**Statistical indicators of climate change**

**of the Republic of Kazakhstan developed on the basis of the Global Set,**

**recommended by the UNECE**

# **Astana 2024**

Introduction part

Statistical indicators of climate change (hereinafter – SICC) of the Republic of Kazakhstan, developed on the basis of the Global Set, recommended by the UNECE characterize the processes of greening the economy through the conservation and rational use of natural resources and the impact of these processes on the development of the social sphere.

SICC are distributed in 5 areas:

1. Drivers/factors;
2. Impact;
3. Vulnerability;
4. Mitigation;
5. Adaptation.

Statistical indicators that characterize the "Drivers" section characterize the factors influencing climate change.

Statistical indicators that characterize the "Impact" direction reflect the impact on the environment and the consequences of impacts on climate change.

Statistical indicators that characterize the direction of "Vulnerability" characterize the impact of the consequences of climate change on the quality and living conditions of the population through the processes of air and water pollution, climate change.

Statistical indicators in the area of "Mitigation" characterize the economic and political possibilities of state support and the role of business in participating in climate change mitigation.

Statistical indicators in the "Adaptation" direction reflect the possibility, awareness of participation and behavior of adaptation to the effects of climate change.

Statistical indicators of climate change of the Republic of Kazakhstan developed on the basis of the Global Set, recommended by the UNECE, are formed and updated on an annual basis and published on the website of the Bureau of National Statistics of the Republic of Kazakhstan in the fourth quarter after the reporting year, as well as in the statistical collection "Environmental Protection in the Republic of Kazakhstan" – in accordance with the Statistical Work Plan.

