

This Report presents the results and conclusions of the project “Introduction of Green Growth Indicators and Preparation of the Report on Green Growth in Kazakhstan”, carried out within the framework of the OECD-Kazakhstan Cooperation Program.

The main goal of the project is to assist Kazakhstan in integrating the measurement of green growth into the regular reporting and planning system, in implementing the Concept for the transition to a green economy, in assessing progress and achieving green growth at the macro level.

Report was carried out under the guidance of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan with the participation of the SREC “Green Academy” with the support of the OECD.



## INTRODUCTION OF GREEN GROWTH INDICATORS IN THE REPUBLIC OF KAZAKHSTAN

National Report based on the  
OECD Green Growth Indicators



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IN THE REPUBLIC OF KAZAKHSTAN**

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LBC 65.9(5Kaz)  
N 27

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FOREWORD

This Report presents the results and conclusions of the project "Introduction of Green Growth Indicators and Preparation of the Report on Green Growth in Kazakhstan", carried out within the framework of the OECD-Kazakhstan Cooperation Program, approved by Government Decree of July 30, 2018, № 472. The main goal of the project is to assist Kazakhstan in integrating the green growth dimension into the regular reporting system, in implementing the Concept for the transition to a "green economy" and assist in assessing progress and achieving "green" growth.

As part of the implementation of the OECD-Kazakhstan Cooperation Program, the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan (MNE RoK) defined a list of country-specific green growth indicators. The developed indicators are aimed for the establishing of an objective and transparent reflection of the situation, of the needs and priorities of the country in the transition to a green economy. The Report presents the quantitative and qualitative characteristics of the indicators of green economy for the period 2010-2017, which were discussed at the meetings of the interdepartmental working group on improving the efficient collection and transparency of information on the "green economy" indicators in 2018-2019.

The methodological basis for the development of this report was composed from the green growth reports of OECD countries, as well as the results of the interim report on the project "Implementation of the System of Environmental Economic Accounting (SEEA)" in the framework of the Country Program for Cooperation between Kazakhstan and the OECD, on the recommendations of participants of the interdepartmental working group meetings on indicators of "green economy".

The information basis of the Report was as follows: official statistical information, administrative data published on the official website of the Statistics Committee of the MNE RoK, as well as the "Environmental Performance Review of the Republic of Kazakhstan (III edition, UN ECE, (EPRs)) and the Voluntary National Review on Sustainable Development of the Republic of Kazakhstan (2019).

The process of the Report preparation consisted of the following stages: 1) evaluation of the list of indicators characterizing green growth in Kazakhstan; 2) analysis of all available data sources (government and departmental statistics, administrative sources), identifying weaknesses, as well as the possibilities for their elimination when forming indicators of "green" growth; 3) development of recommendations for the further formation of priority indicators of green growth for Kazakhstan that meet international requirements; 4) preparation of the National Report on green growth, presentation and distribution of it.

The project team expresses the hope that this Report will serve as a methodological and informational basis for the further activities of Kazakhstan in harmonizing institutional and information systems with the OECD in the process of transition to a green economy.

## PREFACE

Today, the Republic of Kazakhstan is positioned in the world as a country with a rapidly developing economy, with strong natural and raw material potential, which ensures high rates of economic growth. Since independence, Kazakhstan has launched a number of global initiatives in the field of transition to sustainable green development, such as the Green Bridge Partnership Program, approved by the UN GA in 2012. The country developed one of the world's first concepts for the transition to a "green economy" in 2013, and the Council for the transition to a green economy under the President of the Republic of Kazakhstan was established and is successfully operating. In 2015, the Paris Climate Agreement was signed and ratified and national contributions to reduce greenhouse gas emissions were approved. In 2017, the international exhibition EXPO-2017 themed "Energy of the Future" was successfully held with participation of representatives from over 100 countries. In 2019 the Ministry of Ecology, Geology and Natural Resources was established.

Generally, the country has created the necessary institutional framework for the implementation of the principles and standards of the green economy for the transition to sustainable development. At the same time, the novelty of the approaches and tasks of monitoring the transition to green development requires improving the system of strategic planning and statistics. In this regard, the Government of the country, having signed an agreement with the OECD, which developed green growth indicators (2011) and is successfully implementing them in the EU and Eastern Partnership countries, approved the recommended list of green growth indicators for their further integration into the national statistical system.

In order to introduce green indicators into the statistical system, it is necessary to assess the country's potential in the field of green economy and develop a set of systemic and institutional measures for the transition to a new development model. This Report was oriented precisely for the purpose to achieve these goals and was carried out under the guidance of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan with the participation of the national (SREC "Green Academy") and international consultants from the OECD.

Let me express the hope that the results of the project and the completed National Report will make a worthy contribution to the successful implementation of green growth indicators in the national statistical system, as well as contribute to the improvement of the strategic planning system and the adoption of practical actions in achieving sustainable development goals at local and national levels.

**R. Dalenov,**  
Minister of National Economy of  
the Republic of Kazakhstan

## ACKNOWLEDGMENTS AND DECLARATIONS

The project was carried out under the leadership of Mr. **Nurbolat Aydapkelov**, Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan and of Dr. **Bakhyt Yessekina**, National Consultant, Member of the Council on Green Economy under the President of the Republic of Kazakhstan (Scientific and Educational Center "Green Academy").

Special thanks are expressed to **Assel Shauyenova**, **Assel Dzhartybayeva**, **Dinara Sadvakassova** (Statistics Committee of the MNE RoK), **Naziya Prmanova**, **Indira Zhaisanbek** (Scientific and Educational Center "Green Academy") for their assistance in the implementation of the project.

We are also grateful to **Krzysztof Michalak**, **Jean-Francois Lengellé** (OECD) for their comments and provided support, as well as to the international consultant **Andrei Isac** (Moldova) for assistance in developing pilot green growth indicators for Kazakhstan.

The authors would also like to thank **Aigul Yepbayeva** (MNE RoK) and the Trade Policy Development Center of the MNE RoK for administrative support and assistance in translation of this publication.

The project is supported by the Government of the Republic of Kazakhstan through the Ministry of National Economy.

The opinions expressed in this report are those of the authors and do not necessarily reflect the position of the OECD or its member states.



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ABBREVIATIONS  
AND  
ACRONYMS

<b>CCEA</b>	– Common Classifier of Economic Activity
<b>CES</b>	– Committee for Emergency Situations of the Ministry of Internal Affairs;
<b>CWR</b>	– Committee for Water Resources of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan;
<b>EGS</b>	– Environmental goods and services;
<b>EP</b>	– Environmental Protection;
<b>ES</b>	– Emergency situation;
<b>EU</b>	– European Union;
<b>GG</b>	– Green Growth;
<b>GDP</b>	– Gross Domestic Product;
<b>GDP PPP</b>	– Gross Domestic Product per capita by Purchasing power parity
<b>GGIs</b>	– Green Growth Indicators;
<b>GRP</b>	– Gross Regional Product;
<b>GVA</b>	– Gross Value Added;
<b>HE</b>	– Higher Education
<b>IMF</b>	– International Monetary Fund;
<b>INDCs</b>	– Intended nationally determined contributions;
<b>ISO</b>	– International Organization for Standardization;
<b>KZT</b>	– Tenge of the Republic of Kazakhstan;
<b>MEGNR</b>	– Ministry of Ecology, Geology and Natural Resources;
<b>MES</b>	– Ministry of Education and Science;
<b>MIID</b>	– Ministry of Industry and Infrastructural Development;
<b>MNE</b>	– Ministry of National Economy;
<b>MoA</b>	– Ministry of Agriculture;
<b>MoIA</b>	– Ministry of Internal Affairs;
<b>MoE</b>	– Ministry of Energy;
<b>MoFA</b>	– Ministry Foreign Affairs;
<b>MoF</b>	– Ministry of Finance;
<b>MoJ</b>	– Ministry of Justice;
<b>MoHC</b>	– Ministry of Healthcare;
<b>OECD</b>	– Organization for Economic Cooperation and Development;
<b>TPES</b>	– Total Energy Production or Consumption;
<b>EPRs</b>	– UNECE Environmental Performance Reviews;
<b>UN</b>	– United Nations;
<b>UNDP</b>	– United Nations Development Program;
<b>UNECE</b>	– United Nations Economic Commission for Europe;
<b>VNR</b>	– Voluntary National Review of the Republic of Kazakhstan;
<b>PPP</b>	– Purchasing power parity;
<b>RoK</b>	– Republic of Kazakhstan;
<b>RSE</b>	– Republic State Enterprise;
<b>SC</b>	– Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan;
<b>SCOPE</b>	– The Scientific Committee on Problems of the Environment (at the UN);
<b>SD</b>	– Sustainable Development;
<b>SDG</b>	– Sustainable Development Goals;
<b>SNA</b>	– System of National Accounts;
<b>SEEA</b>	– System of Environmental Economic Accounting;
<b>SOEC</b>	– Statistical Office of the European Communities;
<b>SP</b>	– State Enterprise;
<b>SREC</b>	– Scientific Research and Education Center;
<b>SRC</b>	– State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan;
<b>STP</b>	– Scientific Technical Program;
<b>INDCs</b>	– Intended Nationally Determined Contributions;
<b>USD</b>	– The United States dollar;
<b>VNR</b>	– Voluntary National Review of the Republic of Kazakhstan;
<b>WB</b>	– World Bank;
<b>MSW</b>	– Municipal solid waste;
<b>WG</b>	– Working Group.

EXECUTIVE SUMMARY

The Republic of Kazakhstan, by adopting the Strategy «Kazakhstan-2050» and the Concept of transition to a «green economy», has set clear guidelines for the construction of a sustainable and effective model of the economy based on the principles of «green» development path. According to the Concept, by 2050, the transformations in the framework of the «green economy» will further increase GDP by 3%, create over 500 thousand new jobs, create new industries and services, to ensure the highest standards of quality of life of the population.

The transition to sustainable development and the integration of the principles of a «green» economy is promoted by the adopted UN SDGs (2015), the Paris Climate Agreement (2015), and the Long-term Development Strategy of Kazakhstan until 2050 (2012), Action Plan for the implementation of the Concept for the transition to a «green» economy for 2013-2020 (2013), Strategic Development Plan of the Republic of Kazakhstan until 2025 (2018).

The effectiveness of the course for sustainable development and the implementation of the adopted country documents requires constant monitoring of the current status and improvement of the system of target indicators. In this regard, the preparation of this Report appears to be very timely and is aimed at improving the national statistical reporting system towards achieving «green» growth of sustainable development at the national level.



### *The Main Achievements of the Green Economy*

In Kazakhstan, a new version of the Environmental Code is being prepared with the introduction of the «polluter pays» principle. A legislative framework has been created for the development of renewable energy sources and energy efficiency, the share of services sector in GDP has reached 57.4% (2017).

As of January 1, 2019, in the country there are about 75 facilities using renewable energy sources, with a total capacity of about 700 million MW, the share of electricity generated of which was 1.3% (2018). The access of the population to centralized water supply increased from 85% in 2013 to 93.8% in 2017 in cities and from 47.7% to 57.4% accordingly in rural settlements. The share of recycling and disposing of industrial waste increased to 30.9% (2017).

### *The Main Results of Green Growth Measurement*

This report presents the quantitative and qualitative characteristics of a number of indicators of «green economy» according to the OECD methodology in accordance with the UN Sustainable Development Goals and the RoK Strategic Documents. The Statistics Committee of the Ministry of National Economy (MNE) of the Republic of Kazakhstan has defined a list of country-specific green growth indicators.

From 54 green growth indicators suggested by the OECD, 44 have been introduced into national statistics, including 6, which are presented in the framework of this project for the first time:

- Fish stocks resources;
- Expenditures on research projects related to the “green economy”, including in the field of renewable energy;
- Number of patents granted in the field of environmental protection (including environmental and energy technologies);
- Official development assistance;
- Gross value added of EGS sector (partly implemented);
- Employment in the EGS sector (partly implemented).

The remaining indicators require additional studying of the possibility of implementing and developing of the calculation method.

The new indicators were discussed and recommended for publication at the meetings of the inter-ministerial working group on improving the efficient collection and transparency of information on the “green economy” indicators of the Statistics Committee of the MNE in November 2018 and in February and May 2019.

### *Recommendations*

It was recommended to the Government of Kazakhstan to work on improving the legislative and institutional framework for the transition to «green» economy, improving the information capacity and statistical reporting of the Republic of Kazakhstan, taking into account the development and implementation of new «green» indicators, the system of environmental economic accounting, as well as their integration into the strategic planning system that would allow to assess the progress of the transition to a «green» economy in accordance with international standards of «green» growth of the OECD and the UN SDGs.

## INTRODUCTION

The Concept of transition to a «green» economy was approved by the Decree of the President N. Nazarbayev in 2013. In the same year, the Government approved the plan of measures for its implementation for 2013-2020. These documents are based on target indicators developed in accordance with the recommendations of the UN, the World Bank, the OECD, the UNECE, the Scientific Committee on the Environment (SCOPE), etc.

The Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan together with government bodies is working on an ongoing basis on the formation and updating of data characterizing the indicators of the «green» economy. In 2014, at the national level, a list of green economy indicators was developed, according to the recommendations of the OECD, posted on the website of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan ([www.stat.gov.kz](http://www.stat.gov.kz)).

The methodology for this list was compiled by indicators for a «green» economy from the OECD report (2011), selected according to the following principles: 1) policy compliance, 2) analytical relevance to the green economy, 3) measurability and the results, as well as the OECD approaches to developing a system of natural-economic accounting. The list of indicators was formed in five areas:

- Environmental and resource productivity of the economy;
- Natural asset base;
- Environmental dimension of quality of life;
- Economic opportunities and policy responses;
- Socio-economic context and characteristics of growth.

Within the framework of the project «Implementation of green growth indicators and preparation of the report on green growth in Kazakhstan», carried out within the framework of the OECD-Kazakhstan cooperation Program (2018-2019), together with the Committee on statistics, a list of country-specific green growth indicators was defined and prepared. According to the preliminary analysis conducted during the meeting of the Working Group in 2018, at the start of a project it was determined that:

- out of 13 indicators of the first block, 8 indicators are introduced;
- out of 8 indicators of the second block, 6 are introduced ;
- out of the 4 indicators of the third bloc, all indicators are introduced;
- out of the 15 indicators of the fourth block, 7 are introduced;
- out of 14 indicators of the fifth block, 13 are introduced.

Within the framework of this Report, quantitative and qualitative characteristics were given to existing «green» indicators in national statistics and the development of the following OECD indicators was proposed:

1. Carbon market financing, in connection with the entry into force of the Paris Climate Agreement from 2020;
2. All types of R&D related to «green» growth;
3. Efficiency of use of non-energy materials (biotic and abiotic materials);
4. «Green» jobs (or «green» employment), the production of environmental goods and services.

CHAPTER 1 THE SOCIAL AND ECONOMIC CONTEXT  
AND CHARACTERISTICS OF GROWTH  
1-1 Economic growth, productivity and competitiveness  
1-1.1 Economic Growth and Structure

Key message:

Qualitative changes have occurred for the period of 2010-2017 in the GDP structure: the share of the service sector increased from 51.7 to 57.4%. Share of processed goods in total exports increased from 27.9% to 32.1%.

Unit of measurement:

billion international dollars in 2011 prices, thousand KZT, million USD, %

This chapter describes indicators related to social and economic parameters, providing information that is important for assessing the country's economic growth, productivity and competitiveness and describing the state of the labour market. Indicators (Indicators 1-14) covering the economy as a whole are of great importance for the analysis of the current policy in the field of green economy, linking green growth with the objectives in the social sphere.

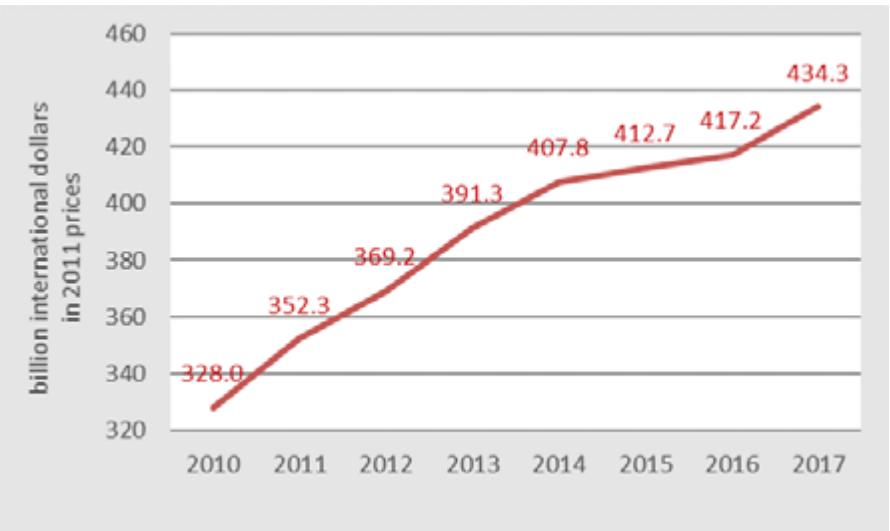
Indicator 1.1 Growth and structure of gross domestic product

**Definition:** Gross domestic product (GDP) is the most important macroeconomic indicator, characterizing the final result of the country's economic activity.

The indicator corresponds to the Target 8.1 "Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent GDP growth per annum in the least developed countries" of the Goal 8 of the UN SDG "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all".

