

National activities

Overview of data sources



Kazakhstan
May 17, 2023

Kazakhstan – Monitoring of the Sustainable development goals until 2030

Under the heading [Ecological indicators of environmental monitoring and assessment](#) the Kazakhstan Bureau of National Statistics lists the following data sets:

- A. Air pollution and ozone depletion
 1. [Emissions of pollutants into the atmospheric air](#)
 2. [Ambient air quality in urban areas](#)
 3. [Consumption of ozone-depleting substances](#)
- B. Climate change
 1. [Air temperature](#)
 2. [Atmospheric precipitation](#)
 3. [Greenhouse gas emissions](#)
- C. Water
 1. [Renewable freshwater resources](#)
 2. [Freshwater abstraction](#)
 3. [Freshwater abstraction](#)
 4. [Household water use per capita](#)
 5. [Water supply industry and population connected to water supply industry](#)
 6. [Water losses](#)
 7. [Reuse and recycling of freshwater](#)
 8. [Drinking water quality](#)
 9. [BOD and concentration of ammonium in rivers](#)
 10. [Nutrients in freshwater](#)
 11. [Nutrients in coastal seawaters](#)
 12. [Concentrations of pollutants in coastal seawater and sediments \(except nutrients\)](#)
 13. [Population connected to wastewater treatment](#)
 14. [Wastewater treatment facilities](#)
 15. [Polluted \(non-treated\) wastewaters](#)
- D. Biodiversity
 1. [Protected areas](#)
 2. [Biosphere reserves and wetlands](#)
 3. [Forest and other wooded land](#)
 4. [Threatened and protected species](#)
 5. [Trends in the number and distribution of selected species](#)
- E. Land and soil
 1. [Land uptake](#)
 2. [Area affected by soil erosion](#)
- F. Agriculture
 1. [Fertilizer consumption](#)
 2. [Concentration of nutrients in agricultural lands](#)
 3. [Pesticide consumption](#)
- G. Energy
 1. [Final energy consumption](#)

- 2. [Total primary energy supply](#)
- 3. [Energy intensity](#)
- 4. [Renewable energy consumption](#)
- 5. [Final electricity consumption](#)
- 6. [Gross electricity production](#)
- H. Transport
 - 1. [Passenger transport demand](#)
 - 2. [Freight transport demand](#)
 - 3. [Composition of road motor vehicle fleet by fuel type](#)
 - 4. [Average age of road motor vehicle fleet](#)
- I. Waste
 - 1. [Waste generation](#)
 - 2. [Management of hazardous waste](#)
 - 3. [Waste reuse and recycling](#)
 - 4. [Final waste disposal](#)
- J. Environmental financing
 - 1. [Total environmental protection costs](#)

The Bureau also has [Green Economy Indicators](#) data sets that include:

- I. The environmental and resource productivity of the economy
 - 1. [Material \(non-energy\) productivity \(experimental calculation\)](#)
 - 2. [Water use efficiency](#)
 - 3. [Level of pressure on water resources](#)
 - 4. [Productivity of water resources use](#)
 - 5. [The application of mineral and organic fertilizers](#)
 - 6. [Generation of industrial and hazardous wastes and their level of processing](#)
 - 7. [Generation of solid waste, municipal waste and the level of their processing](#)
 - 8. [Energy productivity](#)
 - 9. [Demand based CO2 productivity](#)
 - 10. [Production-based CO2 productivity](#)
- II. The natural asset base
 - 1. [Reserves of fish resources in individual water bodies](#)
 - 2. [Trends in the number and distribution of selected species](#)
 - 3. [Soil resources](#)
 - 4. [Agricultural land productivity](#)
 - 5. [Land resources](#)
 - 6. [Forest resources](#)

Statistics of environment dynamic tables are available here:

<https://stat.gov.kz/en/industries/environment/stat-eco/dynamic-tables/>

Data availability for indicators 12.2.1, 12.2.2, 12.4.2, and 12.5.1

Information on indicator 12.2.1 Material footprint, material footprint per capita, and material footprint per GDP is available from the [UNEP IRP Global Material Flows Database](#).

Information on indicator 12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP is available from the [UNEP IRP Global Material Flows Database](#).