Statistical indicators of climate change in the Republic of Kazakhstan

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| №  n.o | Indicator name,  unit of measurement | | Terms and definitions used,  indicator calculation methodology | Data source | |
| **1.** **Drivers** | | | | | |
| 1.1 | Total greenhouse gas (GHG) emissions per year (excluding land-use change and forestry) | | The indicator of greenhouse gas emissions allows you to determine not only the degree of existing and expected impact of greenhouse gas emissions on the environment, but also indicates the effectiveness of the national policy aimed at reducing greenhouse gas emissions in comparison with the target indicators and the level of progress of the country towards achieving specific goals.  The total amount of greenhouse gas emissions should be calculated in the economy as a whole and by type of economic activity. This indicator should be reported in publications per unit of GDP, which is expressed in constant prices in the national currency and in US dollars and in PPP in US dollars. (World Bank data). To calculate aggregate emissions and generate a general graph describing climate change issues, data on emissions of various greenhouse gases are expressed in CO2 equivalent. Information is generated by the following sectors: agriculture, energy, waste, industrial production, land use and forestry in accordance with the IPCC (Intergovernmental Panel on Climate Change) methodology | Data from an administrative source. The calculation of greenhouse gas emissions is carried out by the subordinate organization of the Ministry of Ecology and Natural Resources «Zhasyl Damu JSC» on the basis of the annual national report on the inventory of anthropogenic emissions from sources and removals by sinks of greenhouse gases. Submitted annually to the secretariat in accordance with the obligations of the Republic of Kazakhstan under the UNFCCC. | |
| 1.2 | Volume of emissions of pollutants from stationary sources: sulphurous anhydride (SO2), nitrogen oxides (NOx), Non-methane gases, Volatile organic compounds (NMVOCs), carbon oxides | | Indirect greenhouse gases are compounds that are not significant as GHGs in themselves, but that have an impact on the concentration of GHGs in the atmosphere, because they are involved in physical or chemical processes that regulate the rate of GHG formation or destruction. Indirect GHGs are sulfur oxides (SOx) and nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOCs), and carbon monoxide (CO). | Information on emissions of pollutants into the atmosphere from stationary sources is generated by the Bureau of National Statistics of the ASPR of the Republic of Kazakhstan based on data from the annual national statistical observation on atmospheric air | |
| 1.3 | Greenhouse gas emissions from the Land Use, land-use change and forestry sector | | Greenhouse gas emissions from LULUCF include the sum of carbon dioxide CO2 (carbon dioxide), CH4 (methane) and N2O (nitrous oxide) estimates related to land management and land-use change. | Administrative source data based on the annual national inventory report on anthropogenic Emissions by sources and Removals by sinks of greenhouse gases. | |
| 1.4 | Greenhouse gas emissions per capita | | The indicator measures the total amount of direct greenhouse gases (GHGs) (excluding LULUCF) divided by the average annual population of a country. | Administrative source data on greenhouse gases, based on the annual national report on the inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases, and based on official statistical information on population statistics compiled by Bureau. | |
| 1.5 | Reduction of emissions through the implementation of Carbon offsets | | Carbon offset – reduction of greenhouse gas emissions and (or) increase in greenhouse gas absorption achieved as a result of activities or activities in any sectors of the economy in the Republic of Kazakhstan aimed at reducing greenhouse gas emissions and (or) increasing greenhouse gas absorption. | Administrative information according to the report on implementation of the carbon offset (1-ICO) based on information confirming a reduction in greenhouse gas emissions and / or uptake. | |
| 1.6 | Production (extraction) of primary energy, terajoule; thousand tons of oil equivalent, 1000 teu  1) coal and refined products;  2) Gas;  3) Oil and petroleum. | | Primary energy production takes into account the amount of energy received or produced from natural sources of the Republic of Kazakhstan after the removal of inert substances from fuel, including energy consumed by the producer during the production (extraction) of these resources (consumption for own needs). Summary data of state statistics on the extraction (production) of fuel and energy resources. | Fuel and energy balance data formed on the basis of the results of national statistical observations on energy statistics, approved by Order No. 18 1.7 of the Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan dated February 5, 2020. | |
| 1.7 | Total amount of primary energy, terajoule; thousand tons of oil equivalent, 1000 tne | | Total amount of primary energy supplied-reflects the amount of energy resources supplied annually in the country as a whole and broken down by fuel and energy types (coal, oil, petroleum products, natural gas, nuclear energy, hydropower, geothermal and solar energy, biofuels and waste, electricity and heat).  The total amount of primary energy supplied-being the final item, it is the sum of the indicators. Primary energy, total consumption of its equivalents = production of primary energy and its equivalents + import-export + change in resource balances (can be negative). | They are formed on the basis of the results of national statistical observations on energy statistics in accordance with the Methodology for forming the fuel and Energy Balance and calculating individual statistical indicators that characterize the energy sector (11.08.2016, No. 160). | |
| 1.8 | The share of fossil fuels in the total volume of primary consumption, as a percentage | | It is calculated as the ratio of the sum of the amount of energy supplied from coal, crude oil, petroleum products, natural gas (terajoules, thousand tons of oil equivalent) divided by the total amount of primary energy supplied. | Formed on the basis of dannax fuel and energy balance, in accordance with the Methodology for forming the fuel and energy balance and calculating individual statistical indicators that characterize the energy sector (11.08.2016, No. 160) | |