According to the Strategic Development Plan until 2025 of the Republic of Kazakhstan, the GDP growth from 2010 to 2014 was 4.2-7.4% per year. Then slowed down to 1.1-1.2% per year; growth reached 4.1% in 2017, which indicates the economy's adaptation to the situation in world commodity markets.

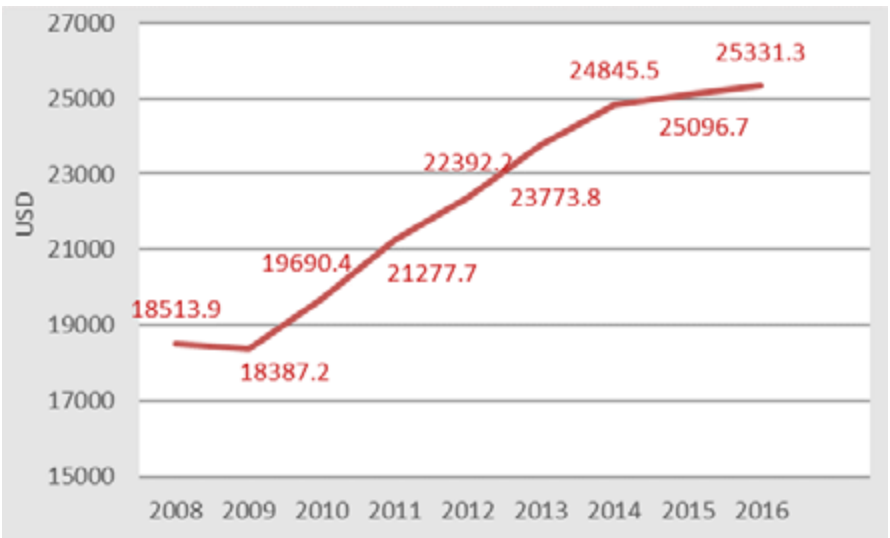
Figure 1.1 Dynamics of GDP by PPP, billion international dollars in 2011 prices, 2010-2017 (as for 21 March 2019)



Source: <https://databank.worldbank.org/data/reports.aspx?source=2&series=NY.GDP.MKTP.PP.KD&country=>

For 2010-2017 dynamics of the GDP by PPP increased from 328.0 billion international dollars to 434.3 billion international dollars.

Figure 1.2 GDP by PPP per capita, USD, 2008-2016

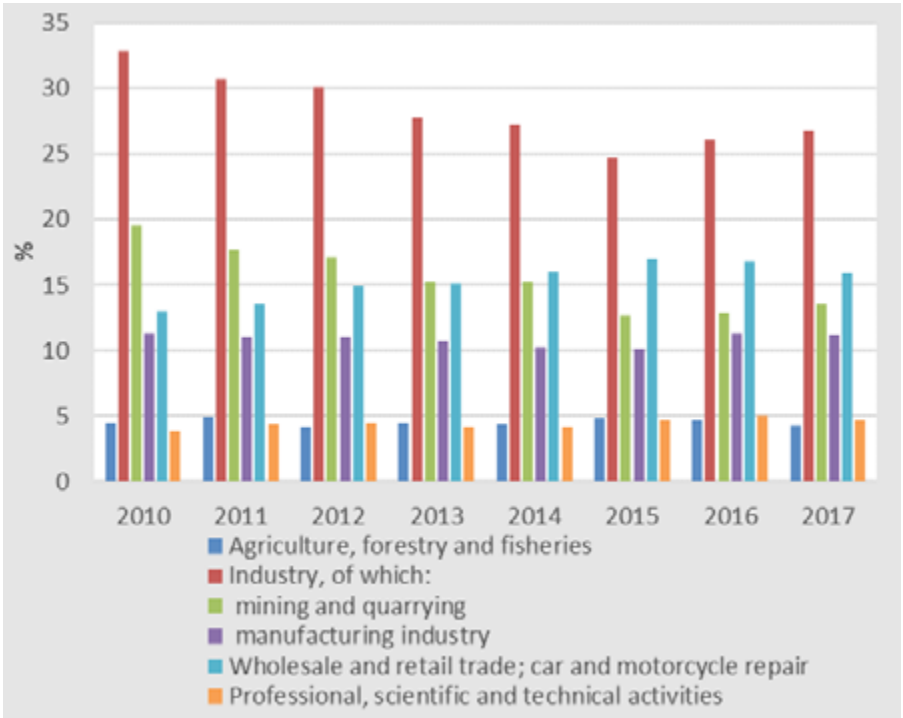


Source: Third EPR review of the Republic of Kazakhstan, UN ECE, 2019, p. 3.

During the reporting period of 2010-2016, the GDP per capita by PPP increased from 19.7 thousand to 25.3 thousand USD.

The structure of GDP is formed on the basis of data obtained from official sources of state bodies and includes the sectors presented in the Figure 1.3.

Figure 1.3 Structure of GDP, main sectors, %, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise)>Updated information (express information, bulletins)> Environmental protection>Indicators of "green economy" of the Republic of Kazakhstan

Indicator 1.2 National disposable income /Gross disposable income

Key message:

Gross disposable income increased 2.5 times and amounted to 47 053 billion KZT from 2010 to 2017.

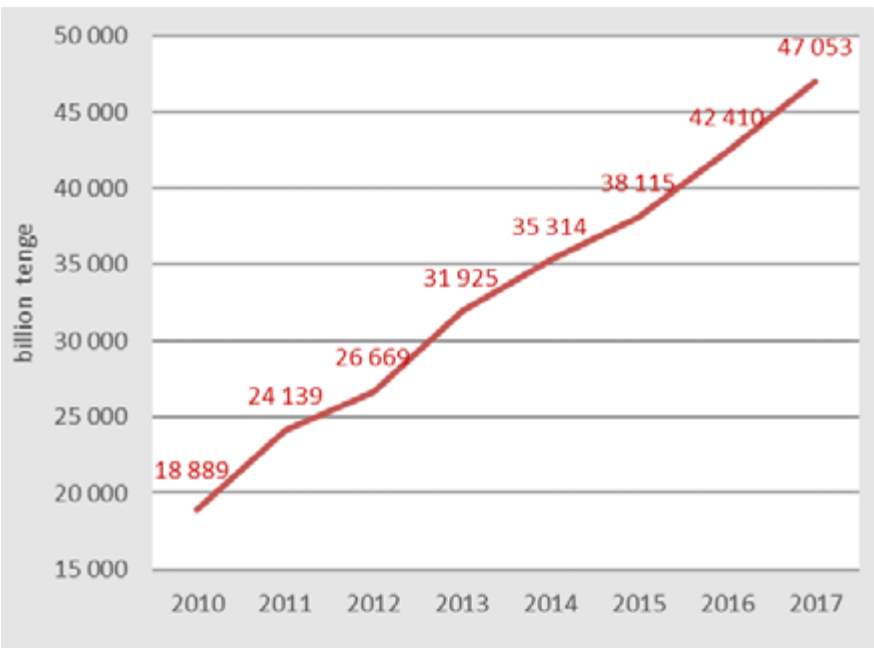
Unit of measurement:

billion KZT

**Definition:** Gross disposable income is the income that an institutional unit (sector) can use for final consumption and saving and which includes the balance of primary income increased by the amount of current transfers received and reduced by the amount of income transferred as current transfers.

The indicator corresponds to the Target 10.1 “By 2030, progressively achieve and sustain income growth of the 40 per cent of the bottom population at a rate higher than the national average” of the Goal 10 of the UN SDGs.

Figure 1.4 Gross disposable income, billion KZT, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise) / National accounts - Integrated accounts/Bulletins/National accounts of the domestic economy

The Strategic Development Plan until 2025 states that in order to achieve this goal, it is necessary to ensure economic growth of at least 4.5-5.0% of GDP on average per year, which will allow Kazakhstan to ensure growth in the level of GDP per capita from 9.03 thousand USD up to 18.5 thousand USD.

1-1.2 Productivity and trade

Indicator 1.3 Labour productivity/Labour productivity indices

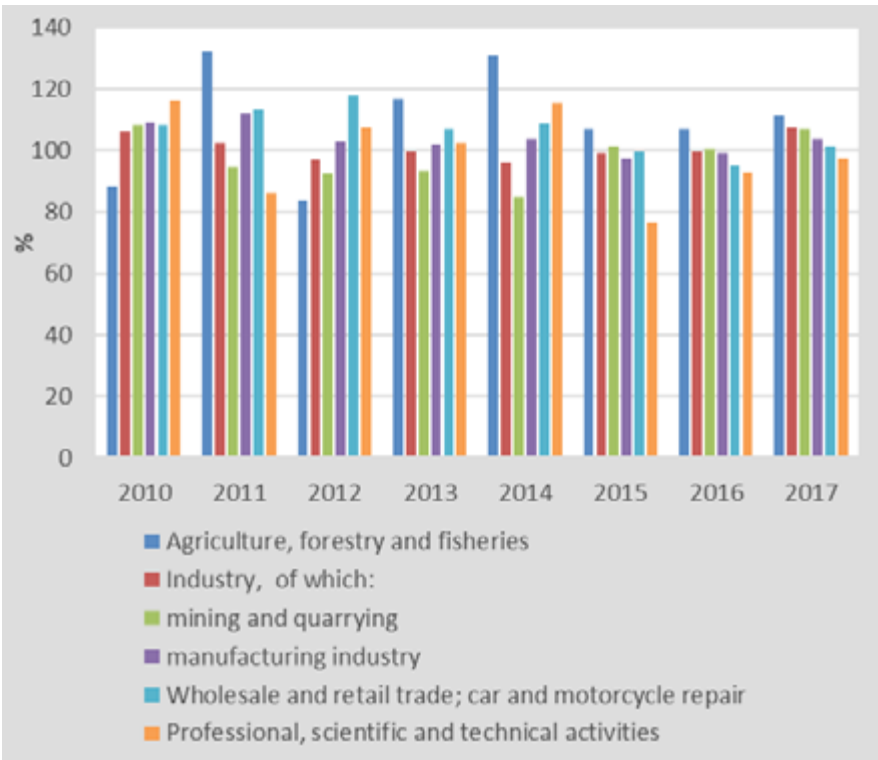
**Definition:** Labour productivity is an indicator of production efficiency that characterizes the output per unit of resources used, which is the ratio of production volume to labour costs.

The indicator corresponds to the SDG Target 8.2 “Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors”

Key message:

Labour productivity indice in the economy in 2017 amounted to 104.4% compared to the previous year, in agriculture 111.3%, in industry 107.4%.

Figure 1.5 Labour productivity indices, %, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise)>Updated information (express information, bulletins)> Environmental protection>Indicators of “green economy” of the Republic of Kazakhstan

According to the Strategic Development Plan until 2025, the productivity growth of existing sectors of the economy will occur by increasing their operational efficiency and reducing the cost of production, transportation and sales of products, investments in technological renewal and digitalization, as well as creating conditions for the transition to the “green economy”. This should increase the competitiveness of existing industries.

Unit of measurement:

thousand tenge/person, %

Indicator 1.4 Multi-factor productivity

Key message:

Multi-factor productivity characterizes growth rate and reflects environmental services.

Unit of measurement:

%

**Definition:** The multi-factor productivity indicator characterizes the growth rate of output in addition to the growth due to extensive factors (increase in the number of resources involved in production).

The method of measuring multi-factor productivity was developed in accordance with the methodology of the IMF, OECD and approved by the Order of the Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan dated December 6, 2016 No. 303.

Experimental calculations of this indicator are currently being carried out by the Statistics Committee of the Ministry of National Economy.

Indicator 1.5 Average cost of labour in trade / Cost of labour per unit of output

Key message:

The index rose almost twice for the period 2010-2017

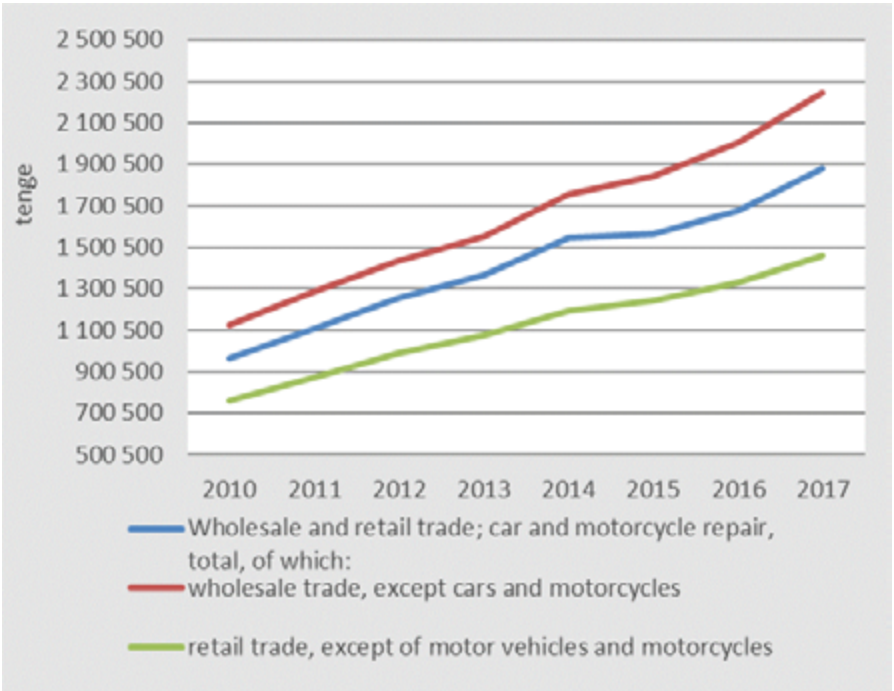
Unit of measurement:

tenge/one employee, tenge/one worked hour %

**Definition:** The cost of labour force (labour costs) is the sum of all expenses (costs) of employers (enterprises, organizations) associated with the maintenance and use of labour force, regardless of the source of funding.

The indicator corresponds to the SDG Goal 8 "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value" (Indicator 8.5.1)

Figure 1.6 Average cost of labour in trade per one employee, tenge/ one employee, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise)>Updated information (express information, bulletins)> Environmental protection>Indicators of "green economy" of the Republic of Kazakhstan

Dynamics of the indicator for 2010-2017 shows that the increase in labour costs per employee of trade almost doubled per one worked hour – an increase from 548.4 to 1123.5 tenge in 2017.

The indicator includes the average cost of labour in trade, as follows: wholesale and retail trade enterprises, car and motorcycle repair.



Indicator 1.6 Relative importance of trade:  
(exports + imports)/GDP

Key message:

Index of the relative importance of trade for 2010-2017 observes unstable dynamics, but there has been an increase in recent years.

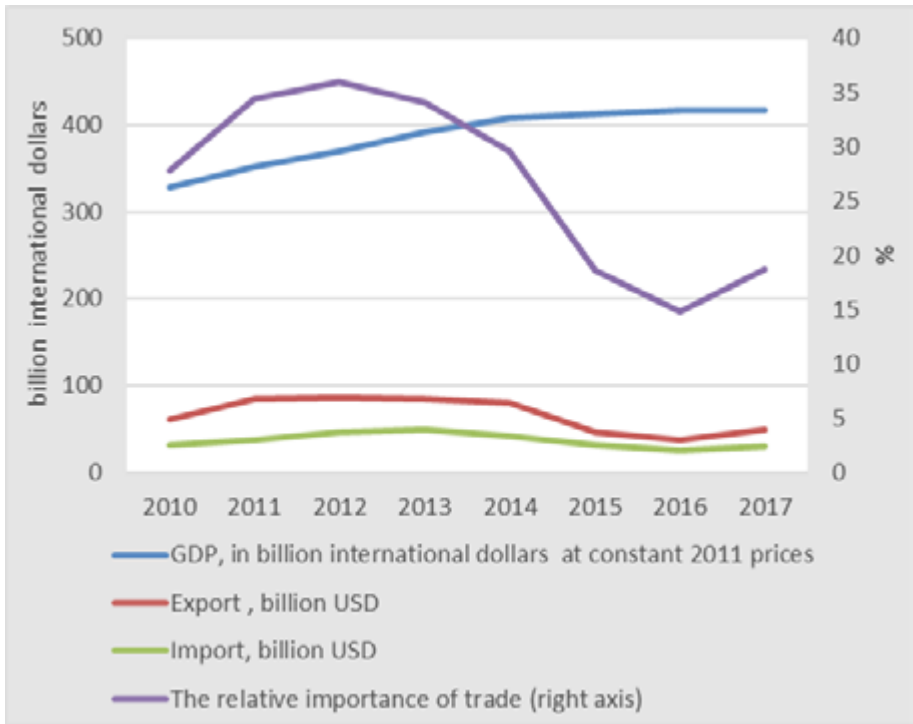
Unit of measurement:

billion international dollars, billion USD, %

**Definition:** The relative importance of international trade measures total trade flows, including exports and imports of goods and services regarding the GDP and evaluates participation in international competition and its pressures on foreign markets and within a country.

The indicator is comparable to the Target 17.11 “Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries’ share of global exports by 2020” of the Goal 17 of the UN SDG.

Figure 1.7 Relative importance of trade, billion international dollars, billion USD, %, 2010-2017



**Source:** <http://stat.gov.kz> Official statistics (industry-wise)/Updated information (express information, bulletins)/Environmental protection/Indicators of “green economy” of the Republic of Kazakhstan

The Strategy “Kazakhstan-2050” in order to implement the program of forced innovative industrialization of the country aims to increase the share of non-mineral exports in total exports twice by 2025 and three times by 2040.