Data for indicator 12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment is compiled by the Ministry of Ecology, Geology and Natural Resources and territorial departments of ecology and are made available through the Bureau of National Statistics (see Goal 12. [Ensure sustainable consumption and production patterns: 12.4.2](#))

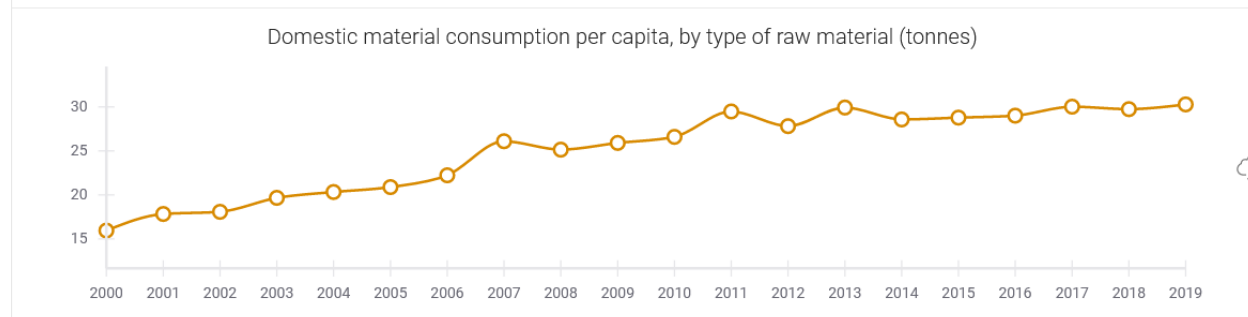
Data for indicator 12.5.1 National recycling rate, tons of material recycled are compiled by the Ministry of Ecology, Geology and Natural Resources and territorial departments of ecology (see [12.5.1](#), [12.5.1.1](#))

Information on indicators 12.2.1, 12.2.2, 12.4.2, and 12.5.1 is also available in the UNSD country profile and the WERS Scorecard as shown below. The data in these dashboards are taken from national sources through instruments such as the UNSD/UNEP questionnaire or from international sources such as UNEP's International Resource Panel, Global Material Flows Database.

As part of its Green Economy Indicators, Kazakhstan has compiled data on [Material \(non-energy\) productivity \(experimental calculation\)](#).

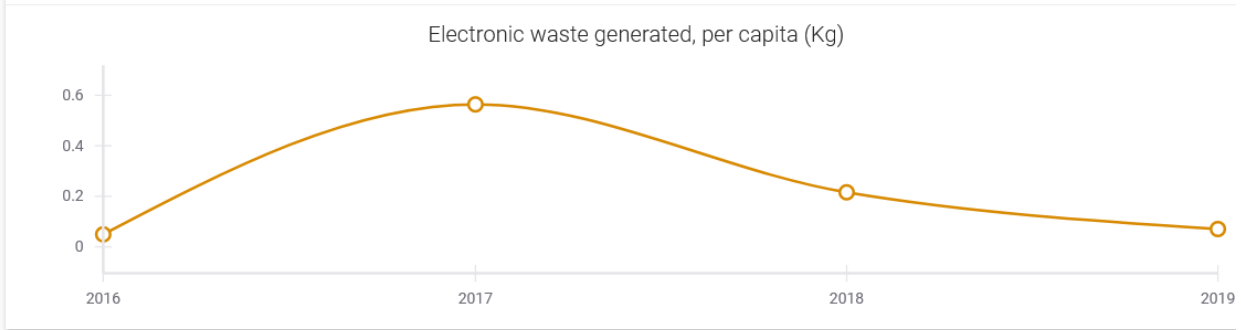
The following visualizations are available in the UN Statistics Division's Country Profile for Kazakhstan (<https://unstats.un.org/sdgs/dataportal/countryprofiles/kaz#goal-12>):

Domestic material consumption increased from **16.0** metric tons per capita in **2000** to **30.3** metric tons per capita in **2019**.