| 1.9 | Energy intensity of GDP, thousand tons of toe (fuel equivalent) /thousand US dollars in constant prices in 2015 | | Energy intensity of GDP is a generalizing indicator that characterizes the level of consumption of fuel and energy resources per unit of GDP.  Energy intensity per unit of GDP determines the economic efficiency of consumption of fuel and energy resources in the production of GDP in the republic as a whole and is calculated as the ratio of gross consumption of fuel and energy resources for all production and non-production needs. | Formed on the basis of fuel and energy balance data, formed in accordance with the Methodology for forming the fuel and energy balance and calculating individual statistical indicators that characterize the energy industry (11.08.2016, No. 160)  <https://stat.gov.kz/api/iblock/element/8583/file/ru/> | |
| 1.10 | Natural population growth, human | | Natural population growth (decline) – the difference between the number of live births and the number of deaths over a certain period.  Calculated as the difference between the number of births in the calculation period and the number of deaths in the calculation period. | Official statistical information on demographic statistics. | |
| 1.11 | Urban population as a percentage of the total population, percentage | | Ratio of the average annual urban population to the total average annual population. | Official statistical information on demographic statistics. | |
| 1.12 | Number of passenger vehicles by type of used fuels, gas-fueled and mixed, per capita | | The indicator measures the number of fossil-fueled vehicles on the road, divided by the total population. | Official statistical information on transport based on the database of motor vehicles of the Ministry of Internal Affairs of the Republic of Kazakhstan and population statistics. | |
| 1.13 | Area of forests intended for production, thousand ha | | Area of forests where forest products are covered. | Administrative data of the Committee of Forestry and Wildlife based on departmental statistical observations on forestry. Information under the joint order with the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan on information interaction. | |
| 1.14 | Area of forest land not covered by forest, hectare | | The area of forest that was lost either temporarily or permanently, and expressed as a percentage of the total forest area in the reporting year. | Administrative data of the State Enterprise "Kazakh Forest Management Enterprise" of the Committee of Forestry and Wildlife of the Ministry of Natural Resources of the Republic of Kazakhstan. | |
| 1.15 | Consumption of nitrogen fertilizers per unit of sown area of agricultural land | | Introduction of mineral and organic fertilizers-makes it possible to assess the impact on the environment through fertilizer application (accumulation of excess nutrients in the soil, resulting pollution of surface and underground water resources, as well as migration of biogenic elements along trophic chains and their penetration into other components of the environment). The indicator reflects the amount of mineral and organic fertilizers applied per unit area of cultivated land and perennial plantings. The indicator of the amount of mineral fertilizers is formed in terms of 100% nutrient content. | Information is generated once a year based on the results of national statistical observations in the following forms: "On the harvesting of agricultural crops" (index of form – 29-cx, annual) and "On the harvesting of agricultural crops in households" (index of form-A-005, annual). | |
| **2. Impact** | | | | | |
| 2.1 | Yield of major agricultural crops, centners per hectare | | Assessment of the impact of climate change on crops. Yield means the products collected for the main agricultural crops per hectare of sown area. In dynamics for a number of years. | | Information is generated once a year based on the results of national statistical observations by forms: "On the harvesting of agricultural crops" (index of form – 29-cx, annual) and "On the harvesting of agricultural crops in households" (index of form-A-005, annual) [https://stat.gov.kz/api/iblock/element/119388/file/ru /](https://stat.gov.kz/api/iblock/element/119388/file/ru/) |
| 2.2 | Livestock and poultry, thousand heads, million heads | | Availability of livestock and poultry at the end of the reporting year (cattle, sheep and goats, pigs, horses, camels, poultry). | | State statistical observations on agricultural statistics. On the website of the Bureau, a table is presented in dynamics for a number of years by the number of livestock and poultry (cattle, sheep and goats, horses, pigs, camels, poultry) [https://stat.gov.kz/api/iblock/element/119388/file/ru /](https://stat.gov.kz/api/iblock/element/119388/file/ru/) |
| 2.3 | Forest cover of the territory, in percentage | | Forest cover is the ratio of the area of land covered by forest to the total area of the country's territory (or land area). | | Information on the area of land covered by forest is formed on the basis of the departmental statistical observation "State accounting of the forest fund and distribution of the forest fund by categories of the state forest Fund and land" (index 1). |
| 2.4 | Snow cover height, in cm | | Snow cover height is the thickness of the snow layer covering the earth's surface. | | Administrative data of the Republican meteorological Service of the RSE "Kazhydromet" MENR RK. |
| 2.5 | Reduction of surface water bodies. Volume of inflow to Lake Balkhash (at least 12 km3/ year), volume of the Northern Aral Sea (increase from 20 to 27 km3) | | Reduction of surface area and volume of water contained in reservoirs (namely artificial reservoirs, lakes, rivers and streams, wetlands, glaciers, snow and ice) within the accounting territory at a specific time point. | | Target indicator of the Concept of development of the Water resources management System of the Republic of Kazakhstan for 2024-2030, approved by the Decree of the Government of the Republic of Kazakhstan dated February 5, 2024 No. 66. |
| 2.6 | Number and area of the open part of Kazakhstan's glaciers as of 1955 and 2018 2018, in km2 | | Reduction of the area and mass of glaciers-beyond the glacial system. A glacier is the product of the mass it received and how much it loses when melting. Glaciers lose mass as a result of melting and sublimation. | | Administrative data of the Central Asian Regional Glaciological Center Category 2 under the auspices of UNESCO, by basin, catalog of glaciers of the USSR |