1-1.3 Inflation and commodity prices

Indicator 1.7 Consumer price index

**Definition:** The consumer price index is an indicator that characterizes the change in the average price level over time for a fixed list of goods and services purchased by the population for personal consumption. It is a generally accepted indicator of consumption inflation.

The index is comparable to the Target 1.4 “By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance” of Goal 1 of the UN SDGs.

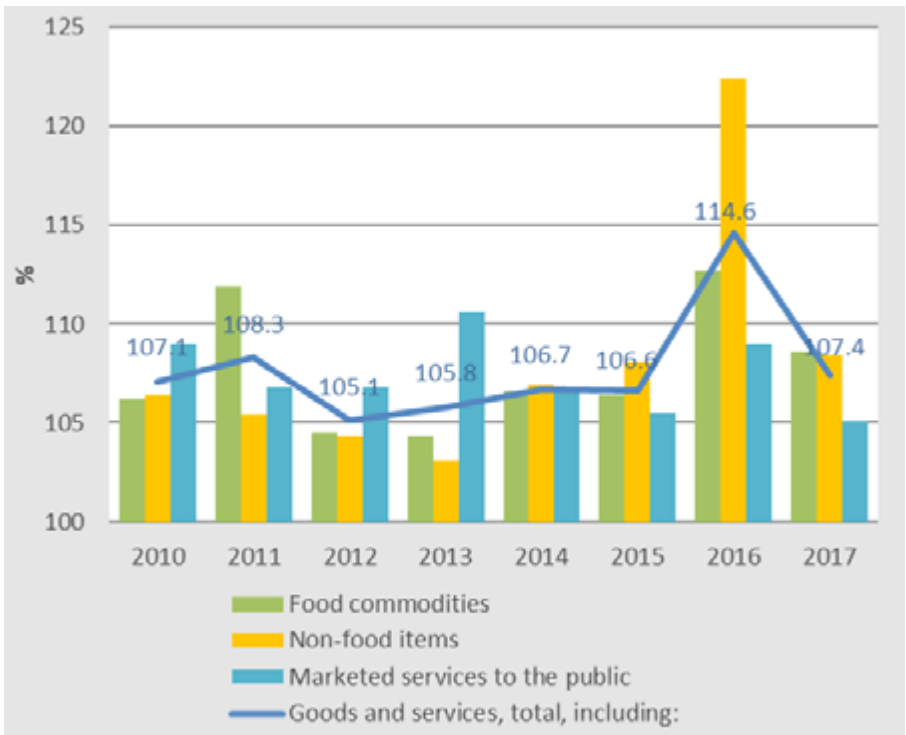
Key message:

2010-2017 consumer price index for goods and services rose from 107.1% to 107.4%.

Unit of measurement:

%

Figure 1.8 Consumer price index, % to the previous year, 2010-2017



**Source:** <http://stat.gov.kz> Official statistics (industry-wise)/Updated information (express information, bulletins)/Environmental protection/Indicators of “green economy” of the Republic of Kazakhstan

During the period under review, the inflation rate was the lowest (105.1%) in 2012, the highest (114.6%) – in 2016, mainly due to the growth of prices for non-food goods (122.4%).

The Strategic Development Plan until 2025 provides for keeping inflation at the level of 3.0-4.0% until the specified year.

### Indicator 1.8 Prices of food; crude oil; minerals, ores and metals

#### Key message:

Food prices, in particular meat increased more than 2 times

#### Unit of measurement:

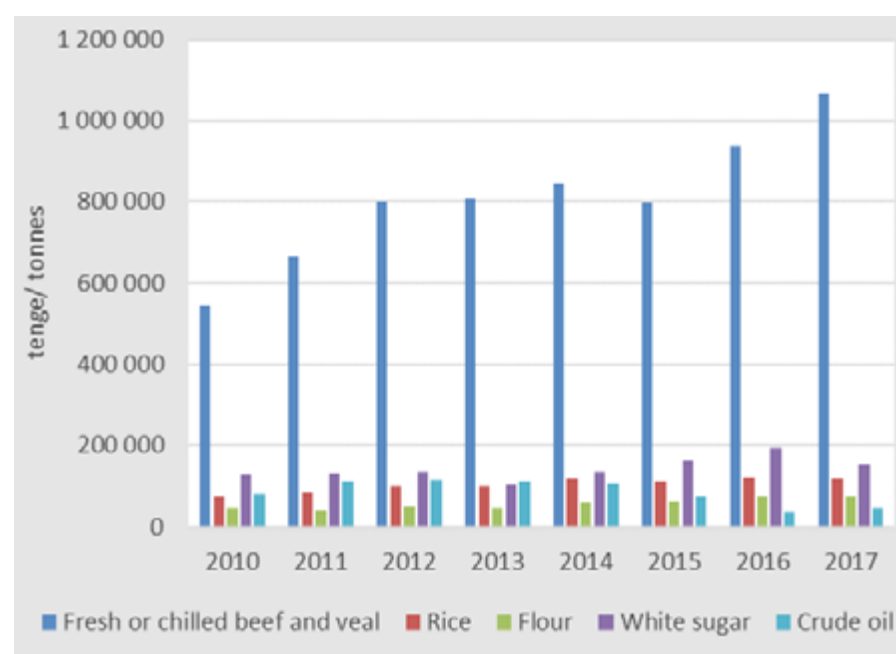
tenge / tonnes, tenge / thousand m<sup>3</sup>, tenge / kg, %

**Definition:** The price of a unit of manufactured industrial output is the value excluding VAT, excise taxes, other indirect taxes, sales and distribution margins, transportation and other costs associated with the movement of products from the manufacturer to the buyer.

The indicator is comparable to the Target 1.4 "By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance" of Goal 1 of the UN SDG.

The prices of industrial enterprises for industrial products are calculated according to the codes of SCPP (departmental directory of industrial products in current prices) monthly to the previous period.

Figure 1.9 Prices of food, crude oil, minerals, ores and metals, tenge/tonnes, 2010-2017



**Source:** <http://stat.gov.kz> Official statistics (industry-wise)>Updated information (express information, bulletins)> Environmental protection>Indicators of "green economy" of the Republic of Kazakhstan

During the period of 2010-2017 the selected food prices increased 1.5-2 times, while crude oil prices decreased 1.8 times.

## 1-2 Labour markets, education and income

### 1-2.1 Labour markets

### Indicator 1.9 Labour share / Employment

**Definition:** The employed population means all persons of the appropriate age, who, by their condition, within a certain short period of one week can be classified into one of the following categories: - hired worker; - self-employed worker.

The indicator is comparable to the Target 8.5 "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value" of Goal 8 of the UN SDGs.

According to the standards of the International Labour Organization (ILO) and the Resolution of the 19th International Conference of Labour Statisticians, the employed in Kazakhstan are persons aged 15 years and over who have performed work (at least one hour per week) on a fee basis in the week under review, as well as work that generates income from self-employment.

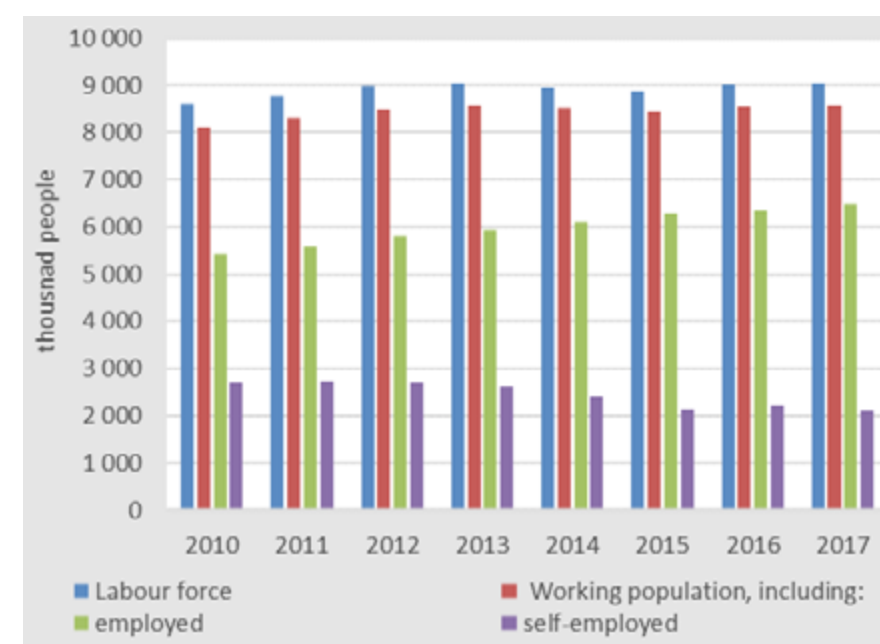
#### Key message:

In Kazakhstan there is a high proportion of self-employed, amounting to near 25% of the total employment, as well as the growth of unproductive self-employment in rural areas.

#### Unit of measurement:

thousand people, %

Figure 1.10 Employment, thousand people, 2010- 2017



**Source:** <http://stat.gov.kz> Official statistics (industry-wise)/Updated information (express information, bulletins)/Environmental protection/Indicators of "green economy" of the Republic of Kazakhstan

According to the figure 95% of the country's workforce is employed.

In the Strategic Development Plan until 2025 aims to reduce the share of unproductive employment of the total number of self-employed by 10% by 2025 and by 5% by 2050.

For 2010-2018 the number of people employed in OECD countries increased from 543 927 to 601 706.8 people.

### Indicator 1.10 Unemployment rate

#### Key message:

Unemployment rate decreased from 5.8% up to 4.9% from 2010 to 2017.

#### Unit of measurement:

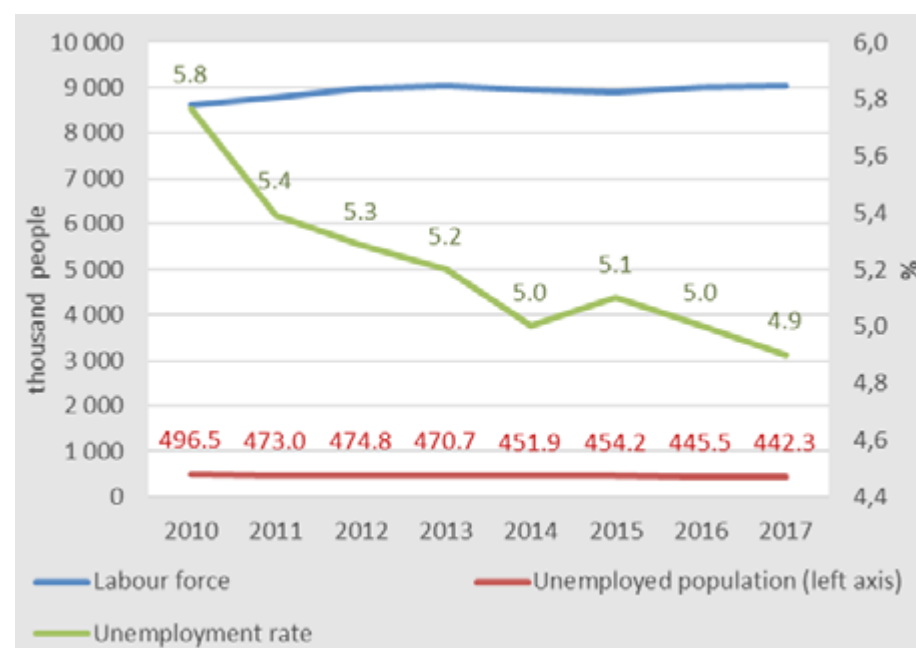
thousand people, %

In 2017, the unemployment rate was 2.81% in Japan, 3.75% in Germany and 4.89% in Poland.

**Definition:** The unemployment rate is the proportion of the number of unemployed in the labour force, measured in percent. It indicates the share of labour in the total population, which has no work, but is actively looking for it and is ready to start it.

The indicator is comparable to the Target 8.5 "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value" of Goal 8 of the UN SDGs.

Figure 1.11 Unemployment rate, thousand people, %, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise)/ Updated information (express information, bulletins)/Labour

The number of unemployed people in the country decreased and amounted to 442.3 thousand people in 2010-2017.

In order to implement the tasks, set in the Road Map "Employment-2020", it is planned to achieve the following results in Kazakhstan by 2020:

- the unemployment rate shall not exceed 5.0 %;
- the female unemployment rate shall not exceed 5.5 %;
- the youth unemployment rate (15-28 years) shall not exceed 4.6 %.

### 1-2.2 Socio - demographic patterns

#### Indicator 1.11 Population growth, structure and density

**Definition:** Natural population growth – the difference between the number of born alive and the number of deaths for a certain period.

The indicator is comparable to Target 3.d "Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks" of Goal 3 of the UN SDGs.

The Strategic Development Plan until 2025 notes that as a result of achievements in the economy and social development, the population of Kazakhstan increased by 1.2 million people in five years and amounted to 18.1 million people in 2017.

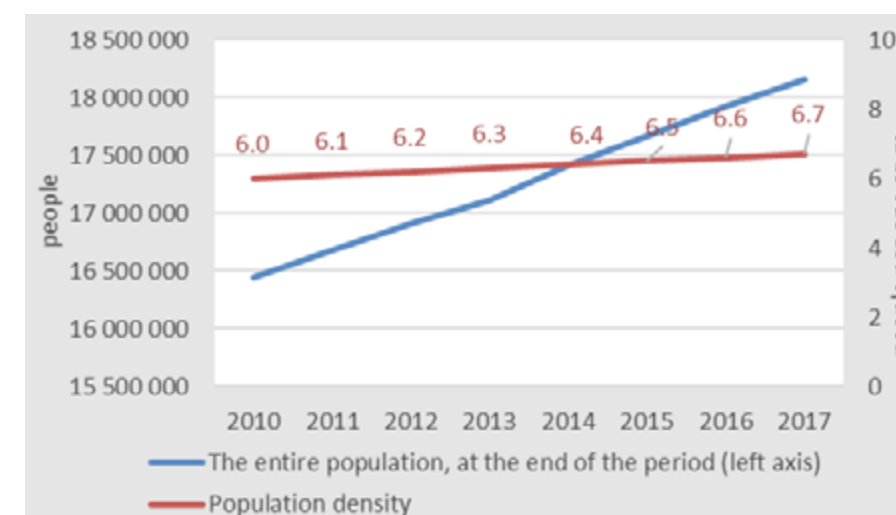
#### Key message:

In 2010-2017 the population increased by more than 1.7 million people and reached 18.2 million people at the end of 2017.

#### Unit of measurement:

people,  
people per km<sup>2</sup>,  
%

Figure 1.12 Population growth and density, people / people per one km<sup>2</sup>, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise)/Updated information (express information, bulletins)/Population

The main sources of information on the population of the country and its regions are the data obtained from the results of the nationwide censuses, civil registration and arrival and departure statistical coupons.

**Definition:** The structure of the population is the proportion of men and women in the total population, as well as the proportion of the population of a certain age to the total population.

The structure of the population is classified by gender and age and is calculated on the basis of the following indicators:

- share of men/women in the total population;
- share of the population of a certain age in the total population, the demographic load factors.

The number of women in the total population decreased from 51.8% to 51.6%.

**Definition:** Population density is the number of inhabitants per square kilometre of state or territory.

For the period under review population density increased by 11.7% and amounted to 6.7 people per 1 km<sup>2</sup> in 2017.

### Indicator 1.12 Life Expectancy at birth

#### Key message:

In 2010-2017, the life expectancy of Kazakhstani people have increased and amounted to 72.95 years.

#### Unit of measurement:

years

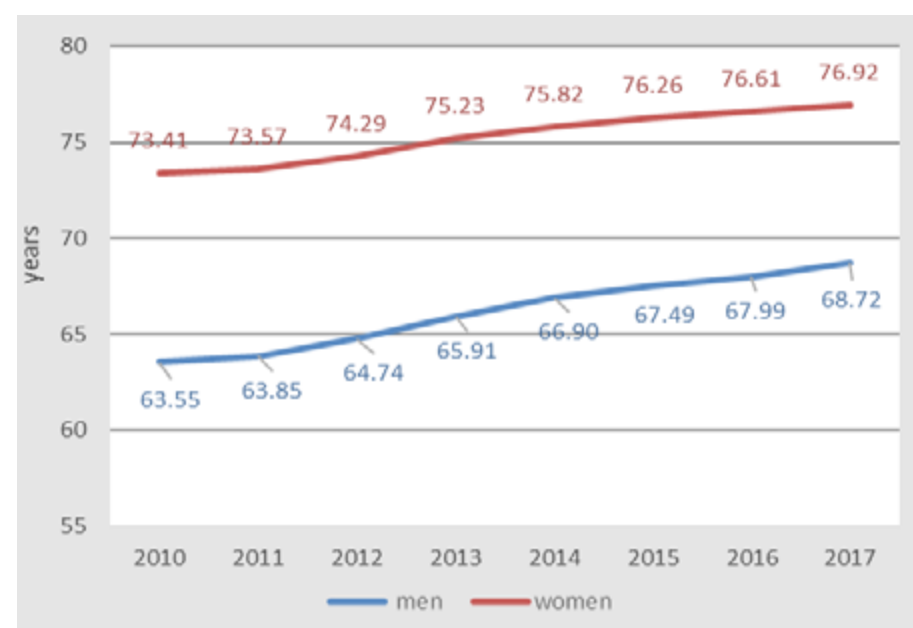
In the OECD countries in 2017, life expectancy for men ranges from 69.80 years in Latvia until 81.10 in Iceland and Japan, for women in Mexico - from 77.90 years, and in Japan - until 87.30 years.