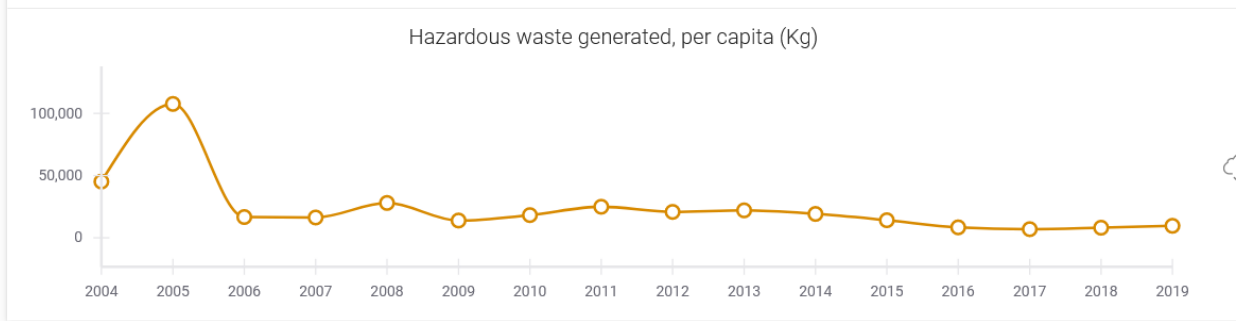
Source: <https://www.resourcepanel.org/global-material-flows-database>

The quantity of electronic waste generated per capita increased from **0.0 kg** in **2016** to **0.1 kg** in **2019**.



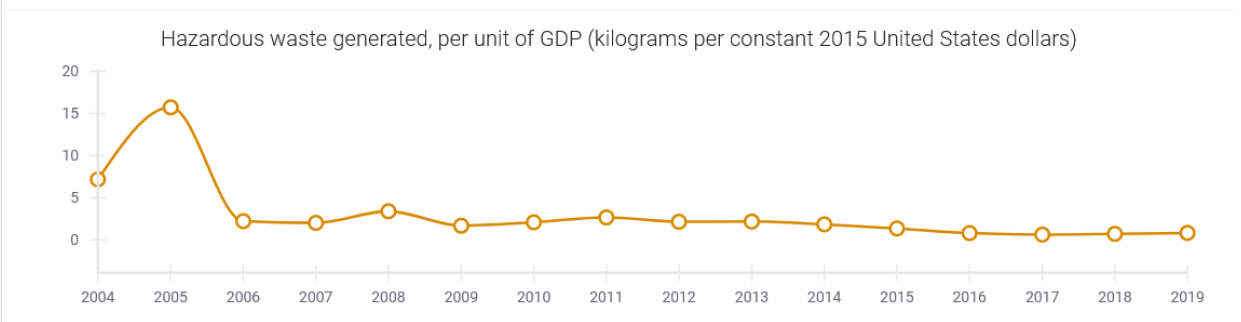
Source: Bureau of National Statistics

The quantity of hazardous waste generated per capita decreased from **45,182.4 kg** in **2004** to **9,624.8 kg** in **2019**.



Source: Bureau of National Statistics

the amount of hazardous waste generated for each dollar of GDP reduced from **7.2 kg** in **2004** to **0.8 kg** in **2019**.