| 2.7 | Renewable fresh water resources per capita, cubic meters per person | | As the sum of the total volume of river runoff formed in natural conditions solely due to precipitation on the territory of the country, as well as the actual volume of river water inflow from neighboring countries. The volume of underground water in the country is insignificant and is not included in the total volume of renewable fresh water resources.  It is calculated as the ratio of the volume of renewable resources of freshwater to the average annual population. | | Administrative data of the Water Cadastre, formed by the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan.  Official statistics on demographic statistics. |
| 2.8 | Water load level, percentage | | The indicator is calculated as the proportion of fresh water abstraction volume to the volume of renewable fresh water resources. | | Administrative data of the Water Cadastre, formed by the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan.  Annual departmental statistical observation 2-TP (vodkhoz) "Report on water intake, use and disposal". |
| 2.9 | Proportion of water bodies with good water quality, percentage | | The indicator is based on water quality data obtained from field measurements and analysis of samples taken from surface and underground waters.  It is defined as the proportion of water bodies in the country that have good environmental water quality. | | Administrative data of the RSE "Kazhydromet", information bulletin on the state of environmental protection. |
| 2.10 | Number of natural hazards | | Natural hazards are severe and extreme meteorological and climatic phenomena.  Natural hazards become disasters when people are killed and livelihoods are destroyed. | | Administrative data of the Ministry for Emergency Situations of the Republic of Kazakhstan. |
| 2.11 | Emergency Reserve of the Government of the Republic of Kazakhstan for the elimination of natural and man-made emergencies in the territory of the Republic of Kazakhstan and other states, million tenge | | Amount allocated from the Emergency Reserve of the Government of the Republic of Kazakhstan for the Elimination of Natural and Man-made Emergencies in the territory of the Republic of Kazakhstan and other States for the reporting period. | | Administrative data of the Ministry of Finance of the Republic of Kazakhstan. |
| 2.12 | Expenses aimed at emergency response, thousand tenge | | Natural and man-made emergency - an event that occurred as a result of an accident, fire, harmful effects of industrial hazards, an accident, a natural hazard, a disaster, a natural or other disaster that may or may not result in human casualties, harm to human health or the environment, material damage, and disruption of people's living conditions.  The indicator characterizes the amount allocated from the local budget to eliminate the consequences of natural and man-made emergencies. | | Administrative data of local executive bodies. |
| 2.13 | Number of victims and deaths as a result of natural emergencies per 100 000 people of the population, affected, killed | | A victim of an emergency is an individual who has suffered harm (damage) as a result of a natural or man-made emergency. | | Consolidated operational data of local executive bodies, Ministry for Emergency Situations of the Republic of Kazakhstan. |
| 2.14 | 1)Morbidity of the population with certain infectious and parasitic diseases, number of cases  2)Incidence of individual infectious and parasitic diseases in the population per 100 000 population, number of cases  3)Incidence of waterborne transmission, number of cases  4)Morbidity transmitted by airborne droplets, number of cases | | Population morbidity is a medical and statistical indicator that determines the number of diseases registered for the first time in a calendar year among the population. It is one of the criteria for assessing the health of the population.  They are classified according to the International Classification of Diseases and Related Health Problems. | | Administrative data of the Ministry of Health of the Republic of Kazakhstan, number of cases for individual diseases in accordance with the International Classification of Diseases and Related Health Problems. |
| 2.15 | Incidence of skin and subcutaneous tissue diseases related to radiation exposure, number of cases | | Incidence of skin and subcutaneous tissue diseases related to radiation exposure. Diseases are listed in accordance with the International Classification of Diseases and Related Health Problems (ICD-10). | | Administrative data of the Ministry of Health of the Republic of Kazakhstan, number of cases for individual diseases in accordance with the International Classification of Diseases and Related Health Problems. |
| 2.16 | Concentration of ground-level ozone and suspended particles in individual cities, mg / m3 | | Average annual concentration of fine suspended particles in individual cities (PM 2.5, PM 10) is a general indicator of air pollution. Air pollution occurs due to various pollutants, among which solid particles are the most dangerous. These particles can penetrate deep into the respiratory tract and therefore pose a health risk, as they contribute to an increase in mortality from respiratory infections and diseases, lung cancer and certain cardiovascular diseases.  Ozone is a toxic atmospheric pollutant whose concentration often exceeds the maximum permissible concentration, as a result of which the World Health Organization (WHO) has included it in the list of the five main pollutants that need to be monitored in determining air quality. | | Administrative data of the Republican meteorological service of the RSE Kazhydromet of the MENR of the Republic of Kazakhstan for individual cities. |
| 2.17 | The average pH value of seawater measured at a coordinated group of representative sampling stations (Caspian Sea). | | The pH value is an indicator that characterizes the acid-base balance of water. The observed decrease in seawater pH affects a wide range of organisms and ecosystems, biodiversity, and food security. Average ocean acidity is expressed as pH, the concentration of hydrogen ions on a logarithmic scale. | | Administrative data of the Republican meteorological service of the RSE "Kazhydromet" of the MENR of the Republic of Kazakhstan. |