In 2017, in Mexico and Turkey, the infant mortality rate was 12.100 and 9.200 cases per 1000 births, in Finland - 2.000 and in Iceland it was 2.700 cases per 1000 births.

**Definition:** Life expectancy at birth is the number of years that one person from the generation would have to live on average provided that throughout the life of that generation the mortality rate at each age remains the same as if the year for which the indicator is calculated.

The index is comparable to Goal 3 "Ensure healthy lives and promote well-being for all at all ages" of the UN SDGs.

Figure 1.13 Life expectancy at birth, years, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise)/Updated information (express information, bulletins)/Population

In 2017 the life expectancy of men was – 68.72 and of women – 76.92 years.

Maternal mortality rate has decreased 2.6 times compared to 2009, infant mortality – 2.3 times.

In 2017 the maternal mortality rate amounted to 14 cases per 100 thousand births, infant mortality – 7.93 per 1000 births.

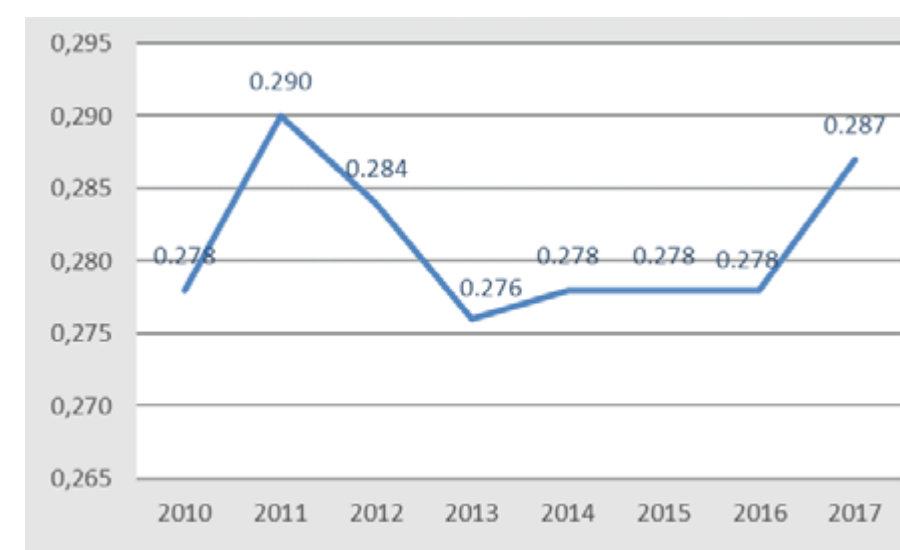
According to the Strategic Development Plan until 2025, it is expected to bring life expectancy at birth to 75 years by 2025 and 84 years - to 2050. Maternal mortality rate to 7.2 by 2025 and 3.5 by 2050, infant mortality to 10.0 by 2025 and 9.0 by 2050.

### Indicator 1.13 Income inequality: GINI coefficient

**Definition:** The inequality of income distribution among the population (Lorenz Income Concentration Coefficient or Gini Index) makes it possible to estimate the degree of inequality numerically. It establishes the degree of deviation of the actual distribution of income by numerically equal groups of the population from the line of their uniform distribution.

The indicator is comparable to the Target 1.2 "By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions" and indicator 10.1 "By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average" of Goals 1 and 10 of the UN SDGs.

Figure 1.14 GINI coefficient (by 10 percent decile groups), index, 2010-2017



Source: <http://stat.gov.kz> Official statistics (industry-wise)/ Updated information (express information/bulletins)/Living standards

The Gini coefficient has risen sharply in 2011 and then in 2013 it has shown a downward trend from 0.290 to 0.276.

Over the last few years there is a tendency of growth of social stratification of population in the country – indicator rose in comparison with 2010 from 0.278 till 0.287.

The Strategic Development Plan until 2025 provides for an increase in the share of income of the poorest 40% of the population in total income by 27.0% by 2025 and by 34.5% by 2050.

#### Key message:

In Kazakhstan proportion of the population with incomes below subsistence level has been reduced from 8.2% to 2.6% in the period of 2009-2017 due to taken comprehensive measures for social support of citizens.

#### Unit of measurement:

index

In 2017, the Gini coefficient in South Korea was – 0.355, Norway – 0.262



Indicator 1.14 Affordability of education

Key message:

In 2018, 30% of colleges and 44% of universities created equal conditions and barrier-free access for students with special educational needs.

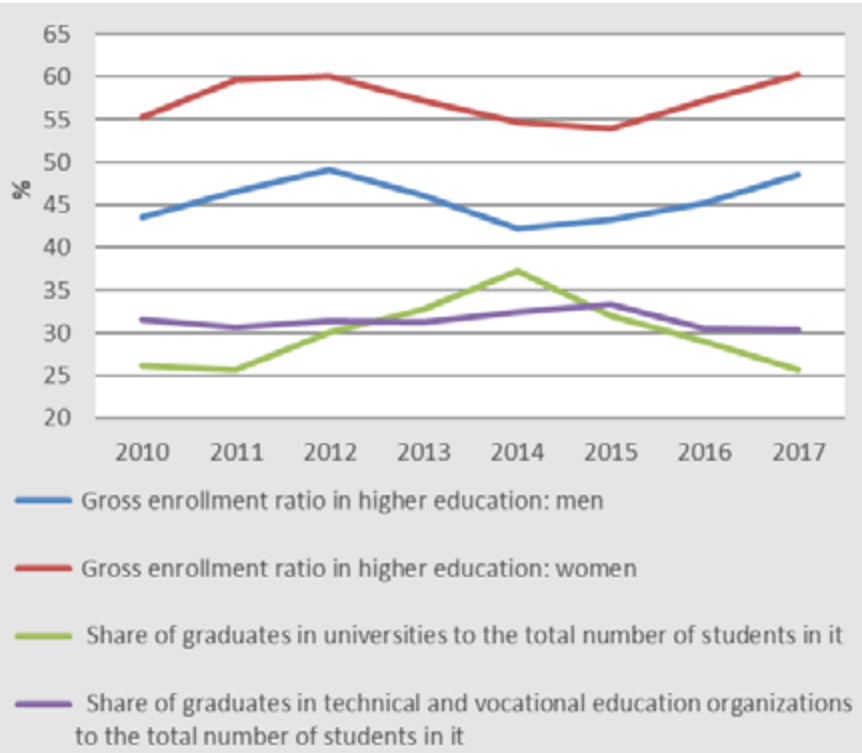
Unit of measurement:

people, %

**Definition:** Gross enrolment in higher education is defined as the number of students, regardless of their age, attending technical and professional education organizations (ISCE-5) and higher education institutions (ISCE-6-8) in relation to the total population aged 18-22 years.

The indicator is comparable to the Target 4.3 "By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university" of Goal 4 of the UN SDGs.

Figure 1.15 Gross enrolment ratio in higher education and the share of graduates in universities, in technical and vocational education organizations to the total number of students in it, %, 2010-2017



**Source:** <http://stat.gov.kz> Official statistics (industry-wise)/Updated information (express information, bulletins)/Environmental protection/Indicators of "green economy" of the Republic of Kazakhstan

Gross enrolment ratio in higher education among men increased from 43.63% to 48.55%, among women from 55.33% to 60.29%.

The share of graduates in the organizations of technical and vocational education to the total number of students in them slightly increased among men from 15.9% to 16.0%, among women decreased from 15.6% to 14.3%.

CHAPTER 2 THE ENVIRONMENTAL AND RESOURCE PRODUCTIVITY OF THE ECONOMY  
2-1. Carbon and energy productivity  
2-1.1 CO<sub>2</sub> productivity

Indicator 2.1 Production-based CO<sub>2</sub> productivity / CO<sub>2</sub> based production

**Definition:** The gross domestic product per unit of CO<sub>2</sub> emissions in the production process.

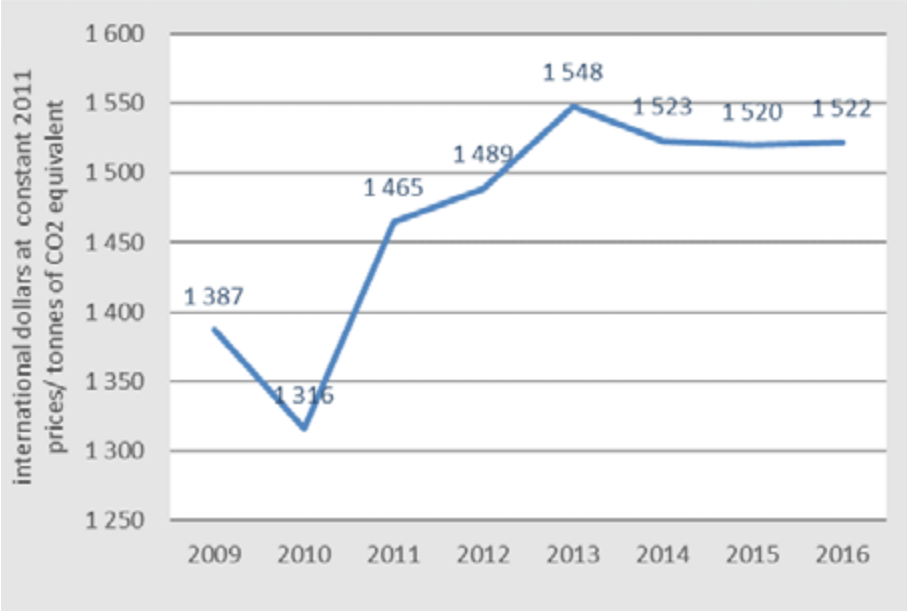
The indicator is comparable to the Target 7.3: "Double the improvement in energy efficiency" of UN SDG Goal 7.

Republic of Kazakhstan ratified the Paris Agreement (2015) and committed to reduce greenhouse gas emissions by 15% of 1990 emissions level by 2030 (unconditional goal) or reduce total national emissions by 25% (conditional goal).

Key message:

From 2009 to 2016 there is an increase in CO<sub>2</sub> productivity, which reached 1522 international dollars / tonnes of CO<sub>2</sub>- equivalent, which indicates risks in the implementation of the Paris Climate Agreement.

Figure 2.1 Production-based CO<sub>2</sub> productivity, international dollars at constant 2011 prices/ tonnes of CO<sub>2</sub> equivalent, 2009-2016



**Source:** <http://stat.gov.kz> Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

Negative dynamics of this indicator in recent years requires systemic measures for CO<sub>2</sub> emissions from all sectors of economics and developing a low-carbon strategy in accordance with the Paris Agreement.

According to the National Report of the Republic of Kazakhstan on the inventory of anthropogenic emissions from sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol for 1990-2016 years: the largest contribution to the total volume of greenhouse gas emissions is made by the energy sector – 79%, agriculture – 10%, industry – 6% and 2% comes from the "waste" sector.

Unit of measurement:

tenge in 2005 prices / tonnes of CO<sub>2</sub> equivalent;

USD in 2005 prices / tonnes of CO<sub>2</sub> equivalent;

international dollars at constant 2011 prices / CO<sub>2</sub> tonnes equivalent

## Indicator 2.2 Demand-based CO<sub>2</sub> productivity / Carbon productivity based on demand

### Key message:

During 2009-2016 CO<sub>2</sub> productivity based on demand increased by 2.3 times: from 68.2 tenge / tonnes of CO<sub>2</sub> - equivalent to 154.7 tenge / tonnes of CO<sub>2</sub> equivalent.

### Unit of measurement:

tenge / tonnes CO<sub>2</sub> equivalent

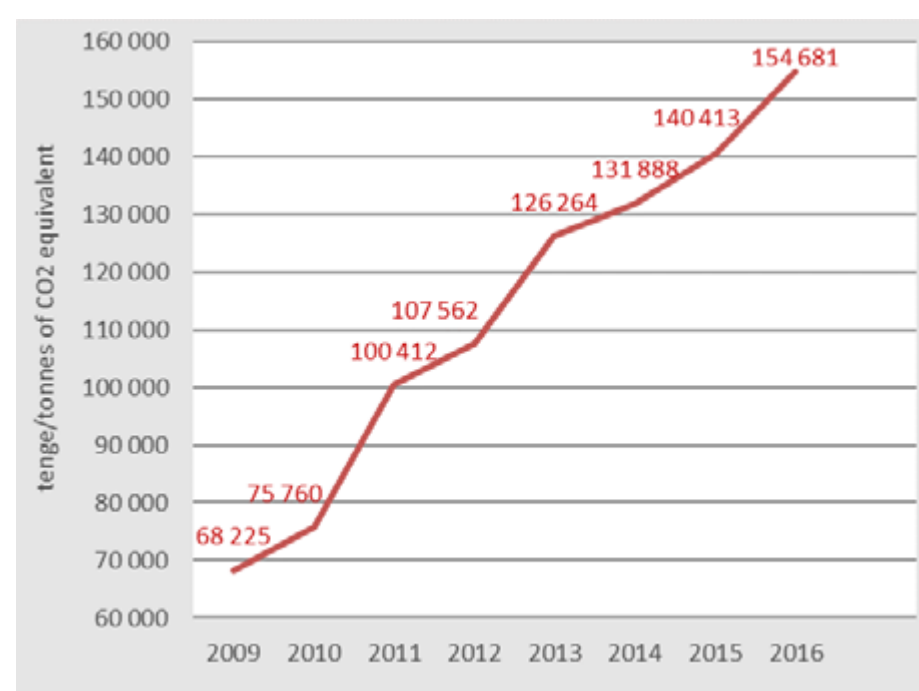
CO<sub>2</sub> emissions (demand-based) per capita across OECD countries averaged 10.78 tonnes in 2015.

**Definition:** The indicator is calculated as the ratio of gross disposable income to CO<sub>2</sub> emissions. Emissions associated with demand, include the amount in the process of production and use, implicit in imports, minus emissions inherent in exports.

The indicator is comparable to the Target 7.3: "Double the improvement in energy efficiency" of UN SDG Goal 7.

This indicator is an indicator of real income per unit of CO<sub>2</sub> emissions in the energy sector. According to the National Inventory, emissions in the energy sector take into account emissions from the production process, plus emissions from imports, minus emissions from exports.

Figure 2.2 Demand-based CO<sub>2</sub> productivity, tenge/tonnes of CO<sub>2</sub> equivalent, 2009-2016



**Source:** <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

The total greenhouse gas emissions per capita was 18.7 tonnes in 2016.

The growth of this indicator, despite the fact that it has not yet reached the limits of greenhouse gas emissions of 1990, requires the adoption of systemic measures, including economic incentives.

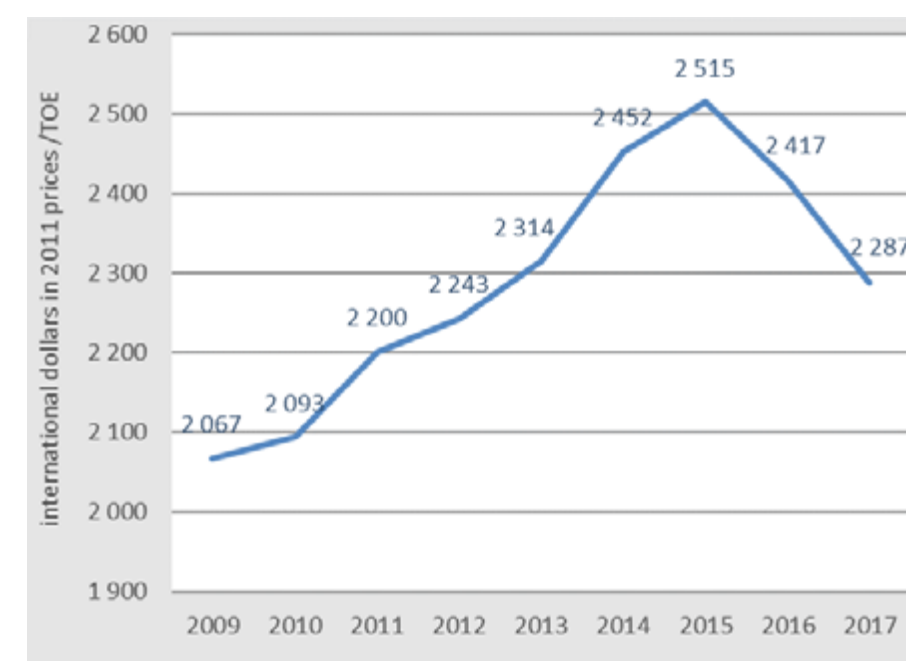
## 2-1.2 Energy productivity

### Indicator 2.3 Energy productivity

**Definition:** GDP (in constant prices), produced per unit of total primary energy production (TPES).

The indicator is comparable to the Target 7.3 "By 2030, double the global rate of improvement in energy efficiency" of Goal 7 of the UN SDGs.

Figure 2.3 Energy productivity, international dollars at 2011 prices /TOE, 2009-2017



**Source:** <http://stat.gov.kz> Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

The energy productivity of GDP increased by 21.7% in 2015 compared with 2009, but then decreased in 2017 and amounted to 2 287 international dollars in 2011 prices / TOE.

Enhanced energy efficiency of production was promoted by the adoption of the Law on Energy Saving, as well as the mandatory procedures for energy audit of enterprises.

### Box 1. Concept for the transition of Kazakhstan to a "green economy". Improving energy efficiency.

Increase in energy efficiency: reducing the energy intensity of GDP by 10% by 2015 and by 25% by 2020 compared with the 2008 baseline.

### Key message:

From 2009 to 2015, there has been a steady increase in energy productivity. From 2015 to 2017 energy productivity of GDP begins to decline.