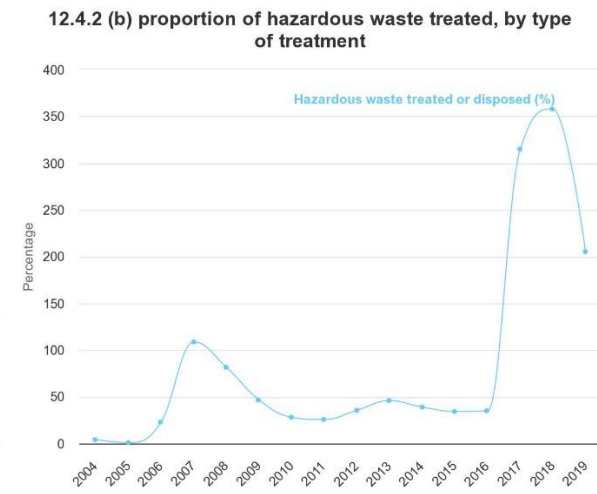
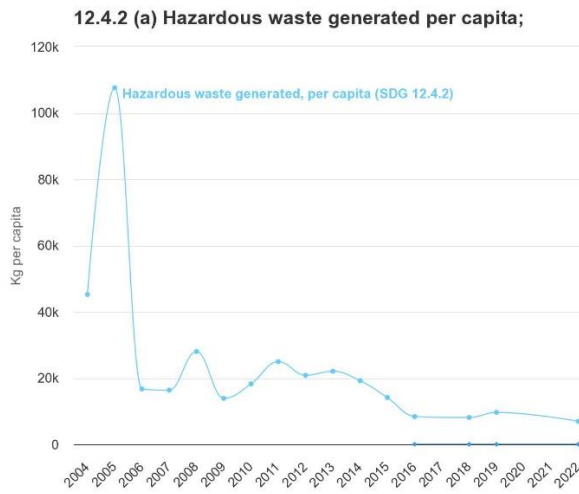
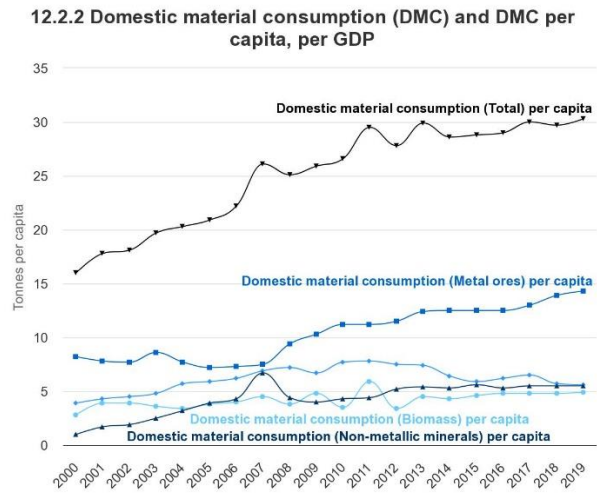
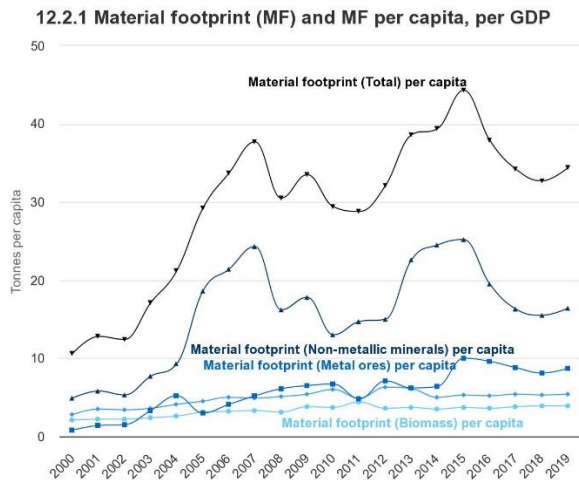
Source: Bureau of National Statistics

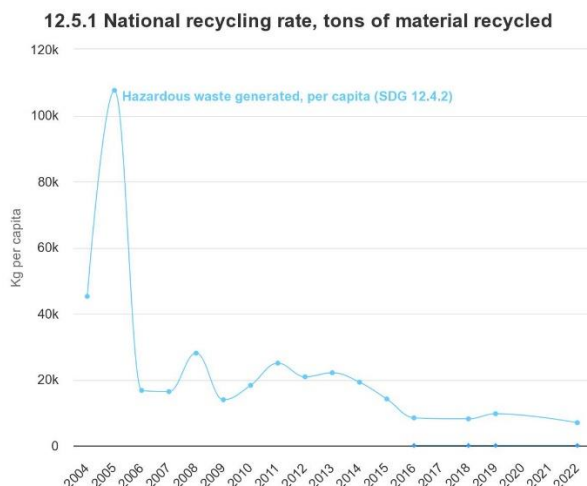
The rate of hazardous waste treated or disposed increased from **4.1%** in **2004** to **205.3%** in **2019**.



Source: Bureau of National Statistics

UNEP's World Environment Situation Room (WESR) scorecard (<https://wesr.unep.org/scorecard/>) includes the following visualizations:





Summary of data availability

a) Material footprint and domestic material consumption

Material category	Information needed	Data availability
<p>Biomass Material of vegetable origin extracted by humans and their livestock – crops, used crop residues, fodder crops, grazed biomass, wood, capture of wild fish, and the biomass of hunted animals.</p>	<p>Statistics on the production, import, export and use of agricultural crops, crop residues, wood, wild harvests (fishing, hunting, gathering of terrestrial and aquatic plants).</p>	<p>Division of agricultural sector statistics: Statistics of agriculture, forestry, hunting and fisheries</p> <p>Data on Domestic total consumption of non-energy biotic natural materials are available: Material (non-energy) productivity (experimental calculation)</p> <p>Nationally reported data are also available in FAOSTAT and FISHSTAT</p>
<p>Metal ores Deposits of metal compounds in the Earth's crust which can be processed to produce desired metals at an economically viable cost. Only the portion of the excavated rock which is to be processed in some way to obtain the desired metals is included in the accounts. Data is compiled in three ore categories: iron,</p>	<p>Statistics on production, import, export of metallic ores. This includes information on ore type, ore grade, recovery rate, estimated total tonnage of Run of Mine (ROM) ore extracted, quantity of waste rock. This information may be collected from mine operators</p>	<p>Statistics of industry: Output of basic industrial products of the mining industry</p> <p>Green economy indicators: Material (non-energy) productivity (experimental calculation)</p>