| 2.18 | Deviation of the average annual rate temperature deviation from the long-term average value for the period 1961-1990 | | Deviation from the reference value or long-term average value. The indicator characterizes trends in fluctuations in the average annual temperature and allows you to determine the degree of changes associated with both the cyclicity of natural climate changes and the anthropogenic impact on global climate change. | | Administrative data of the Republican Meteorological service of the RSE Kazhydromet of the MENR of the Republic of Kazakhstan. |
| 2.19 | Highest monthly average temperature  Lowest monthly average temperature, in degrees Celsius | | Highest recorded daytime temperature, and lowest recorded daily minimum temperature for each month and year. | | Administrative data of the Republican Meteorological service of the RSE Kazhydromet of the MENR of the Republic of Kazakhstan. |
| 2.20 | Annual precipitation in % and millimeters (mm) of normal for the period 1961-1990 by region | | Atmospheric precipitation (the total amount of water that has fallen on a certain area of a territory over a certain period of time) is water in a liquid or solid state that has fallen from clouds or settled from the air on the earth's surface, various objects or plants.  The indicator characterizes the state of the climate system, as well as the impact of precipitation on changes in the volume of river runoff, groundwater, and on soils and biota, which makes it possible to assess the associated climate changes. | | Administrative data of the Republican Meteorological service of the RSE Kazhydromet of the MENR of the Republic of Kazakhstan. A network of meteorological stations collects data on the amount of precipitation that has fallen. |
| 2.21 | 1)Average long-term annual precipitation for the period 1961-1990.  2)Average annual precipitation  3)Deviation of the annual amount of precipitation fell long-term average value for the period 1961-1990, in percent  4)Highest monthly precipitation  5)The smallest monthly amount of precipitation | | Atmospheric precipitation (the total amount of water that fell on a certain area of the territory for a specific period of time) is water in a liquid or solid state that fell from clouds or settled from the air on the earth's surface, various objects or plants.  The indicator characterizes the state of the climate system, as well as the impact of precipitation on changes in the volume of river runoff, groundwater, and on soils and biota, which makes it possible to assess the associated climate changes. | | Administrative data of the Republican Meteorological service of the RSE Kazhydromet of the MENR of the Republic of Kazakhstan. A network of meteorological stations collects data on the amount of precipitation that has fallen. |
| 2.22 | 1)Area of land subject to water erosion, in km2  2) Area of land subject to wind erosion, inkm2  3) Area of land subject to combined water and wind erosion, inkm2 | | This indicator represents the total area of agricultural land subject to soil erosion (separately for wind and water erosion). Wind erosion – destruction, removal and blowing of soil cover or rocks under the influence of wind and precipitation, solar radiation. Water erosion is the erosion or flushing of rocks and soils by flowing water. | | Administrative data of the Land Resources Management Committee of the Ministry of Agriculture of the Republic of Kazakhstan. Data is collected once every 5 years based on the results of soil work. |
| 2.23 | Degradation and productivity of pasture vegetation PK | | Pasture vegetation productivity is the amount of feed that can be fed to livestock from pasture without causing its subsequent degradation. Assessment of the state of pasture vegetation based on remote sensing data is based on the choice of a satellite parameter that characterizes the state of vegetation using ground-based observations.  Remote sensing Remote sensing-the process of obtaining information about the Earth's surface and interior by observing and measuring the own and reflected radiation of land, ocean and atmospheric elements from outer space | | Alternative information, satellite assessment of the state and degree of degradation of pasture vegetation by seasons by the national space service of JSC «Garysh sapary» |
| 2.24 | Forest fires, units, hectare | | Number of forest fires, forest area covered by fires, | | Administrative information on forest fires of the Committee of Forestry and Wildlife of the MENR RK |
| 2.25 | Fish resources by individual reservoirs, in tons | | Fish resources – the total set of all animals living in the aquatic environment. | | Administrative data of the Committee of Fisheries of the Ministry of Agriculture of the Republic of Kazakhstan |
| **3. Vulnerability** | | | | | |
| 3.1 | | Prevalence of malnutrition by urban and rural population | The prevalence of malnutrition (PoU) is an estimate of the proportion of the population whose habitual food intake is insufficient to provide the level of caloric intake necessary to maintain a normal, active and healthy life. It is expressed as a percentage. | Sample survey of households by standard of living | |
| 3.2 | | Level of moderate or acute food insecurity of the population (according to the "Food Insecurity Perception Scale") | Food is defined as the total quantity of goods available as food for a person during the reporting period. | Sample survey of households by standard of living | |
| 3.3 | | Prices for water use | Tariffs for paid services - payment for a standard unit of paid services selected for registration provided to the population (cold water tariffs, hot water tariffs, sanitation tariffs) | Official statistical information on price statistics | |
| 3.4 | | Prices of manufacturing enterprises for industrial products | Prices of manufacturing enterprises for industrial products - the price of a unit of products sold at the time of its exit from the "enterprise gate " without taking into account value-added tax and excise taxes, trade and sales margins, transport and other expenses related to the movement of products from the manufacturer to the buyer. | Official statistical information on price statistics | |