### Unit of measurement:

thousand tenge at 2005 prices / TOE;

USD at 2005 prices / TOE;

international dollars at 2011 prices / TOE.

### Indicator 2.4 Energy intensity by sector

#### Key message:

In 2017, the energy intensity of GDP decreased by 16.8% compared with 2010 and amounted to 1.54 TOE / thousand USD in 2000 prices.

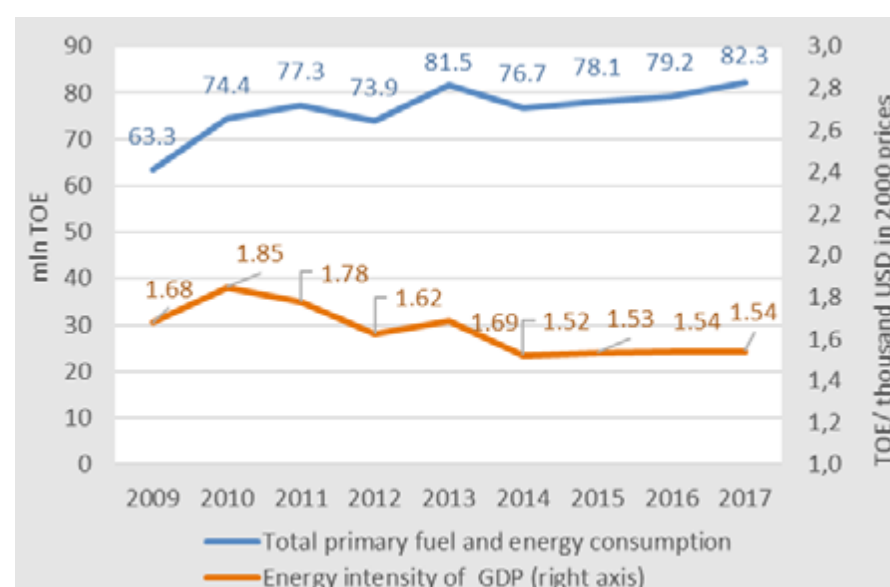
#### Unit of measurement:

million TOE,  
TOE/ thousand USD in  
2000 prices.

**Definition:** The amount of energy expended for a particular activity or output by sub-sectors (industrial production, transport, households, services) and final consumption goals.

The indicator is comparable to the Target 7.3 "By 2030, double the global rate of improvement in energy efficiency" of Goal 7 of the UN SDGs.

Figure 2.4 Energy intensity of GDP, million TOE, TOE/thousand USD in 2000 prices, 2009-2017



**Source:** <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

Data on energy intensity are given in the following sectors for the period 2013-2017:

1. Agriculture, forestry and fisheries. In 2013, the energy intensity was 0.10 TOE / per thousand USD in 2000 prices, in 2017 - the index increased by 0.1 and amounted to 0.11 TOE/ per thousand USD;
2. Industry. In 2013 the index was the highest and amounted to 0.46 TOE / per thousand USD in 2000 prices, then there is a gradual reduction and in 2017 it is 0.37 TOE/ per thousand USD in 2000 prices;
3. Transportation and warehousing. For the period 2013-2017 there is a gradual increase in the indicator: in 2013, the energy intensity was 0.33 TOE / per thousand USD in 2000 prices, and in 2017 this indicator is 0.37 TOE/ per thousand USD in 2000 prices.

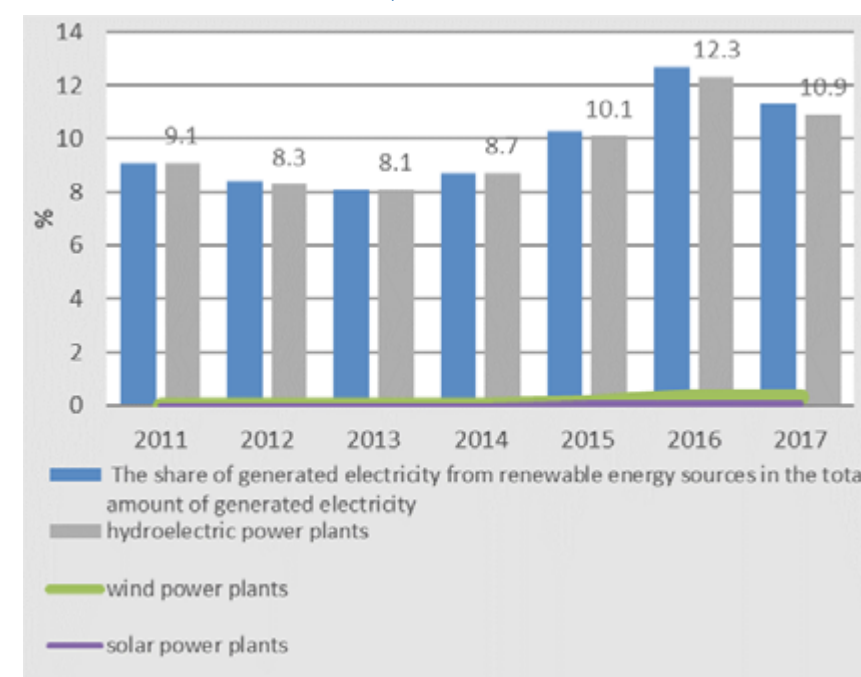
The energy intensity of GDP in Kazakhstan is 2-3 times higher than that of the OECD, in this connection, within the framework of the Strategic Development Plan until 2025, the goals are set to reduce the energy intensity of GDP by 2008 by 25% by 2025 and 50% by 2050.

### Indicator 2.5 Share of renewable energy sources/ Share of electricity generated from renewable energy sources (RES) in the total amount of produced electricity

**Definition:** The share of renewable energy resources (hydro power, wind power, solar power, biomass) in the total amount of electricity generated.

The indicator is comparable to the Target 7.2 "By 2030, increase substantially the share of renewable energy in the global energy mix" of Goal 7 of the UN SDG.

Figure 2.5 Share of renewable energy sources in the total amount of electricity generated (data includes big hydroelectric power stations), %, 2011-2017



**Source:** <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

The main share in renewable energy (without including big hydroelectric power stations) is electric power generated by hydroelectric power plants - 0.8% in 2017. The share of electricity generated by wind power plants is 0.3%, solar power plants produce 0.1% of electricity.

#### Box 2. Concept for the transition of Kazakhstan to a "green economy". Comprehensive scenarios for the development of the energy sector.

It is necessary to begin the development of renewable energy sector through the construction of wind and solar power plants:

- with the achievement of 3% share of WPP and SPP in the total electricity production by 2020;
- with the achievement of 10% of the share of WPP and SPP in the total volume of electricity production by 2030;
- transition to full-scale introduction of renewable energy after they reach an acceptable level of competitiveness compared to traditional sources, which is expected between 2020 and 2030;
- achievement of 50% share of alternative and renewable energy sources, including wind, solar, hydro and nuclear power plants in the total volume of electricity production.

#### Key message:

The share of electricity generated by renewable energy resources was 1.2% in 2017 (without including big hydroelectric power stations). This indicates a progressive increase in the volume of renewable energy in total electricity production.

#### Unit of measurement:

%

In 2014-2017 share of renewable energy in the OECD countries increased from 7.83% to 9.89% / or 1.3 times



2-2 Resource productivity  
2-2.1 Material productivity (non-energy)

Indicator 2.6 Waste generation intensity and recovery ratios

Key message:

In 2017 the share of processing and recycling of industrial waste was 30.9%, hazardous waste 22% (2016), solid household waste -9%, municipal waste - 14.8%.

Unit of measurement:

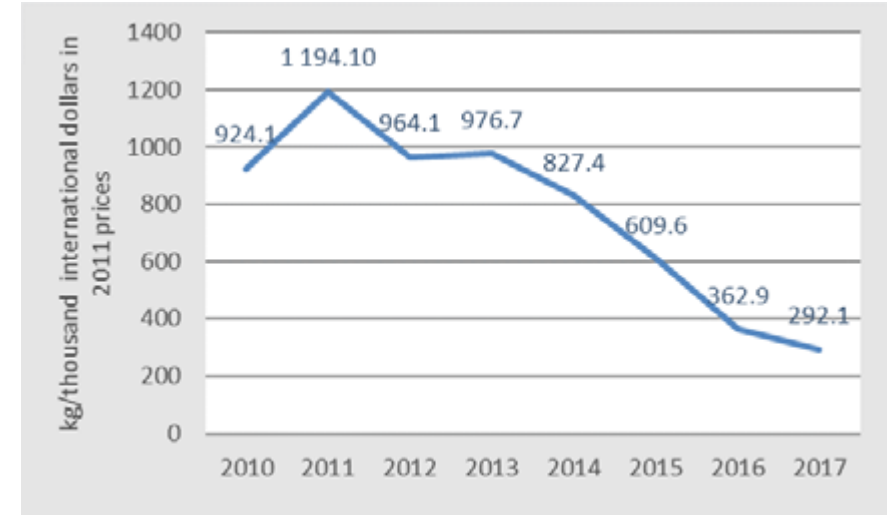
kg / thousand international dollars in 2011 prices, tonnes per capita

Level of recycled or composted municipal waste in the OECD countries increased from 34.18% in 2014 to 35.86% in 2017

**Definition:** The ratio of total waste generation per unit of GDP or value added.

The indicator is comparable to the Target 12.5 “By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse” of Goal 12 of the UN SDGs.

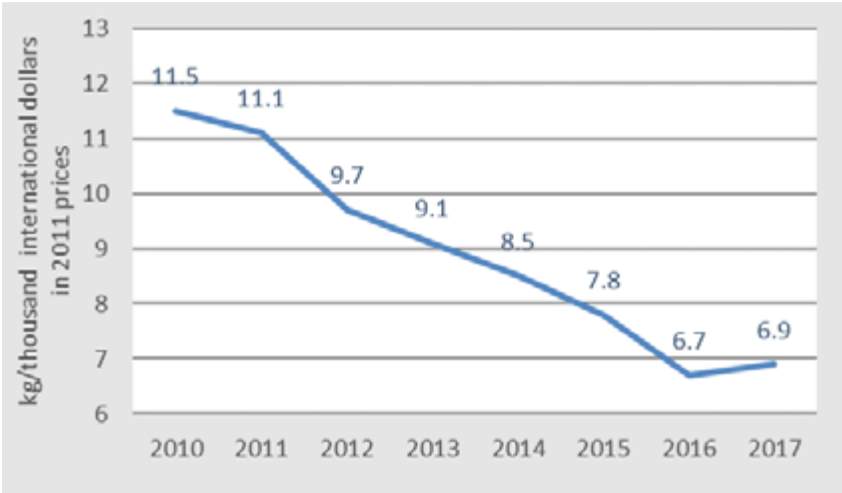
Figure 2.6 Intensity of hazardous waste generation per unit of GDP, kg/ thousand international dollars in 2011 prices, 2010-2017



Source: <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

In the period 2010-2017, the rate of the generation of hazardous waste decreased from 924.1 to 292.1 kg / thousand international dollars in 2011 prices.

Figure 2.7 Intensity of municipal waste generation per unit of GDP, kg/ thousand international dollars in 2011 prices, 2010-2017



Source: <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

In the period 2010-2017, the generation of municipal waste decreased, while at the same time, the amount of recycled municipal waste increased.

The share of recycling and reuse of municipal solid waste increased from 1.8% to 9% in 2015-2017, and the share of recycling and reuse of municipal waste increased from 1.9% to 14.8% in 2010-2017.

**Box 3. The concept of the transition of Kazakhstan to a “green economy”. Tasks: determining the target level of recycling of MSW.**  
Tasks: determination of the target level of solid waste recycling in the amount of up to 50% by 2050 and storage of the residual volume of solid waste at landfills that meet environmental and sanitary requirements, whose share should grow to 100% by 2050, that is, all landfills in the country shall meet the most modern environmental and sanitary requirements by 2050



### Indicator 2.7 Use of mineral and organic fertilizers/ Nutrient flows and balances (N, P)

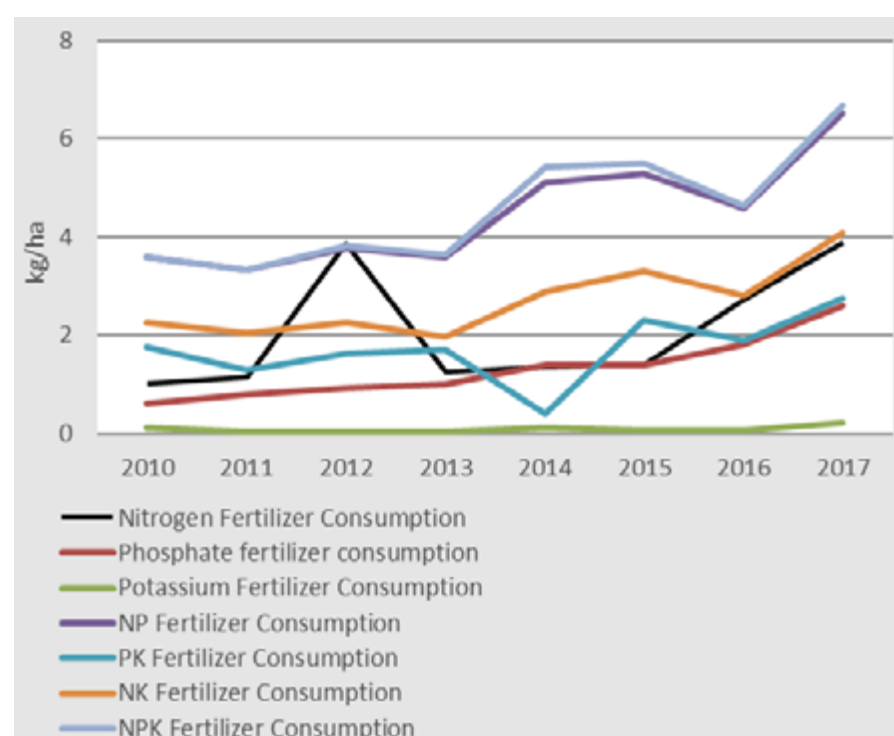
#### Key message:

Total amount of mineral fertilizers increased from 277 up to 462 thousand tonnes per year, organic fertilizers increased from 184.3 up to 463.6 thousand tonnes in 2010-2017.

**Definition:** Total consumption volume of mineral / organic fertilizers in thousand tonnes per unit area.

The indicator is comparable to the Target 2.4 "By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality" of Goal 2 of the UN SDGs.

Figure 2.8 Use of mineral fertilizers, kg/ha, 2010-2017



Source: <http://stat.gov.kz> Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

According to the State Program for the development of the agro-industrial complex of the Republic of Kazakhstan for 2017–2021, the annual agricultural need for mineral fertilizers is 1.0 million tonnes in active substance or about 2.5 million tonnes in physical weight, while the share of nitrogen fertilizers is 48%, the share of phosphate – 51%, the share of potash fertilizers – 1%.

The concentration of introduced nutrients in agricultural land (applied nitrogen, phosphorus in ha/kg) increased almost 1.6 times in 2014-2017.

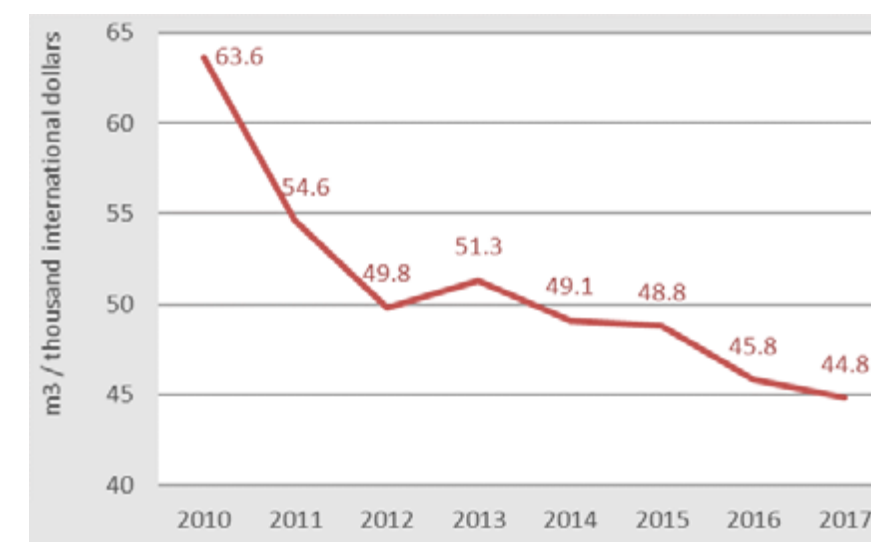
## 2-2.2 Water productivity

### Indicator 2.8 Water productivity

**Definition:** The economic result per unit of water expended by the economic sectors.

The indicator is comparable to the Target 6.4 "By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity" and indicator 6.5 "By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate" of Goal 6 of the UN SDGs.

Figure 2.9 Total water consumption per unit of GDP, m<sup>3</sup>/thousand international dollars, 2010-2017



Source: <http://stat.gov.kz> Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

In the period of 2010-2017 the volume of reused water and recycled water supply increased from 8028 million m<sup>3</sup> to 8934 million m<sup>3</sup>, which is 41.1% (2017) of the total volume of used fresh water.

#### Box 4. Concept for the transition of Kazakhstan to a "green economy". Increase water productivity.

Improving water productivity is one of the main six parameters of the Concept:

- Reducing the intensity of water use.
- Efficient use of water resources.
- The overall reduction in water use by 25% by 2030 in existing enterprises due to the introduction of water saving technologies in the energy, mining and metallurgical industries and the reuse of wastewater and recycling water.