Material category	Information needed	Data availability
<p>Non-metallic minerals “stone quarries and clay and sand pits; chemical and fertilizer mineral deposits; salt deposits; deposits of quartz, gypsum, natural gem stones, asphalt and bitumen, peat and other non-metallic minerals other than coal and petroleum.”</p>	<p>Statistics on production, import, export of non-metallic ores</p> <p>Data from official national statistical reports on consumption of cement, bitumen and bricks can indirectly indicate consumption of non-metallic minerals.</p>	<p>--</p>
<p>Fossil fuels Includes coal and peat, crude oil, natural gas and natural gas liquids, and oil shale and tar sands.</p>	<p>Statistics on production, import, export of fossil fuels</p>	<p>Statistics of industry: Output of basic industrial products of the mining industry</p>
<p>Emissions to air Includes Emissions of greenhouse gases (Carbon dioxide (CO₂), Methane (CH₄), Dinitrogen oxide (N₂O), Nitrogen oxides (NO_x), Hydroflourcarbons (HFCs), Perflourocarbons (PFCs) Sulphur hexafluoride (SF₆))</p> <p>Common air pollutants (Carbon monoxide (CO), Non-methane volatile organic compounds (NMVOC), Sulfur dioxide (SO₂) Ammonia (NH₃), Particles (e.g. PM₁₀, Dust))</p> <p>Toxic pollutants (Heavy metals)</p> <p>Persistent organic pollutants (POPs))</p> <p>Other emissions to air</p>	<p>Annual quantities of pollutants emitted to air</p>	<p>Greenhouse gases: Data available for Carbon dioxide, Nitrous oxide, Methane, HFCs, PFCs and SF₆ Greenhouse gas emission inventory</p> <p>Air pollutants: Data available for Sulphur dioxide, Nitrogen oxides, NMVOC, Ammonia, Carbon monoxide, Hydrocarbons, TSP. Inventory of Emissions of pollutants into the atmosphere air</p> <p>Accounts of System of Environmental-Economic Accounting (Air emissions)</p>
<p>Waste landfilled (uncontrolled) Waste refers to materials that are of no further use to the generator for production, transformation or consumption. Waste may be</p>	<p>Total quantities of uncontrolled municipal and industrial waste produced per year</p> <p>In addition to the national environmental authority,</p>	<p>Information on municipal waste is available: Final waste disposal</p> <p>No data for “landfilling on a non- controlled site”</p>

Material category	Information needed	Data availability
generated during the extraction of raw materials, during the processing of raw materials to intermediate and final products, during the consumption of final products, and in the context of other activities.	sources of this information may include municipal governments and industries	Information on industrial waste is available: Generation of industrial and hazardous wastes and their level of processing
Emissions to water Substances and materials released to natural waters by human activities after or without passing wastewater treatment. It includes the following pollutants: Nitrogen (N), Phosphorus (P), Heavy metals, Other substances and (organic) materials, Dumping of materials at sea	Information on outflows from municipal or industrial sewage treatment plants	Information on Total wastewater treated and BOD: Wastewater treatment facilities Information on Total wastewater treated and Untreated (insufficiently treated) wastewater: Polluted (non-treated) waste waters
Dissipative use of products Materials that are deliberately dissipated into the environment such as organic fertilizer (manure), mineral fertilizer, sewage sludge, compost, pesticides, seeds, salt and other thawing materials spread on roads, solvents, laughing gas, and other materials.	Agricultural statistics on sale or use of fertilizers, pesticides, seeds. For manure, an estimate could be based on the number of livestock Information on the use of lime (e.g. as a fertilizer in forestry) Information on compost Information on amount of salt or other materials spread on roads For data on non-methane volatile organic compounds solvents, information on use and emissions from paint application, degreasing and dry cleaning, chemical products manufacture and processing, and other sources. Information on use of laughing gas.	Data are available for: Fertilizer consumption Application of mineral and organic fertilizers Pesticide consumption
Dissipative losses	Abrasion from tyres, particles worn from friction products,	--