| 3.5 | | Endangered and protected species | This indicator describes the number and population size of species by species groups that are threatened with extinction at the national and global levels, as well as those that are protected in the country.  Endangered species - species whose population has decreased to a critical level in such a way that they may soon disappear. These include ‘critically endangered species’, ‘endangered species’ and ‘vulnerable species’. Critically endangered species are species that are at extremely high risk of becoming extinct in the wild. Endangered species - species that are not currently in "critical condition" but may be at very high risk of extinction in the wild in the near future. Vulnerable species - species that may be in the category with a high risk of extinction in the wild. Protected species - species that are protected in accordance with national legislation. | Administrative data of the Forestry and Wildlife Committee of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan | |
| 3.6 | | Provision of uninterrupted power supply needs of the regions, percent | Electricity supply to settlements | Data of the system operator JSC "KEGOC" by regions of the country | |
| 3.7 | | Providing the population with waste collection and disposal services, percent | Percentage of population coverage in localities of regions where regular garbage collection is provided | Administrative data of the Ministry of Ecology and Natural Resources by regions, based on information provided by local executive bodies. | |
| 3.8 | | Wastewater treatment coverage of the population | Wastewater treatment coverage is the number and proportion of the population connected to centralised wastewater disposal systems (sewerage systems), which in turn are connected to wastewater treatment plants. Indicators measure the quality of life of the population.  A waste water collection system (sewer networks) can transport waste water to wastewater treatment plants or can be discharged into the environment without treatment .Wastewater treatment is the main condition for reducing the pressure on surface and underground water resources in terms of pollution. | Administrative data of the Committee for Construction and Housing and Communal Services of the Ministry of Industry and Construction in accordance with the Methodology for calculating target indicators and indicators of results of documents of the State Planning System of the Development Plan of the Ministry of Industry and Construction of the Republic of Kazakhstan | |
| 3.9 | | Public access to water supply services | Population with access to centralized water supply-the number and share of the population connected to centralized water supply in cities.  The indicator measures the quality of life of the population, determines the level of development of water supply services and the degree of water availability to meet all the needs of the population.   Proper quality of drinking water in water supply systems is one of the main conditions for a healthy environment and prevention of diseases related to water quality. | Administrative data of the Committee for Construction and Housing and Communal Services of the Ministry of Industry and Construction in accordance with the Methodology for calculating target indicators and indicators of results of documents of the State Planning System of the Development Plan of the Ministry of Industry and Construction of the Republic of Kazakhstan | |
| 3.10 | | Share of households by type of heating system used  1) central heating,  2) autonomous (natural gas, electricity,  3)offline (firewood, coal)  4) individual oven | Collection of data on household fuel and energy consumption, end-use categories (heating, cooling, lighting, cooking, water heating, use of electrical appliances)  and energy sources (fuel, electricity, renewable energy sources) that are used by households in the Republic of Kazakhstan. | Household survey questionnaire on fuel and energy consumption (N-010) (every five years) according to energy statistics | |
| 3.11 | | Share of the population with an income at purchasing power parity of less than: 1.9; 3.2; 5.5 US dollars at PPP per day, the percentage | Formed by region, by gender, as well as by urban and rural population | sample survey of households by standard of living | |
| 3.12 | | Number of people living in emergency houses | Emergency apartment building – multi-apartment residential building in which the main load-bearing structures (foundations, columns, load-bearing walls, beams, floors) have lost their load-bearing capacity and whose further operation poses a danger to the lives of residents (staying), recognized as not subject to restoration by the conclusion of a legal entity accredited for technical supervision and technical inspection of the reliability and stability of buildings and structures | . data of local executive bodies | |
| 3.13 | | Number of recipients of state pensions and benefits, thousand people | Population receiving state pension and allowances for the birth of children for care up to 1 year, payments due to loss of work, basic pension payment, pension payment by age and length of service, targeted social assistance | Administrative data of Ministry of Labor and Social Protection of the population of the Republic of Kazakhstan, Bureau of National Statistics of the Republic of Kazakhstan (by population) | |
| **4. Mitigation** | | | | | |
| 4.1 | The share of electricity generated by renewable energy sources in total electricity production | | Characterizes the share of renewable energy sources in total electricity production. Renewable energy sources – energy sources that are continuously renewable due to naturally occurring natural processes, including the following types: solar radiation energy, wind energy, hydrodynamic water energy; geothermal energy: heat from the ground, underground water, rivers, reservoirs; as well as anthropogenic sources of primary energy resources: consumer waste, biomass, biogas, etc. other fuel from consumption waste used for the production of electric and (or) thermal energy; | Formed on the basis of fuel and energy balance data, formed in accordance with the Methodology for the formation of the fuel and energy balance and the calculation of individual statistical indicators that characterize the energy industry (11.08.2016, No. 160) | |