#### Key message:

In all areas, there has been an increase in the productivity of water resources in 2010-2017, especially in mining industry, in trade.

#### Unit of measurement:

m<sup>3</sup>/ thousand international dollars at 2011 prices, tenge/m<sup>3</sup>

CHAPTER 3 THE NATURAL ASSET BASE  
3-1 Renewable stocks  
3-1.1 Freshwater resources

Indicator 3.1 Renewable resources/ Freshwater resources

Key message:

The amount of renewable natural resources decreased from 180.8 billion m<sup>3</sup> to 122.1 billion m<sup>3</sup>, the volume of domestic inflows decreased to 64 billion m<sup>3</sup>, the volume of inflow of surface and groundwater from neighbouring countries amounted to 58.1 billion m<sup>3</sup>.

Unit of measurement:

million m<sup>3</sup>

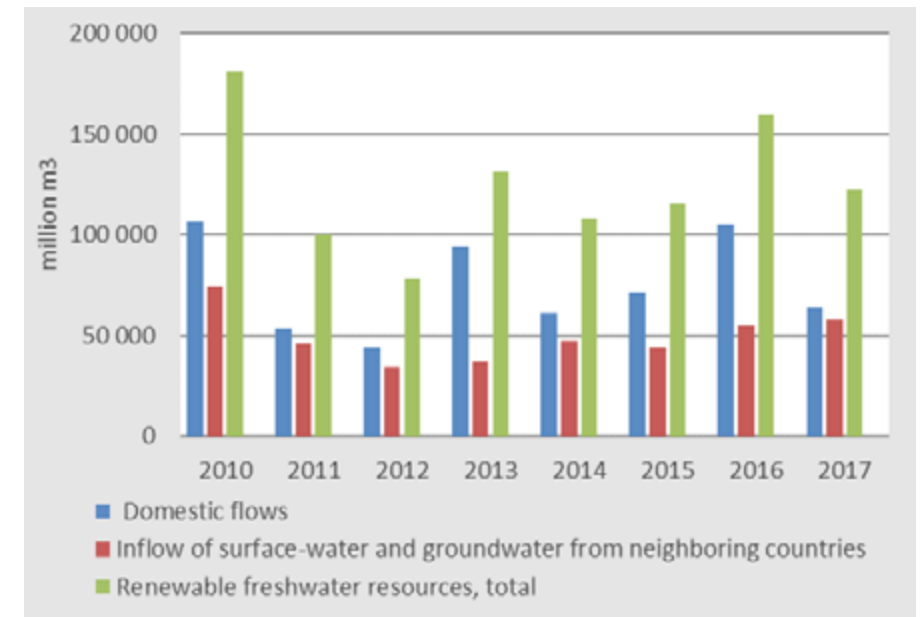
For 2010-2017 in the OECD countries freshwater intake per capita decreased from 823.92 to 804.49 m<sup>3</sup>.

**Definition:** Part of the water resources that are annually restored in the process of water cycle on the globe (global hydrological cycle).

The indicator is comparable to the Target 6.4 "By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity" and indicator 6.6 "By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes" of Goal 6 of the UN SDGs.

The main volume of water resources in Kazakhstan is provided by surface water in an average annual volume of 100.5 km<sup>3</sup>. Of these, 56% are formed locally, and the remaining 44% are due to the flow of transboundary rivers from China, Uzbekistan, Russia and Kyrgyzstan. Additional freshwater sources are groundwater, approved for operation, with reserves of 15.6 km<sup>3</sup> (of which per year extracted 1.05 km<sup>3</sup>), desalinated sea waters and other sources.

Figure 3.1 Renewable freshwater resources, million m<sup>3</sup>, 2010-2017



**Source:** <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

Freshwater abstraction amounted to 22 454 million m<sup>3</sup> in 2017. The nationwide volume of withdrawn fresh water usage: 15 125 million m<sup>3</sup> is accounted for agriculture, forestry and fisheries, 1 598 million m<sup>3</sup> for processing industry, 2 370 million m<sup>3</sup> for electric power enterprises and 403 million m<sup>3</sup> for household.

Indicator 3.2 Forest resources

**Definition:** The forest cover is the percentage ratio of land covered by forest to the total area of the country (land area).

The indicator is comparable to the Target 15.2 "By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally" of Goal 15 of the UN SDGs.

Key message:

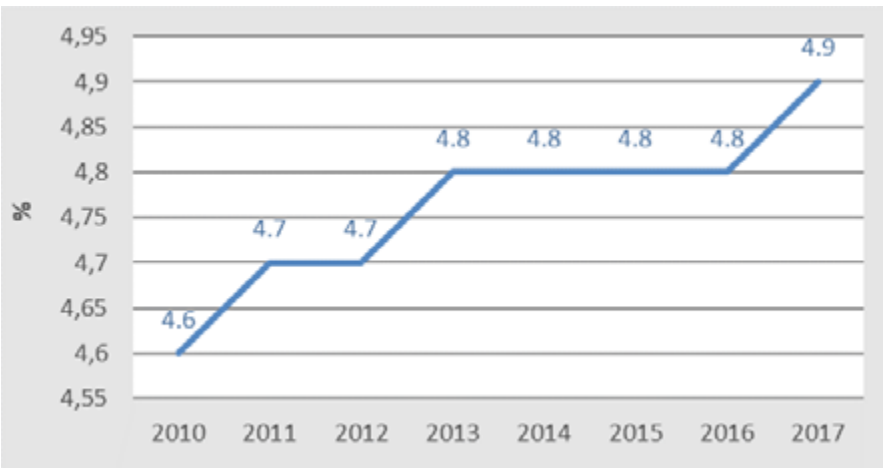
The forest cover of the territory increased from 4.6% to 4.9% in 2010-2017 of the total land area of the country.

Unit of measurement:

% of land area, km<sup>2</sup> per capita

In 2015 for the total OECD forest resources amounted to 79.594.78 million m<sup>3</sup>

Figure 3.2 Forest cover as a percentage to total terrestrial, %, 2010-2017



**Source:** <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

For 2010-2017 forest fund area increased by 1.1 million ha: from 28.7 million ha to 29.8 million ha. There is an increase in the total stock of standing timber, this figure increased by 41.2 million m<sup>3</sup> and amounted to 421.9 million m<sup>3</sup>.

The 2017 amendments to the Forestry Code allow for the transfer of lands of other categories to the forest fund. This should make it possible to enrich the forest estate by including forest areas that are not part of its lands.

According to the Strategic Development Plan until 2025, Kazakhstan will continue the policy of biodiversity conservation by increasing the forest cover and bringing it to 4.8% of country's territory.

Indicator 3.3 Fish stocks resources

Key message:

Fish stocks in general has a tendency to grow in large reservoirs of the country with the exception of Lake Balkhash, the Kigach River, the Zhaiyk River (Atyrau region) in 2010-2017.

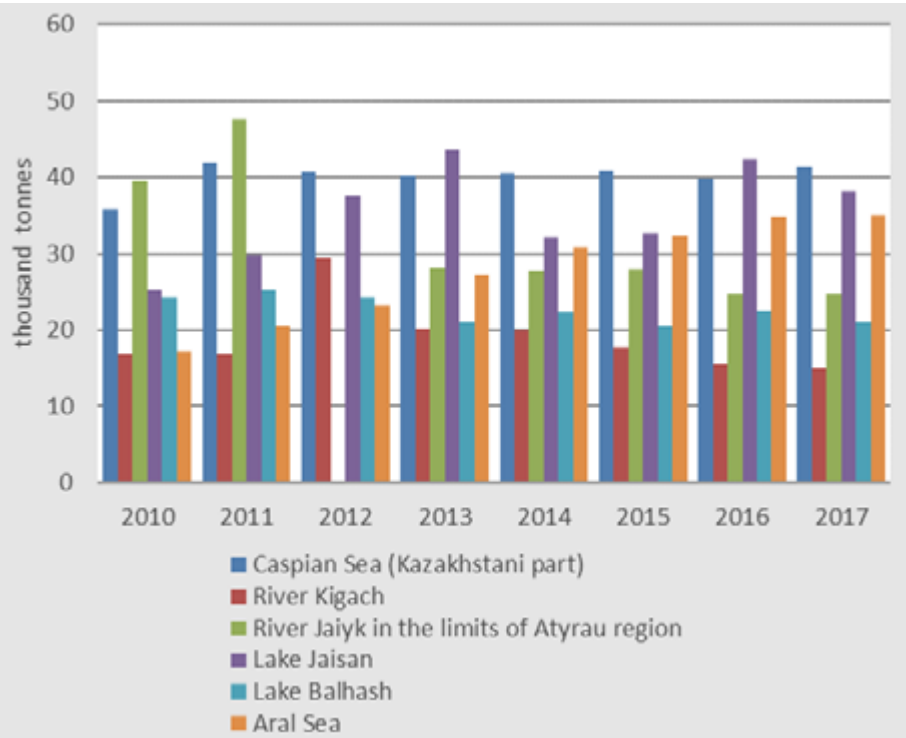
Unit of measurement:

thousand tonnes

Definition:

Fish stocks for selected reservoirs. The indicator is comparable to the Target 14.4: “By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics” of Goal 14 of the UN SDGs.

Figure 3.3 Fish resources of Kazakhstan (for selected reservoirs), thousand tonnes, 2010-2017



Source: <http://stat.gov.kz> Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

The indicator of fish resources on such rivers as Kigach, Zhaiyk, Lake Balkhash decreased, while at the same time in such water bodies of the country as the Caspian Sea, Lake Zaisan increased 1.2 and 1.5 times, in the Aral Sea more than 2 times in 2010-2017.

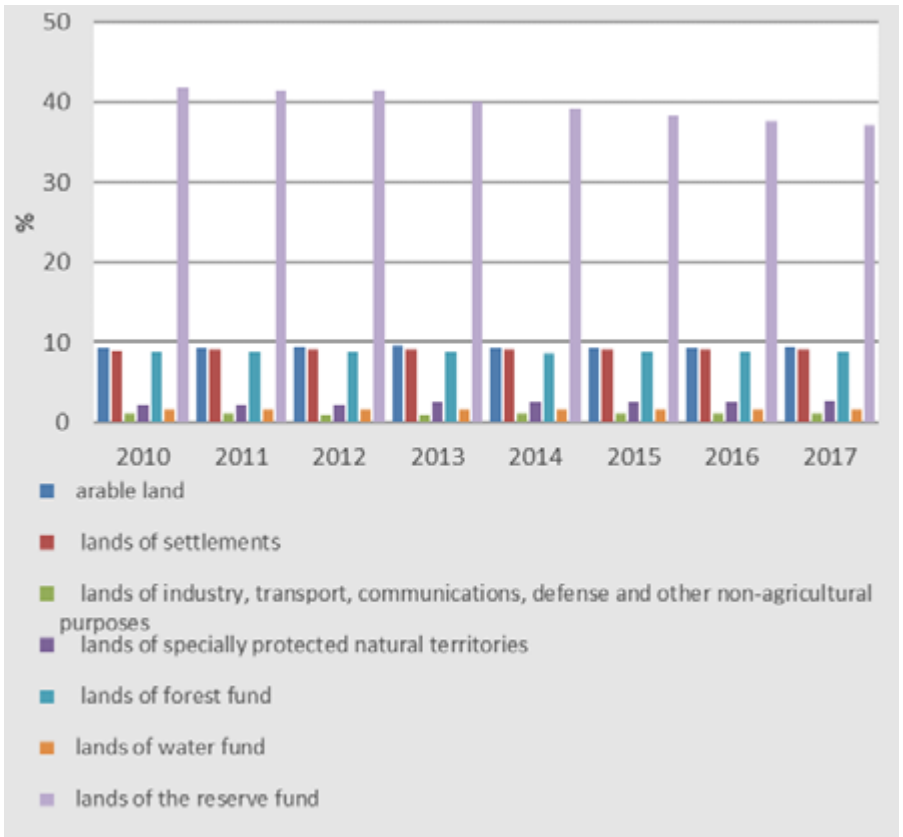
3-2 Biodiversity and ecosystems  
3-2.1. Biodiversity and ecosystems

Indicator 3.4 Land and soil resources

Definition: Land that is used or can be used in the process of economic and other activities to meet the material, cultural and other needs of society (article 12 of the Land Code).

The indicator is comparable to the Target 12.2 “By 2030, achieve the sustainable management and efficient use of natural resources” of Goal 12 of the UN SDG and to the Target 15.3 “By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world” of Goal 15 of the UN SDGs.

Figure 3.4 Land resources according to their purpose, % of the total land area, 2010-2017



Source: <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

The largest part of the land fund is occupied by reserve lands (37.1%), arable lands (9.5%), lands of settlements (9.1%) and forest reserves (8.8%). The lands of specially protected natural areas occupy 2.7 % of the land fund of the country.

The share of soils exposed to wind erosion in 2015 amounted 24% of the lands of agricultural designation, the share of soils exposed to water erosion was of 4.9%.

Key message:

For 2010-2017 the occupied lands of the reserve fund has decreased: from 41.8% to 37.1% (to the total land area), while the number of settlements and arable land increased by 0.2 and 0.3 percentage points, respectively.

Unit of measurement:

%, thousand ha

3-2.2 Wildlife resources

Indicator 3.5 Number of endangered species relative to the number of known or counted species / Trends in the number and prevalence of individual species

Key message:

The number of mammal species that are endangered in recent years has not changed. There is a tendency to increase in numbers in some species compared to 2010.

Unit of measurement:

thousand of head of livestock/ heads

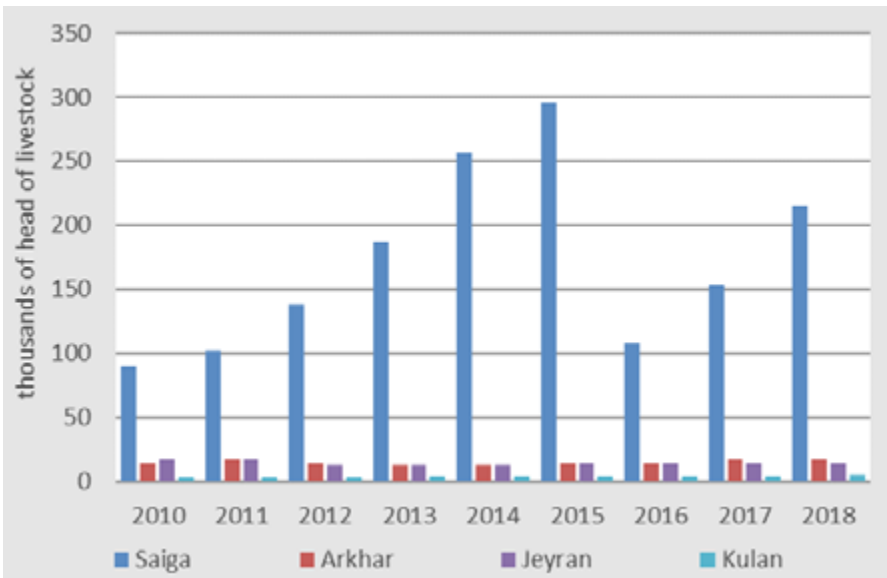
Number of mammal endangered species in Slovenia was 38.20%, in Ireland - 1.75% of the total number of species.

**Definition:** The population status of fauna and flora belonging to the species groups with the most important resource value and playing an important role from the point of view of biodiversity ("selected species").

The indicator is comparable to the Target 15.5 "Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species" of Goal 15 of the UN SDGs.

The 1999 edition of the Red Book of Kazakhstan includes: 128 species and subspecies of invertebrates, 18 fish and cyclostomes, 3 amphibians, 10 reptiles, 58 birds, 40 mammals. The plant list includes 387 plant species, 13 mushroom species and one lichen species. The Red Book includes such animals as snow leopard, sand cat, manul, red dog, cheetah, gazelle, argali, tugai deer, Tien-shan brown bear and other animals.

Figure 3.5 Trends in the number and distribution of selected species, thousands of head of livestock, 2010-2018



Source: <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

During the same period, the number of tugai deer increased from 418 to 856 heads.

According to 2018 data, the number of endangered mammal species is 9 (5% of the total amount of species), of which species in critical condition are 5 (2.8%), in a dangerous – 22 (12.3%), vulnerable species – 4 (2.2%). Also distinguish protected species – 40 (22.2%).

The number of endangered species of birds is 15 (3%), in critical condition – 16 (3.2%), the number of dangerous species of birds is 18 (3.6%).

The quantity of endangered fish species – 17 (33%).

For systematic work on the conservation of biodiversity, approval of a National Biodiversity Strategy is required in accordance with Article 6 of the Convention on Biodiversity.

Box 5. Strategic Development Plan of Kazakhstan until 2025. Objectives for biodiversity conservation.

The work to preserve endemic, rare and endangered species, unique reference sites and natural ecosystems will be continued to increase the area of specially protected natural areas. In the period until 2025, it is planned to create two more national parks, three natural reserves and bring the area of specially protected areas of Kazakhstan to 10-12% of the total area of the country.



## CHAPTER 4 THE ENVIRONMENTAL DIMENSION OF QUALITY OF LIFE

### 4-1 Environmental quality of life. Environmental health and risks

#### 4-1.1 Environmentally induced health problems and related costs

#### Indicator 4.1 Ground-level ozone concentration in cities

##### Key message:

Monitoring of the mean ozone concentrations of ground-level ozone has been conducted in all cities of Kazakhstan since 2015.

