45	3.82	4.48	4.61	
		Phosphorus concentration							
2.	Added kg of active substance per ha	1.73	1.89	1.67	2.28	2.66	2.56	2.59	

* Data of the Republican Scientific and Methodological Center of the Agrochemical Service of the Ministry of Agriculture of the Republic of Kazakhstan

It is a proxy indicator for identifying the state of environmental pressures, such as a decrease in soil fertility in case of nutrient deficiency or the risk of contamination of soil, water and air in case of an excess of nutrients.



Alternative national indicator
(FROM the OECD:
Nitrogen,
phosphorus balance
per hectare)

Application of SEIS In Kazakhstan

G-5 Final electricity consumption

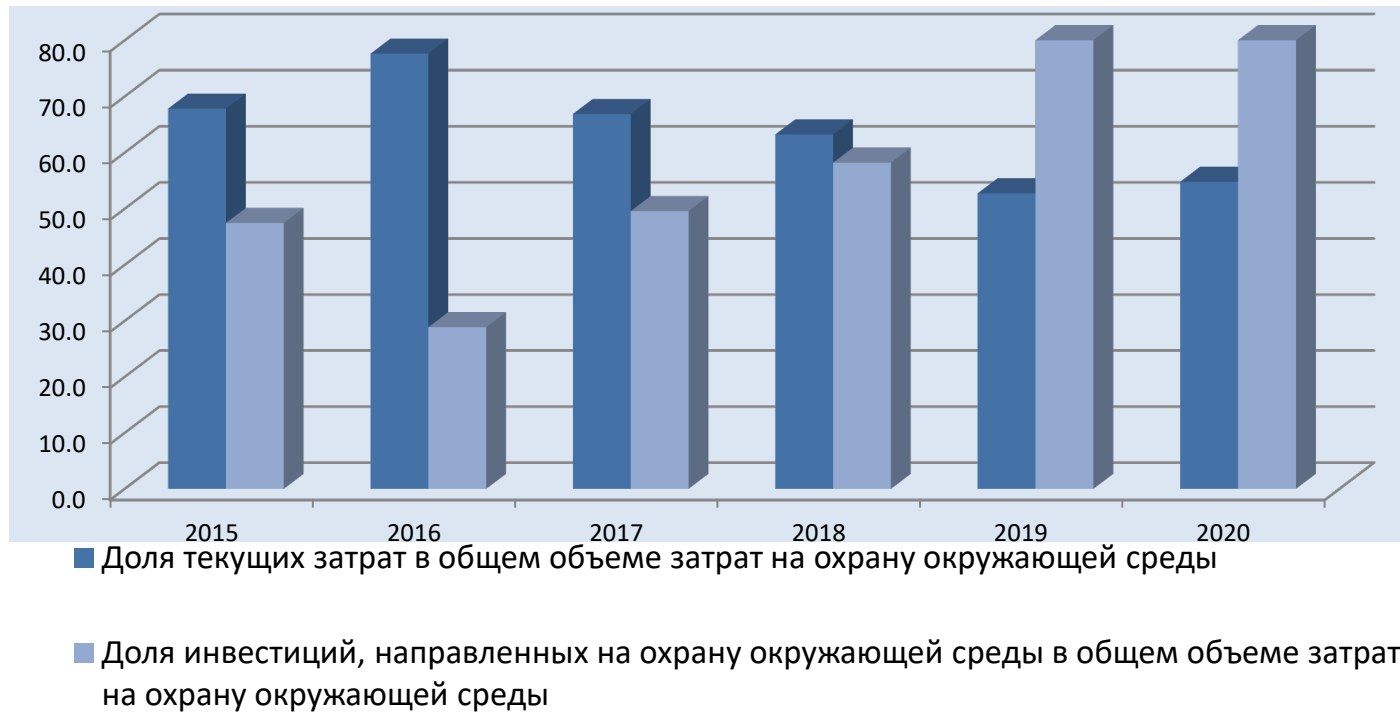


G-6 Gross electricity production



Application of SEIS In Kazakhstan

J-1 Costs of enterprises for environmental protection



Revised Guidelines for the Application of Environmental Indicators

173 proposed indicators in the Draft Guidelines for the Application of Environmental Indicators:

73 new and modified indicators - information is available for 51 indicators (+)

14 indicators - we offer alternative national indicators (+-)

*4 indicators are not relevant for the country and we propose to exclude 2 indicators
(highlighted in red)*

3 indicators require explanations

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
B-1.1	Average temperature anomaly (compared to the climatic norm of 1961-1990)	1	+
B-2.5	Percentage of land area suffering from abnormally wet or dry conditions (Standard Precipitation Index)	2	+ - calculation in the perspective of the authorized body
B-2.6	Occurrence of extreme temperatures and precipitation	2	+ - calculation in the perspective of the authorized body
E-2.4	The ratio of the area of degraded land to the total land area	1	+ the ratio of the area of degraded agricultural land to the total area of agricultural land

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
E-3.1	Progress in land management	1	+ -Reclamation of disturbed lands
D-1.1	Proportion of all areas with protected status (categories of the International Union for Conservation of Nature (IUCN)) in the total area of the country	1	+ D-2, data on wetlands and biosphere reserves
D-1.3	The ratio of the area of protected areas to the total area of marine areas	1	+ - Proportion of the state protected area of the northern part of the Caspian Sea, lake ecosystems in the total share of the Specially Protected Natural Areas (SPNA)

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
D-1.5	Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type (SDG 15.1.2)	1	+ -Proportion of specially protected natural territories to the total area of the country (SDG 15.1.2)
D-4.2	Proportion of endangered species (mammals, birds, amphibians, reptiles, fish and invertebrates, lichens and mosses, vascular plants, fungi and algae)	1	+ The data is not updated on an annual basis, as studies are rarely conducted
D-5.1	The number and distribution of selected species (key species, flagship species, endemic species and other species)	1	- we suggest to leave it at that.

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
D-2.2	Environmental status of the habitat in accordance with the European Union Habitats Directive	3	Methodology needed
C-17.1	Hazardous substances in marine organisms	3	The country does not conduct research on ichthyopathology
D-2.3	Ecosystem coverage	2	+/- incomplete data are available, covered by the SPNR
D-5.2	Status of sea fish and shellfish stocks	3	Not relevant for the country

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
D-3.1	Forest area as a percentage of the total land area	1	+ Information is available
D-3.8	Forest fires	1	+ information is available
D-3.9	Forest: deadwood	3	- not relevant for the country, monitoring is not conducted, since the country does not belong to forested countries. Monitoring of final harvest is underway.

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
A-2.5	PM2.5: Number of days exceeding the daily limit value	1	+ Information for individual cities is available. There is no average for the country, since the territory is large
C-17.1	Proportion of bodies of water with good ambient water quality (SDG indicator 6.3.2)	1	+ Proportion of water bodies with good ambient water
C-12.1	Chlorophyll in transitional, coastal and marine waters	3	- Currently there is no possibility to conduct space monitoring

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
C-12.2	Phosphates in transitional, coastal and marine waters	1	+ the average concentrations of phosphates (mg/dm ³) of the Caspian Sea are given
C-12.3	Nitrates in transitional, coastal and marine waters	1	+ the average concentrations of nitrates (mg/dm ³) of the Caspian Sea are given
G-1.3	Total energy use by the national economy	-	- Methodology needed
G-1.4	Resident households energy consumption per capita	1	+ the survey is carried out every five years

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
G-4.2	Renewable energy share in the total final energy consumption within the national territory (SDG indicator 7.2.1)	1	+ -The share of electricity produced by renewable energy sources in the total volume of electricity production
G-4.4	Use of renewable energy in transport	3	- There are very few vehicles using renewable energy in the country, it is not relevant for the country.
D-8.1	Landscape fragmentation pressures and trends	3	Methodology needed
D-3.10	Forest: timber stand, accretion and felling	1	+ -Improvement cutting and selective forest sanitation

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
C-2.1	Total freshwater abstraction by source	3	- Surface and underground
C-2.4	Level of pressure on water resources: freshwater abstraction as a percentage of available freshwater resources (indicator 6.4.2)	1	+
C-3.6	Change in water use efficiency over time (SDG 6.4.1)	1	+ The calculation is carried out by means of the FAO Aquastat questionnaire
B-3.7	Total GHG emissions by sector	1	+ The Energy sector includes Transport