| 4.2 | Share of renewable energy sources in total final energy consumption | | The share of renewable energy in total final consumption is the percentage of final consumption of energy derived from renewable resources. This share of final consumption of primary renewable energy products from final energy consumption | Formed on the basis of fuel and energy balance data, formed in accordance with the Methodology for forming the fuel and energy balance and calculating individual statistical indicators that characterize the energy industry (11.08.2016, No. 160) | |
| 4.3 | Proportion of the population using mainly clean fuels and technologies, percent | | Population living in localities where gasification has been carried out to the total population in the region as a whole. | Administrative data of the Ministry of Energy of the Republic of Kazakhstan based on information from regional akimats, cities of national significance, and the capital in the form "Main criteria for gasification level as of January 1 of this year" | |
| 4.4 | Strategies for achieving carbon neutrality of the Republic of Kazakhstan until 2060 Roadmap | | The Strategy is developed taking into account global climate trends and in compliance with relevant international obligations. The Strategy defines national approaches, the strategic course of state policy for the consistent transformation of the economy to ensure well-being, sustainable economic growth and equitable social progress, and is adopted to ensure coherence and coordination of state policies. | Administrative data of the Ministry of Ecology and Natural Resources on the implementation of the plan on achieving carbon neutrality. | |
| 4.5 | Share of energy and transport taxes in total environmental payments | | An environmental tax is a tax based on a physical unit (or its substitute) that has a proven specific negative impact on the environment. Environmental taxes are usually grouped into in the following categories: energy, transport, environmental pollution, and resources. | Administrative data of the Ministry of Finance of the Republic of Kazakhstan on tax revenues to the budget.  Data on accounts of the environmental and economic accounting system | |
| 4.6 | Investments aimed at environmental protection by types of environmental protection activities | | Investments in fixed capital aimed at environmental protection - investments in the acquisition of fixed assets aimed at preserving and restoring the environment, preventing the negative impact of economic activity on the environment. | It is formed on the basis of an annual national statistical observation in the form of "Investment Activity Report (index 1-invest)" | |
| 4.7 | Trading in carbon units | | A carbon unit is an accounting unit of a carbon quota or carbon offset equal to one ton of carbon dioxide equivalent.  The main principle of the system's operation in carbon units is to limit natural users 'greenhouse gas emissions and encourage them to invest in new "clean" technologies, upgrade technical capacities, and create efficient production facilities. | Administrative data of JSC "Zhasyl Damu" of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan, are formed in accordance with the Rules of trade in carbon units | |
| 4.8 | Number of issued patents in the field of environmental protection | | A patent in the field of environmental protection is a document confirming the exclusive right of the patent holder to an invention, utility model or industrial design, aimed at restoration of the environment, prevention of negative impact of economic and other activities on the environment and elimination of its consequences. | Administrative data of RSE "National Institute of Intellectual Property" of the Ministry of Justice of the Republic of Kazakhstan (RSE "NIIP") by the number of licenses issued | |
| 4.9 | Total greenhouse gas emissions per unit of GDP, t CO2-eq /1000 USD | | Ratio of carbon dioxide emissions in the production process to GDP | Administrative data of JSC "Zhasyl Damu" of the Ministry of Energy of the Republic of Kazakhstan Environment and Natural Resources of the Republic of Kazakhstan on carbon dioxide emissions;  official statistics on GDP in constant prices in US dollars, World Bank data | |
| 4.10 | Absorption (-)/emissions ( + ), including emissions from fires, thousand tons / yearCO2 | | Change in carbon stock and absorption ( - ) / (emissions ( + ) CO2 of soil and biomass for the activity category Forest management.  Calculated in accordance with the Methodology for calculating greenhouse gas absorption in Forestry | Administrative data of JSC "Zhasyl Damu" of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan on greenhouse gases. | |
| 4.11 | Increase in forest area, hectare | | Changes +, - total area of forest and non-forest lands by categories of forest fund and lands of the Committee of Forestry and Wildlife of the MENR of the Republic of Kazakhstan | Administrative data of the State Enterprise "Kazakh Forest Management Enterprise" of the Committee лесного of Forest Management of the Republic of Kazakhstan animal world farms of MENR RK | |
| **5. Adaptation** | | | | | |
| 5.1 | Percentage of women in managerial positions, | | Ratio of women in managerial positions to the total employed population | Official statistics on the employed population based on sample employment surveys | |
| 5.2 | Number of State-owned enterprises related to climate change, units | | Number of central State organizations engaged in climate | Administrative data on assigned responsible state bodies in the field of climate change within the framework of country programs, development plans, targets, etc. | |
| 5.3 | Aquaculture stocks, tons | | Aquaculture – artificial reproduction and cultivation of fish resources and other aquatic animals. | Administrative data of the Committee of Fisheries of the Ministry of Agriculture of the Republic of Kazakhstan on fish stocks. | |
| 5.4 | Insurance payments in crop and livestock production, tenge | | Amount of insurance payments paid | Administrative information on statistics on insurance payments by insurance products, platform QOLDAU.kz | |
| 5.5 | The number of people who are aware of information in the field of BAT and the Green Bridge Partnership Program The | | population that uses Internet resources covered by information in the framework of seminars, round tables, | Administrative information of the Ministry of Ecology and Natural Resources, Form No. 02-PR Information on the coverage of the population with information in the field of best available techniques (BAT) and the Green Bridge Partnership Program  the Green Bridge Partnership Program | |