Material category	Information needed	Data availability
<p>Dissipative losses are unintentional outputs of materials to the environment resulting from abrasion, corrosion, and erosion at mobile and stationary sources, and from leakages or accidents. This includes abrasion from tyres, friction products, buildings and infrastructure, leakages (e.g. of gas pipelines), or from accidents during the transport of goods.</p>	<p>such as brakes and clutches, losses of materials due to corrosion, abrasion, and erosion of buildings and infrastructure, dissipative losses from the transport of goods, and leakages during (natural) gas pipeline transport (if not reported as emissions to air).</p>	
<p>Balancing items The oxygen demand of various combustion processes (both technical and biological ones), water vapour from biological respiration, and from the combustion of fossil fuels containing water and/or other hydrogen compounds. Also, flows of considerable economic importance such as nitrogen which is withdrawn from the atmosphere to produce fertilizer in the Haber-Bosch process or groundwater used in the production of beverages are accounted for as balancing items.</p>	<p>For balancing items – input side: Oxygen for combustion processes Oxygen for respiration of humans and livestock; bacterial respiration from solid waste and wastewater Nitrogen for Haber-Bosch process Water requirements for the domestic production of exported beverages For balancing items – output side: Water vapour from combustion Water vapour from moisture content of fuels Water vapour from the oxidized hydrogen components of fuels Gases from respiration of humans and livestock (CO₂ and H₂O), and from bacterial respiration from solid waste and wastewater (H₂O) Carbon dioxide (CO₂) Water vapour (H₂O)</p>	<p>--</p>

Material category	Information needed	Data availability
	Excorporated water from biomass products	

b) Waste indicators

Indicator: 12.4.2 (a) Hazardous waste generated per capita; and (b) proportion of hazardous waste treated, by type of treatment

Indicator	Information needed	Data availability
Hazardous waste generated	“the quantity of hazardous waste generated within the country during the reported year, prior to any activity such as collection, preparation for reuse, treatment, recovery, including recycling, or export, no matter the destination of this waste”. r	See Bureau of National Statistics Ecological indicators for environmental monitoring and assessment: <ul style="list-style-type: none"> • Waste generation • Management of hazardous waste • Waste reuse and recycling • Final waste disposal
Hazardous waste generated by type, including e-waste	A breakdown of hazardous waste generated by key type of waste, including e-waste, waste engine oils, Hazardous household waste, Healthcare waste	See Bureau of National Statistics: <p>Ecological indicators for environmental monitoring and assessment: Waste generation</p> <p>Generation of solid waste, municipal waste and the level of their processing</p> <p>Generation of industrial and hazardous wastes and their level of processing</p> <p>Statistics on environment: On the management of municipal waste in the Republic of Kazakhstan</p>
Proportion of hazardous waste treated	The total quantity of hazardous waste treated = sum of quantities of hazardous waste treated, per each type	See Bureau of National Statistics Ecological indicators for environmental monitoring and assessment:

Indicator	Information needed	Data availability
	of treatment (recycling, incineration with/without energy recovery, landfilling or other) + Exports - Imports. Proportion of hazardous waste treated = Quantity of hazardous waste treated ÷ Total quantity of hazardous waste generated	<ul style="list-style-type: none"> • Waste generation • Management of hazardous waste • Waste reuse and recycling • Final waste disposal
Hazardous waste intensity of production	= Quantity of hazardous waste generated ÷ Domestic material consumption	<p>Bureau of National Statistics Ecological indicators for environmental monitoring and assessment: Waste generation</p> <p>Domestic material consumption is available at UNEP IRP Global Material Flows Database</p>

c) National recycling rate

Indicator	Information needed	Source
National recycling rate	Amount of waste generated, material recycled, material exported for recycling, material imported intended for recycling in the country Total MSW generated (t/day) Quantity of material recycled from MSW stream	<p>See Bureau of National Statistics Ecological indicators of environmental monitoring and assessment:</p> <ul style="list-style-type: none"> • Waste generation • Management of hazardous waste • Waste reuse and recycling • Final waste disposal <p>Also Green economy indicators:</p> <ul style="list-style-type: none"> • Generation of industrial and hazardous wastes and their level of processing • Generation of solid waste, municipal waste and the level of their processing