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
B-3.8	Total greenhouse gas emissions by the national economy	3	- The authorized body performs the calculation in accordance with the IPCC
B-3.10, 3.11, 3.12	CO2 emissions as a result of LULUCF changes, fuel combustion, production activities	1	+
B-3.13	The intensity of greenhouse gas emissions as a result of production activities	3	-The authorized body performs the calculation in accordance with the IPCC by sector. The data will not be correct
B-3.14	Direct household greenhouse gas emissions	1	+ Within the framework of the National Inventory Report in the FCCC, the calculation for the residential sector is made by fuel combustion

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
B-3.15	Net CO2 emissions/removals by forested lands	1	+Forest areas and tree and shrubbery plantings, taking into account emissions from fires, thousand tons / year in CO ₂ e
A-1.1 – A-1.5	Emissions of sulfur oxide, nitrogen oxides, NMVOC	1	+ currently, only emissions from stationary sources are available
A-3.2	Gradual reduction of the use of hydrofluorocarbons	3	-An agreement has been signed, the import of HFCs is carried out without restrictions.
B-3.16	Average CO2 emissions from newly registered motor vehicles	2	- The information is not being generated, the methodology is needed, a requirement is needed within the framework of reporting to the UNFCCC

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
A-1.18	Share of PM2.5 emissions from stationary or mobile sources	3	- The available data is not of high quality
C-16.2	Proportion of domestic and industrial wastewater flow safely treated (SDG 6.3.1)	1	+ - Proportion of treated wastewater by full-scale biological treatment in the total volume of passed wastewater
I-1.4, I-1.5	Material footprint, Domestic consumption	3	- According to the SDG Plan, monitoring on SDG 12.2.1 and SDG 12.2.2 is planned for 2024
I-2.1	Hazardous waste generation per capita	1	+ information is available

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
I-326	National recycling rate, tons of material recycled (SDG 12.5.1)	1	+ Proportion of the production waste processing and recycling to the waste generated
I-2.2	Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment (SDG indicator 12.4.2)	1	+
I-3.1	Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities (SDG 11.6.1)	1	+ - Provision of waste collection and disposal services to the population (SDG 11.6.1) (SDG 11.6.1.1) Proportion of recycling and disposal of solid household waste to the waste generated Target indicator of strategic programs

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
I-4.2	Reduction of waste disposal to landfill sites	-	- Waste recycling
C-6.2	Percentage of the population using water supply services organized in compliance with safety requirements	-	Duplicates with C-6.1
C-9.7	Mortality rate attributed to unsafe sanitation and lack of hygiene (SDG indicator 3.9.2)	1	+ by region, per 100,000 people
A-2.6	Mortality rate attributed to household and ambient air pollution (SDG indicator 3.9.1)	3	No information available

Revised Guidelines for the Application of Environmental Indicators

Indicator code	Indicator Name	Level	Comment
H-3.3	New registered electric vehicles	1	+number of passenger cars
J-1.1	National environmental protection expenditures as a percentage of GDP	1	+ - Total costs of enterprises for environmental protection, in accordance with CEPA 2000
J-1.2, J-1.3	Environmental taxes, % of GDP, % of total tax revenue	1	+ calculation based on tax authority data
J-1.4	The share of taxes on energy and transport in the total amount of taxes and social insurance contributions	3	No information available

Existing gaps and Further steps to improve the quality of UNECE environmental indicators

Gaps

- A number of indicators do not identify all the required data flows, there are no sources for obtaining them, there is no information revealing details, the possibilities of their wide application are not shown, their geographical coverage is insufficient, there are no metadata, visualization tools, text analysis, and recommendations for the purposes of state environmental policy

Further steps

- Making environmental indicators consistent with the format of the revised version of the Guidelines on the Use of Environmental Indicators;
- Expanding the set of UNECE National Indicators;
- Improving the quality of indicators (providing metadata, comparability criteria, etc.).

Thank you for your attention!