| 5.6 | Share of university students involved in socially useful activities | | Ratio of students of higher educational institutions who take an active part in socially useful activities to the total number of university students | Administrative information of the National Educational Database of the Ministry of Science and Higher Education of the Republic of Kazakhstan | |
| 5.7 | Proportion of students in TVE (technical and vocational) organizations involved in socially useful activities | | Ratio of students in technical and vocational education organizations who actively participate in socially useful activities to the total number of students in TVE organizations | Administrative information of the National Educational Database of the Ministry of Science and Higher Education of the Republic of Kazakhstan | |
| 5.8 | Number of environmental publications | | Number of environmental publications published on the Internet resources | Administrative Information of the Committee for Environmental Control and Information of the Ministry of Economic Development and Trade of the Republic of Kazakhstan in accordance with the Legislation of the Republic of Kazakhstan. unified environmental portal | |
| 5.9 | Hydraulic structures, units | | Number of hydraulic structures in the country, in satisfactory, unsatisfactory and disrepair | Administrative information of the Water Management Committee of the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan | |
| 5.10 | Share of protected areas in the total area of the country | | Specially protected natural territories – land, water surface and air space above them, where natural complexes and objects are located objects of special environmental, scientific, cultural, aesthetic, recreational and health-improving significance, which have been completely or partially removed from economic use by decisions of state authorities and for which a special protection regime has been established. The indicator is calculated as the ratio of the area of specially protected areas in a country to the total territory of the country. | Administrative information of the Committee of Forestry and Wildlife of the MENR of the Republic of Kazakhstan according to Form 1-SPNA "Accounting of specially protected natural territories" | |
| 5.11 | Share of green urban areas in the total area of cities, percentage | |  | Administrative data of local executive bodies on landscaping of territories | |
| 5.12 | Share of introduced point farming technologies in the total sown area of the Republic of Kazakhstan, percentage | |  | Official statistical information on agricultural statistics | |
| 5.13 | Area of the territory covered with forest, hectare | | Land covered with forest - land occupied by forest stands of natural and artificial origin (forest crops), as well as shrubs. The main sign of belonging of plantings and shrubs to forested lands is completeness (the degree of density of placement of trees in the stand, which characterizes the share of use of the occupied space by them), which should be 0.4 or higher in young growth and shrubby thicketsболее старших, and 0.3 or higher in older plantings. | Administrative information of the State Enterprise "Kazakh Forest Management Enterprise" of the Committee of Forestry of the Animal World of the MENR of the Republic of Kazakhstan | |
| 5.14 | Number of monitoring stations, units | | Information on hydrometeorological and environmental monitoring by the number of observation points Administrative information of the metorological service of RSE «Kazhydromet» | Administrative information of the metorological service of RSE «Kazhydromet» according to 08-PR «Information on hydrometeorological  and environmental monitoring» | |
| 5.15 | Provision of the territory of the Republic with monitoring of the state of air quality in the reporting year, percentage | | Ratio of the number of observation points in the reporting year to the required number of air quality monitoring | Administrative information of the metorological service of RSE «Kazhydromet» according to 08-PR «Information on hydrometeorological  and environmental monitoring» | |
| 5.16 | Provision of the territory of the Republic with hydrological monitoring in the reporting year, percentage | | Ratio of the number of observation points in the reporting year to the required number of observation points with hydrological monitoring | Administrative information of the metorological service of RSE «Kazhydromet» according to 08-PR «Information on hydrometeorological  and environmental monitoring» | |
| 5.17 | Water consumption per capita, cubic meters/person | | Ratio of water use per average annual population | Administrative information of the Water Management Committee of the Ministry of Water Resources and Irrigation of the Republic of Kazakhstan according to the annual departmental statistical observation 2-TP (water management) "Report on water intake, use and disposal".  Official statistical information on the average annual population. | |
| 5.18 | The intensity of municipal waste generation per capita | | Determines the volume of municipal waste collected, taking into account the waste of self-collecting enterprises in the reporting period per population. Municipal waste is consumer waste generated in localities, including as a result of human activity, as well as industrial waste that is similar in composition and nature of formation. | Official statistical information according to the national statistical observation on Form 1-waste "Report on the collection and removal of municipal waste" and the average annual population. | |
| 5.19 | Share of municipal waste processing and recycling Ratio of municipal waste | | volume to municipal waste generated | Administrative information of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan | |
| 5.20 | Share of treated wastewater by complete biological treatment (including post-treatment) in the total amount of wastewater passed | | Indicator is defined as the ratio of the volume of treated wastewater by complete biological treatment (including post-treatment) in the total volume of wastewater multiplied by 100% | Official statistical information on the operation of water supply and sanitation systems according to the annual statistical observation 1-VK "Report on the operation of enterprises operating water supply and sanitation systems". | |
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