<p>Total Waste Generated (excluding construction, mining and agriculture) by type, including e-waste</p>	<p>Waste from manufacturing (ISIC 10-33) + Waste from electricity, gas, steam and air conditioning supply (ISIC 35) + Waste from other economic activities (excluding ISIC 38) + Municipal waste (excluding construction and demolition)</p>	<p>Bureau of National Statistics Ecological indicators of environmental monitoring and assessment:</p> <ul style="list-style-type: none"> • Waste generation • Waste reuse and recycling <p>Also Green economy indicators:</p> <ul style="list-style-type: none"> • Generation of industrial and hazardous wastes and their level of processing • Generation of solid waste, municipal waste and the level of their processing
<p>National recycling rate by type of waste</p>	<p>Waste streams can include e-waste metals (ferrous, non-ferrous) packaging waste</p>	<p>Bureau of National Statistics: Statistics on environment – On the management of municipal waste in the Republic of Kazakhstan</p>
<p>Waste intensity</p>	<p>Total waste generated ÷ Domestic material consumption</p>	<p>Bureau of National Statistics Ecological indicators of environmental monitoring and assessment: Waste generation</p> <p>Domestic material consumption is available at UNEP IRP Global Material Flows Database</p>

Stakeholders

a) National Government Stakeholders

Agency for Strategic Planning and Reforms of the Republic of Kazakhstan: The Agency is a central link in the entire system of state planning. Agency manages in strategic planning, statistical activities of State and for providing reforms. Its goal is to develop effective reforms for increasing country's competitiveness and the welfare of the people. The Agency develops state policy in strategic planning, monitors and evaluates the implementation of strategic development plans, and it is the central body responsible for developing a new system of public administration. With the National bureau of statistics as the part of its structure, the Agency also designs and implements state policy in the statistical sphere.

- The Bureau of National Statistics

Ministry of Agriculture: The Ministry is a state body of the Republic of Kazakhstan that manages in the following areas agro-industrial complex, irrigated agriculture and melioration, land resources, also, within the limits provided for by law, intersectoral coordination of state bodies in the field of activity within its competence.

- Department of Strategic planning and Analysis
- Department of Production and Processing Livestock products
- Department of Production and Processing Plant products

Ministry of Ecology and Natural Resources: The Ministry of ecology and natural resources of the Republic of Kazakhstan is the central executive body of the Republic of Kazakhstan, carrying out leadership in the areas of formation and implementation of state policy, coordination of management processes in the fields of environmental protection, development of the "green economy", waste management (excluding municipal, medical and radioactive waste), protection, control and supervision of the rational use of natural resources, state geological study and use and protection of the water fund, water supply, sanitation, forestry, conservation, reproduction and use of the animal world and specially protected natural territories (hereinafter referred to as regulated areas)..

- Department of environmental policy and sustainable development
- Department of state policy in waste management
- Department of Climate Policy and Green Technology
- Department of Strategic Planning and Project Management

Ministry of Energy: The Ministry carries out the formation and implementation of state policy, coordinates the management process in the fields of oil and gas, petrochemical industry, hydrocarbon transportation, in the field of uranium mining, state regulation of the production of petroleum products, gas and gas supply, the main pipeline, electricity, heat supply in the part of heat and power plants and boiler houses producing thermal energy in the district heating zone, nuclear energy, development of renewable energy sources.

- Department of Oil Development and Production

Ministry of Industry and Infrastructural Development: The Ministry provides guidance in the areas of industry and industrial and innovative development, scientific and technical development of the country, mining and metallurgical complex, development of local content, mechanical engineering, coal, chemical, pharmaceutical and medical industries, light, woodworking and furniture industries, construction industry and production of building materials.

- Department of Development of the Construction Industry and Housing and Communal Services
- Department of Transit Development and Transport Logistics
- Department of Subsoil Use for Solid Minerals

Ministry of Trade and Integration: The Ministry is responsible for the development and promotion of exports of non-primary goods and services; development and regulation of domestic trade, improvement of trade infrastructure, development of exchange and electronic trade; consumer

protection, technical regulation, standardization and ensuring the uniformity of measurements, including strategic, control, implementation and regulatory functions.

- Department of Trade and Economic Development

b) Other stakeholders

Regional and municipal governments

Industry (Mining, energy, waste management)