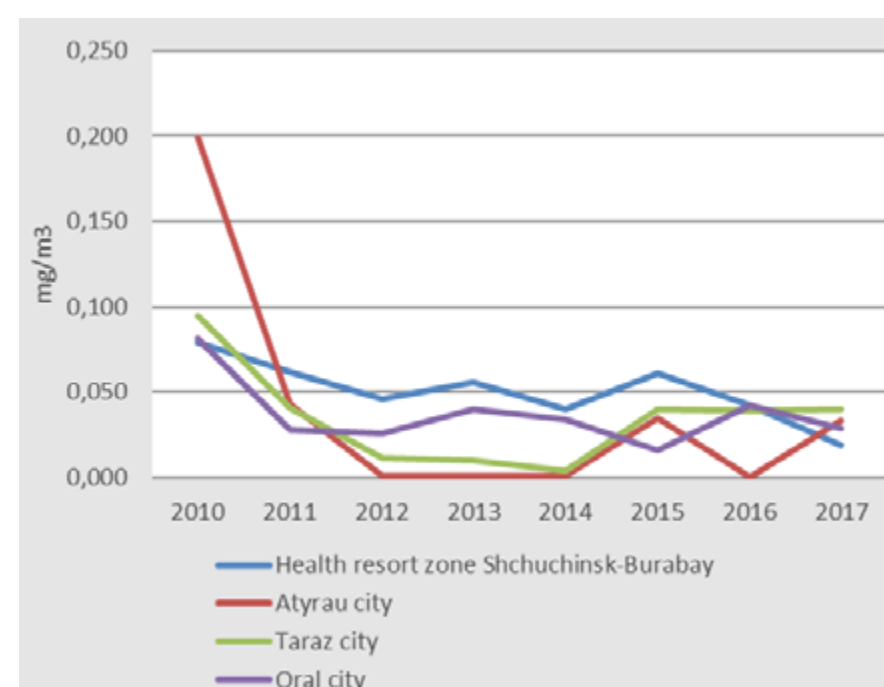
##### Unit of measurement:

mg/m<sup>3</sup>

**Definition:** The weighted total sum of daily maximum 8-hour average ozone concentrations in cities above a certain threshold.

The indicator is comparable to the Target 11.6 "By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management" of Goal 11 of the UN SDGs.

Figure 4.1 Average concentration of ground-level ozone in selected cities, mg/m<sup>3</sup>, 2010-2017



**Source:** <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

According to data of RSE Kazhydromet in 2017 the highest average ozone concentration was observed in Aktobe (0.083 mg/m<sup>3</sup>), Nur-Sultan (0.06 mg/m<sup>3</sup>), Shymkent (0.056 mg/m<sup>3</sup>).

The average concentration of ozone in Atyrau in 2010 was at the level of 0.199 mg/m<sup>3</sup>, then the indicator significantly decreased and in 2017 and amounted to 0.033 mg/m<sup>3</sup>.

#### Indicator 4.2 Particulate matter

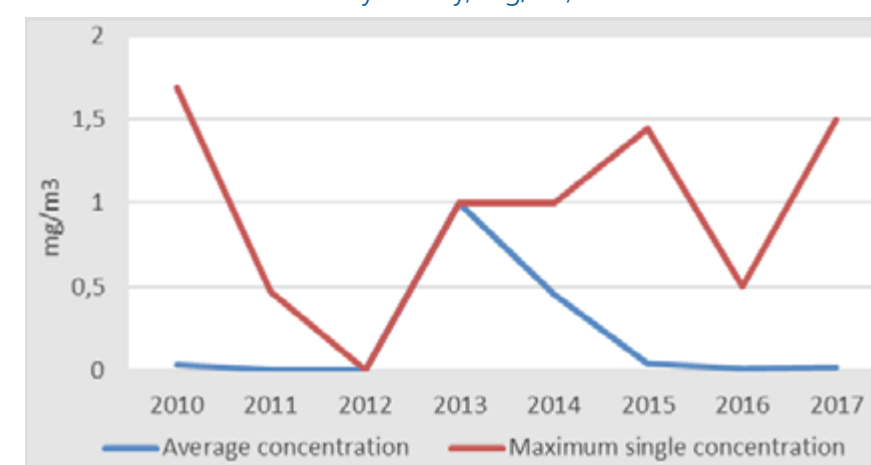
**Definition:** Small particulates are suspended particulates of less than 10 µm in diameter (PM<sub>10</sub>), fine particulates are particulates smaller than 2.5 microns in diameter (PM<sub>2.5</sub>).

The indicator is comparable to the Target 11.6 "By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management" and the indicator 11.6.2 "Annual mean levels of fine particulate matter (e.g. PM<sub>2.5</sub> and PM<sub>10</sub>) in cities (population weighted)" of Goal 11 of the UN SDG.

It is known that air pollution is one of the main threats that responsible for human health problems and the cause of various diseases.

The greatest danger to health is a mixture of liquid and solid particles (PM), which is suspended in atmospheric air. Particularly high concentrations of suspended particles are usually measured near highways and industrial facilities, in cities with a large number of vehicles and with high population density.

Figure 4.2 Concentration of Particulate matter (PM<sub>10</sub>) in the Atyrau city, mg/m<sup>3</sup>, 2015-2017



**Source:** <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection /Green economy indicators

For the period of 2010-2017 the highest emissions of fine particulate matters are observed in the cities of Aktobe, Almaty, Atyrau and Shymkent. The maximum concentration of fine particulate matters in these cities in 2017 is 1 mg/m<sup>3</sup>.

#### Box 6. Concept for the transition of Kazakhstan to a "green economy". Tasks: to reduce air pollution.

The following measures need to be implemented:

- 1) modernization and installation of dust and gas cleaning equipment at generation and industrial facilities located near major cities and bringing the emission indicators to the existing standards in accordance with the developed road map;
- 2) transfer of the existing coal-fired power plants to gas in the presence of available infrastructure, volumes of gas and economic expediency;
- 3) upgrading of large boilers of coal-fired power plants with the installation of modern equipment that controls the level of emissions of dust, sulphur dioxide and nitrogen oxide. Smaller capacity boilers can be left in operation until the end of their service life to meet the demand for electricity.

##### Key message:

Fine particles cause irreparable damage to the lungs and human bronchi, contribute to the growth and development of cardiovascular diseases.

##### Unit of measurement:

mg/m<sup>3</sup>

Overall, in the OECD countries the average population exposure to PM<sub>2.5</sub> decreased from 15.44 to 12.50 mcg / m<sup>3</sup> in 2010-2017.

Indicator 4.3 Environmental harm to public health and the costs to society

Key message:

Kazakhstan has not held in recent years, systematic research on the effects of environmental risks on population health.

Unit of measurement:

units, million tenge

In the OECD countries social security costs of premature death from the effects of atmospheric ozone, in terms of GDP increased 1.1 times.

**Definition:** An impact of air and water pollution on the population. Exposure to natural or industrial risks and related economic losses. Quantity of diseases caused by air pollution.

In 2014-2016, the SP National Center for Occupational Hygiene and Occupational Diseases in conjunction with the Karaganda State Medical University, Astana Medical University, the SP "Scientific Center of Paediatrics and Paediatric Surgery" and other scientific centers of the country completed the STP "Comprehensive approaches to managing the state of public health of the Aral Sea region. Objective of the research was to develop the list of environmental-related diseases among the population of the Aral Sea region and management decisions on their regulation. Investigations were conducted in 9 localities of the south-western part of the country.

The high infant mortality rate in the Aral Sea region was identified, which depends on the content of metals in drinking water, the prevalence of respiratory diseases, digestive organs, blood diseases, the connection of diseases with the presence of chlorides, sulphates and metals in the environment, increased disability, structural features of primary oncological morbidity (cancer of the esophagus, stomach, liver). Violations of the male and female reproductive system and humoral immunity, reduced body length in children, the development of functional disorders of the cardiovascular system and the gastrointestinal tract, iron deficiency anemia, and bronchial asthma were revealed.

STP "Comprehensive approaches in managing the health status of the population of the Aral Sea region" (the implementation timeframe was 2014-2016, the amount of funding – 861 906.3 thousand KZT, including –317 000.0 thousand KZT in 2014, in 2015 –324 371.0 thousand KZT, in 2016 – 220 536.0 thousand KZT).

On the basis of the data of the Ministry of Health, the incidence of acute intestinal infections associated with poor water quality has increased from 100 to 106 cases in 2010-2017.

According to strategic documents, the main result of Kazakhstan's policy in the field of "green" economy and environmental protection will be an increase in the quality of life of the population, environmental safety, reduction of environmental risks and environmental scarcity, sustainable development and increased competitiveness.

4-1.2 Exposure to natural or industrial risks and related economic losses

Indicator 4.4 Damage from natural disasters/Number of natural disasters and the amount of damage from natural disasters

**Definition:** The indicator reflects the amount of damage and the number of natural hazards in Kazakhstan as a whole.

The indicator is comparable to the Target 13.2 "Integrate climate change measures into national policies, strategies and planning" of the Goal 13 of the UN SDGs.

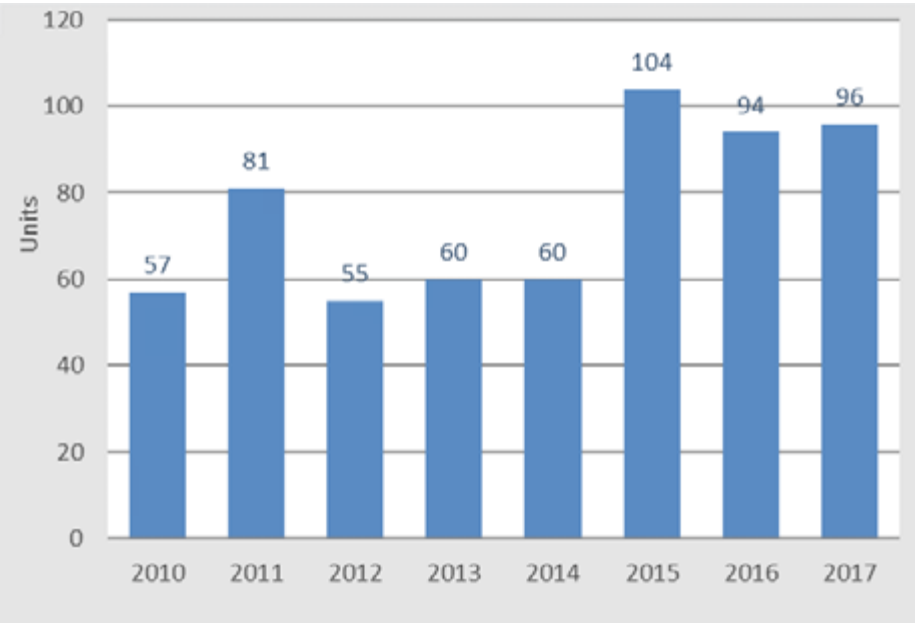
Key message:

The number of natural hazards increased from 57 to 96 in 2010-2017.

Unit of measurement:

units, million tenge, people

Figure 4.3 Number of natural hazards in Kazakhstan, units, 2010-2017



**Source:** <http://stat.gov.kz> Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators/ information by Emergency Committee of the Ministry of Internal Affairs of Kazakhstan

The largest number of natural hazards is observed in Akmola, Almaty, East Kazakhstan, Zhambyl regions. Not a single phenomenon was registered in Atyrau, Mangystau regions and in Nur-Sultan.

The amount of funds allocated from the reserve of the Government aimed at the prevention and elimination of natural disasters for the period 2015-2018 amounted to 9.6 billion tenge.

According to the Committee on Emergency Situations of the Ministry of Internal Affairs of Kazakhstan for 2017, an average of 17 thousand emergencies and accidents were registered, in which 1094 people were killed and 3.5 thousand people were injured.

4-2 Environmental services  
4-2.1 Access to sewage treatment and drinking water

Indicator 4.5 Population with sustainable access to safe drinking water

Key message:

In 2011-2017, share of urban population with access to safe drinking water increased from 82% to 93.8%.

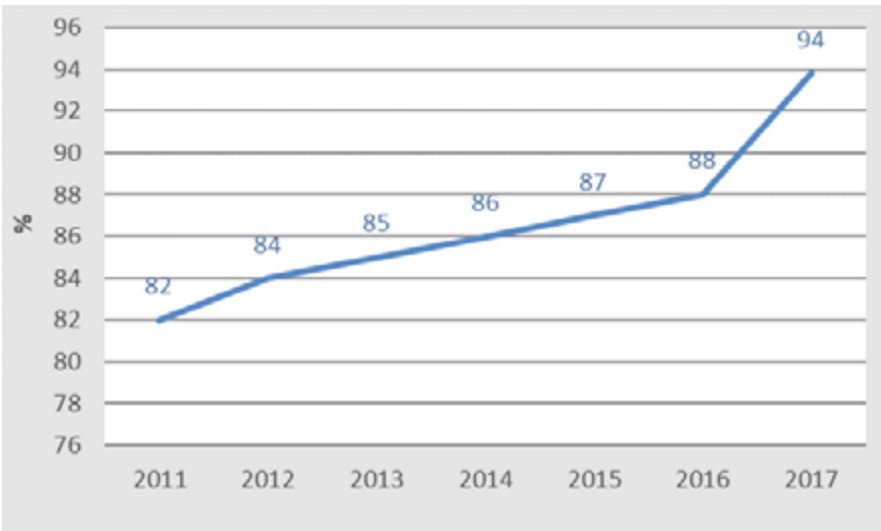
Unit of measurement:

%, people

**Definition:** The proportion of people using improved drinking water sources: household connection; public standpipe; borehole; protected dug well; protected spring; rainwater and affordable water for drinking.

The indicator is comparable to the Target 6.1 “By 2030, achieve universal and equitable access to safe and affordable drinking water for all” of the Goal 6 of the UN SDGs.

Figure 4.4 Share of urban population connected to central water supply, %, 2011-2017



Source: <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

In 2017, there was a sharp increase in the indicator and the share of the population connected to the system of main water supply in cities reached 94% of the population.

The share of rural population with sustainable access to the central drinking water supply increased to 80.5%.

Box 7. Strategic Development Plan of Kazakhstan until 2025. Ensuring access to drinking water.

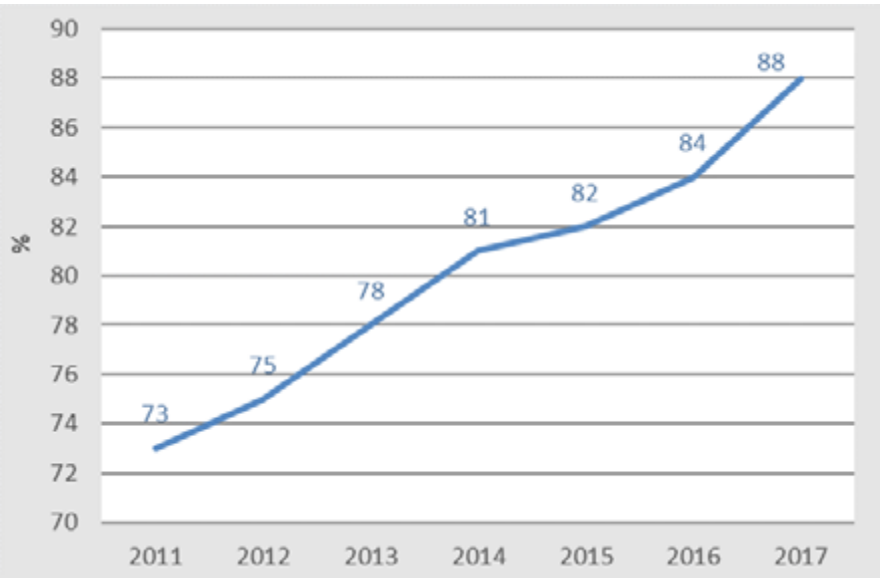
Initiative 5.15 “Ensuring Access to Drinking Water”. To provide the population with drinking water of appropriate quality and in full, as well as the necessary level of wastewater treatment, the construction of new water supply and sanitation facilities and the reconstruction of existing facilities will continue. The allocation of budget funds for these purposes will increase. As a result, by 2025 all cities will be provided with centralized water supply, and the level of centralized water supply in the villages will be 80%.

Indicator 4.6 Population connected to sewage treatment / Population with access to sewage and wastewater treatment systems

**Definition:** The percentage of the resident population that is connected to a wastewater treatment plant and to sewage.

The indicator is comparable to the Target 6.2 “By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations” of the Goal 6 of the UN SDGs.

Figure 4.5 Share of urban population connected to sewage, %, 2011-2017



Source: <http://stat.gov.kz>. Official statistical information (by sector) /Operational data (express information, bulletins) / Environmental protection / Green economy indicators

According to the Regional Development Program until 2020, it is planned to provide access to centralized sewage systems 97% of population in cities and 13% in rural areas by 2019.

The share of normative-treated wastewater in the total volume of wastewater discharged through treatment plants in urban areas increased from 74.1% to 81.2% in 2010-2017.

Key message:

Proportion of population having access to sewage services during 2010-2017 increased by 15 percentage points and amounted to 9.1 million people or 88% of urban population.

Unit of measurement:

people, %

CHAPTER 5 THE ECONOMIC OPPORTUNITIES  
AND POLICY RESPONSES  
5-1 Technology and innovation  
5-1.1 Research and development (R&D) expenditures  
of importance to green growth

Indicator 5.1 R&D expenditure of importance to green growth

Key messages:

In Kazakhstan, the development of indigenous technologies is limited due to the low level of R&D funding.

Unit of measurement:

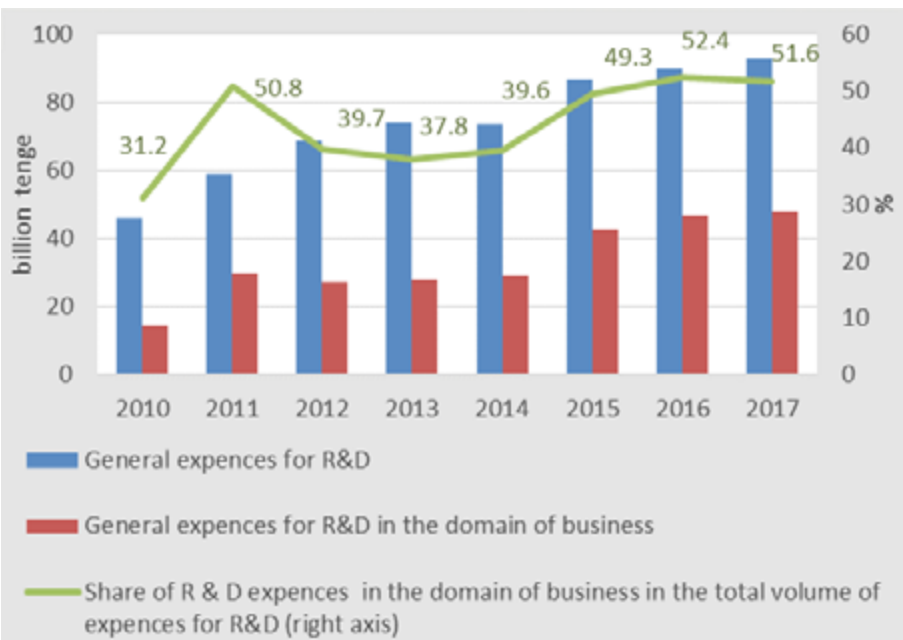
billion tenge, %,

In the OECD countries, R & D expenses increased from 2.28% of GDP in 2010 to 2.37% in 2017.

**Definition:** Research and development (R&D) — a set of activities/ services, including scientific research, experiments, search, research and production of experimental and small-scale product samples, prior to the launch of a new product/service in industrial production in order to preserve natural resources and related to green growth.

The indicator is comparable to the Target 9.5 “Intensify research, increase the technological potential of industrial sectors in all countries, especially of developing countries, including by stimulating innovation by 2030 and a significant increase in the number of R&D employees per 1 million people, and also public and private expenditures on R&D” of the Goal 9 of the UN SDGs.

Figure 5.1 Business R&D expenditures, billion tenge, %, 2010-2017



Source: <http://stat.gov.kz> Official statistical information (by industry)/ operational data (express information, newsletters)/Environmental Protection/Green Economy Indicators

The amount of R&D in 2017 accounted for almost 0.2% of GDP, while the Strategic Development Plan of Kazakhstan until 2025 provides for an increase of this indicator to 1% of GDP.

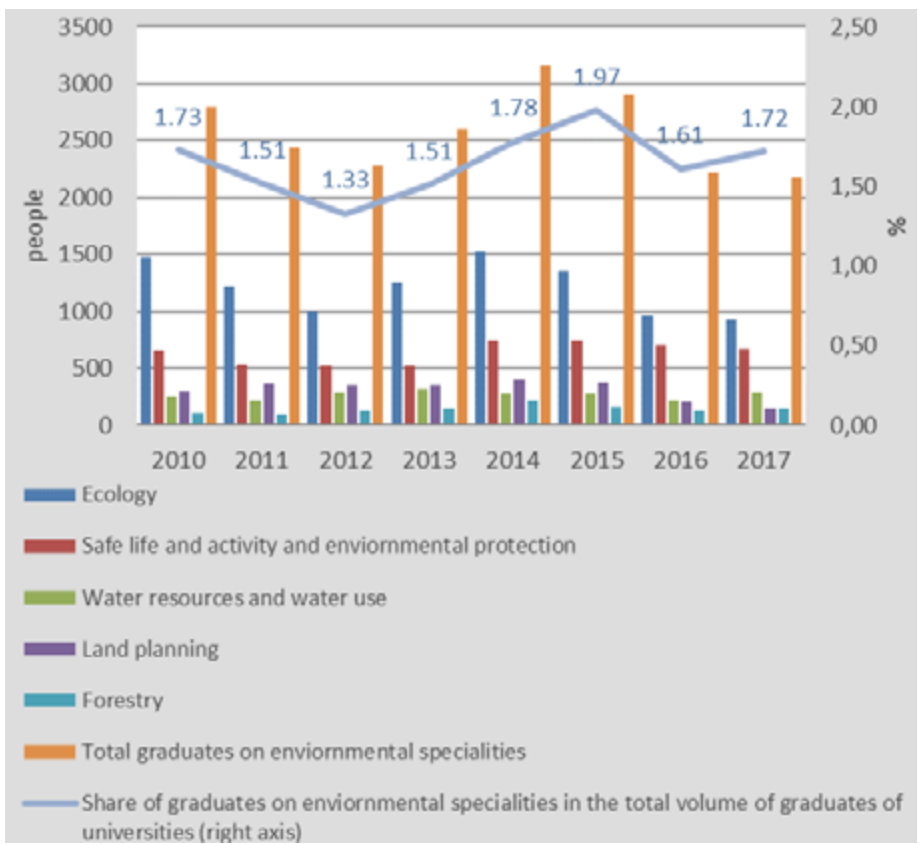
For the period of 2014-2017, the largest volume of expenditures on scientific projects related to the “green economy” accounted for 2015 and amounted to 109.8 million tenge, in 2017 the figure decreased and amounted to 84.6 million tenge.

Indicator 5.2 Graduation of specialists by higher  
educational institutions in environmental specialties

**Definition:** Number of specialists trained by institutions of higher education in environmental specialties.

The indicator is comparable to the Target 4.3 “By 2030, ensure equal access for all women and men to low-cost and high-quality vocational and higher education, including university education” of the Goal 4 of the UN SDGs.

Figure 5.2. Graduation of specialists in higher education institutions in environmental specialties, people, %, 2010-2017



Source: <http://stat.gov.kz> Official statistical information (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators.

According to the MES of RoK, in 2017 graduates of universities in environmental specialties accounted for 2182 people.

Key message:

The share of graduates in environmental specialties in the total number of graduates of universities in the country varies from 1.33 in 2012 to 1.72 % in 2017.

Unit of measurement:

people, %



5-1.2 Patents of importance to green growth

Indicator 5.3 Patents of importance to green growth /  
Number of issued licenses in the field of environmental protection

Key message:

According to the National Institute of Intellectual Property under the Ministry of Justice of Kazakhstan, there are 2750 patents (or 7.6% of the total number of patents) related to environmental or clean energy technologies in the total number of patents

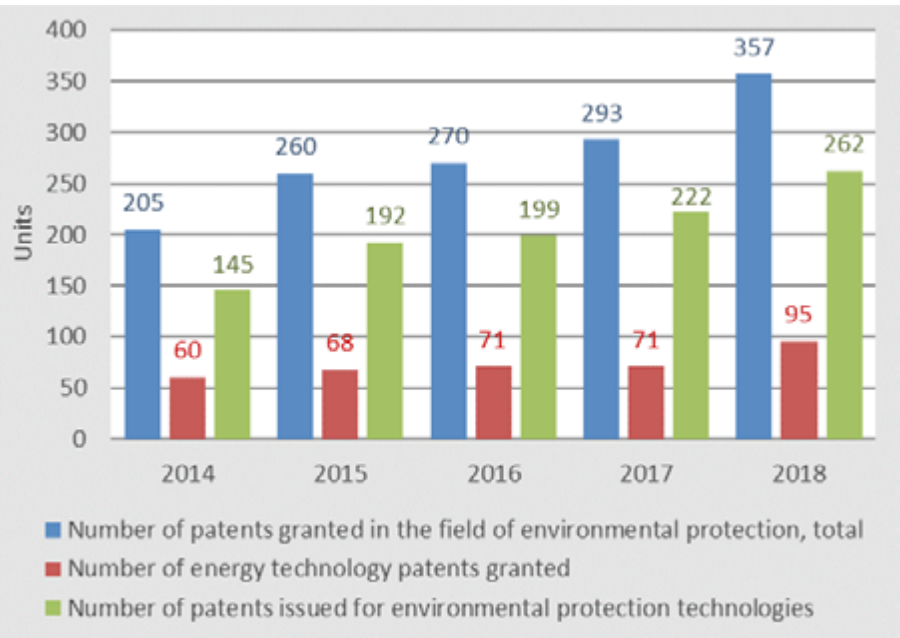
Unit of measurement:

unit

Definition: Patents related to the green growth.

The indicator is comparable to the Target 9.b “To support the development, research and innovation in the field of domestic technologies in developing countries, including by creating a political climate conducive to, among other things, industrial diversification and increased value added in primary industries” of the Goal 9 of the UN SDGs.

Figure 5.3 Number of issued patents, units, 2014-2018



Source: <http://stat.gov.kz> Official statistical information (by industry) operational data (express information, bulletins)/Environmental protection/ Green economy indicators

Environmental management systems are not yet widespread, although they are more frequently used in sectors that are more dependent on international markets. In 2016, there were 148 valid certificates in Kazakhstan (of which 133 confirmed compliance with ISO 14001: 2004 and 15 – ISO 14001: 2015, which is a very small number given the number of regulatory objects in Kazakhstan.

In the period from 2014 to 2018 the number of patents granted in the field of environmental protection increased in 2014 from 205 to 357 in 2018, including energy technologies from 60 to 95 and environmental technology from 145 to 262 units.

5-1.3 Environment-related innovation in all sectors

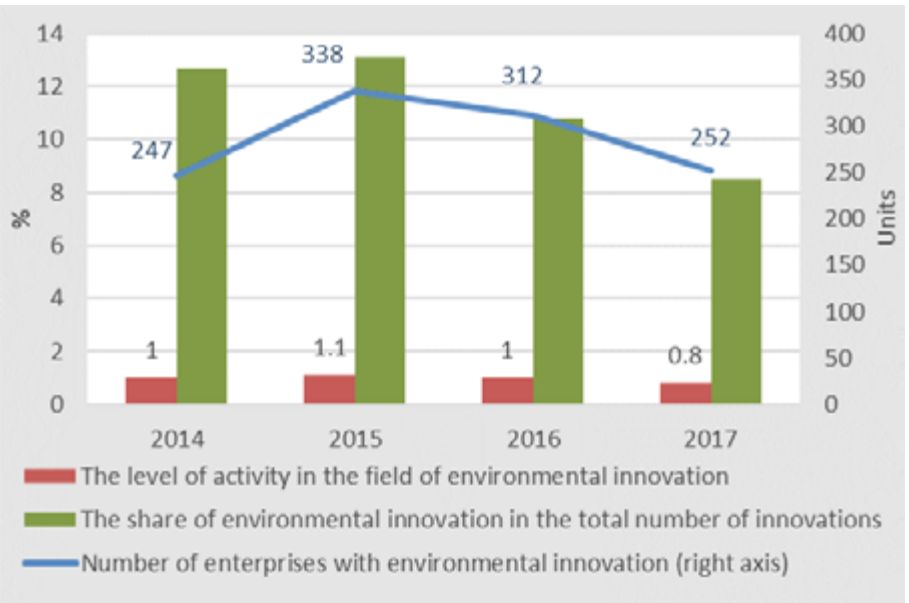
Indicator 5.4 Number of enterprises with environmental innovation

Definition: Ecological (green) innovations - new products, technologies, methods of organizing production, ensuring the protection and expanded reproduction of the environment.

The indicator is comparable to the Target 9.4 “By 2030, modernize the infrastructure and re-equip industrial enterprises, making them sustainable by increasing the efficiency of resource use and wider use of clean and environmentally friendly technologies and industrial processes, with the participation of all countries in accordance with their individual capabilities” of the Goal 9 of the UN SDGs.

Kazakhstan intends to continue to promote and encourage innovation and investment in cleaner production of goods and services, reducing greenhouse gas emissions, as well as applying climate-resilient technologies. To this end, existing legislation in terms of tariff setting will be improved and the implementation of energy saving and energy efficiency measures will be carried on through the modernization of industry, the introduction of innovative technologies, the interaction of science and production.

Figure 5.4 Number of enterprises with environmental innovation, %, units, 2014-2017



Source: <http://stat.gov.kz> Official statistical information (by industry) operational data (express information, bulletins)/Environmental protection/ Green economy indicators

Overall, the share of organic products in the total volume of production in 2014 amounted – 0.3%, in 2016 amounted – 0.7%, in 2017 – 0.2%.

The share of environmental innovations in the total number of innovations from 2014 to 2017 decreased from 12.7% to 8.5%

Key message:

The number of enterprises with environmental innovation amounted to 252 units in 2017.

Unit of measurement:

%, unit

Indicator 5.5 Volume of work performed in green construction

Key message:

For 2014-2017 the dynamics of the volume of work performed on "green" construction tends to increase.

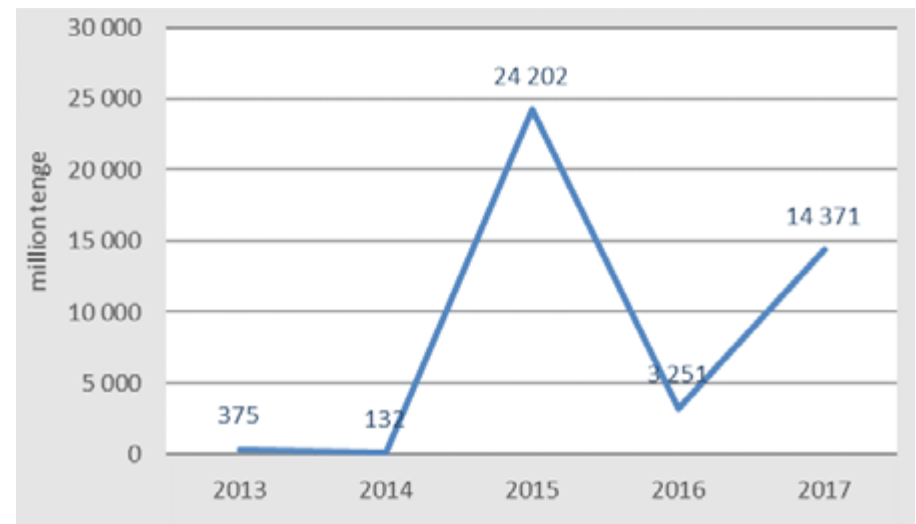
Unit of measurement:

million tenge, %

**Definition:** Construction work carried out in accordance with the building standards of energy efficiency and energy saving (the use of new technologies in the construction of a new facility, the thermal modernization of existing buildings during reconstruction and the use of environmentally friendly building materials).

The indicator is comparable to the Target 11.c "To assist the least developed countries, including through financial and technical assistance, in the construction of environmentally sustainable and durable buildings using local materials" of the Goal 11 of the UN SDGs.

Figure 5.5 Volume of work performed in green construction, million tenge, 2013-2017



Source: <http://stat.gov.kz> Official statistical information (by industry) operational data (express information, bulletins)/Environmental protection/ Green economy indicators

According to the data presented in the figure, the volume of work performed on green construction for 2013-2017 increased by 38 times and amounted to 14.4 billion tenge in 2017.

The share of work performed on the "green" construction in 2015 amounted to 0.8%, in 2016 – 0.1%, in 2017 – 0.4% of total construction activities.

5-2 International financial flow  
5-2.1 Foreign direct investment

Indicator 5.6 International financial flows of importance to green growth

**Definition:** All external financial assets and liabilities of non-residents aimed at the green development of the national economy.

The indicator is comparable to the Target 10.b "Encourage official development assistance and financial flows, including foreign direct investment to the countries most in need, especially the least developed countries, African countries, small island developing states and developing countries that do not have access to the sea, in accordance with their national plans and programs" Goal 10 of the UN SDGs.

According to the Ministry of Foreign Affairs of the Republic of Kazakhstan, attracting grants for projects related to green growth in 2014 amounted to 1.8 billion tenge, in 2015 – 265.2 million tenge, in 2018 – 727.9 million tenge.

According to the OECD, the volume of official development assistance allocated for water supply and sanitation in the Republic of Kazakhstan in 2017 amounted to 0.71 million USD; on conservation and rational use of biodiversity and ecosystems – 3.01 million USD; the total inflow of official funds in agriculture is 43 million USD.

Box 8. Strategic Development Plan of Kazakhstan until 2025. Objectives in attracting international financial flows for a green economy.

Tasks have been set to attract international financial flows for a green economy. To fund green technologies, international funds and private investment will be used, as well as republican and local budgets. In particular, it is noted that investments will be made within the framework of the Green Climate Fund, created to limit and reduce greenhouse gas emissions in developing countries, as well as to help in adapting to the effects of climate change. In addition, Kazakhstan intends to become a regional leader in the field of green finance based on the infrastructure of the AIFC and the International Center for green technologies and investment projects being created.

Key message:

Foreign direct investment related to environmental protection accounted for 0.2% of the gross inflow of foreign investments in 2016, compared with the maximum level of 1% recorded 2014.

Unit of measurement:

million USD

Indicator 5.7 Green economy investments/  
Environment-related investments

Key message:

In 2017, 87 billion tenge was allocated for environmental protection, including 27.7 billion tenge or 32% amounted to foreign investment.

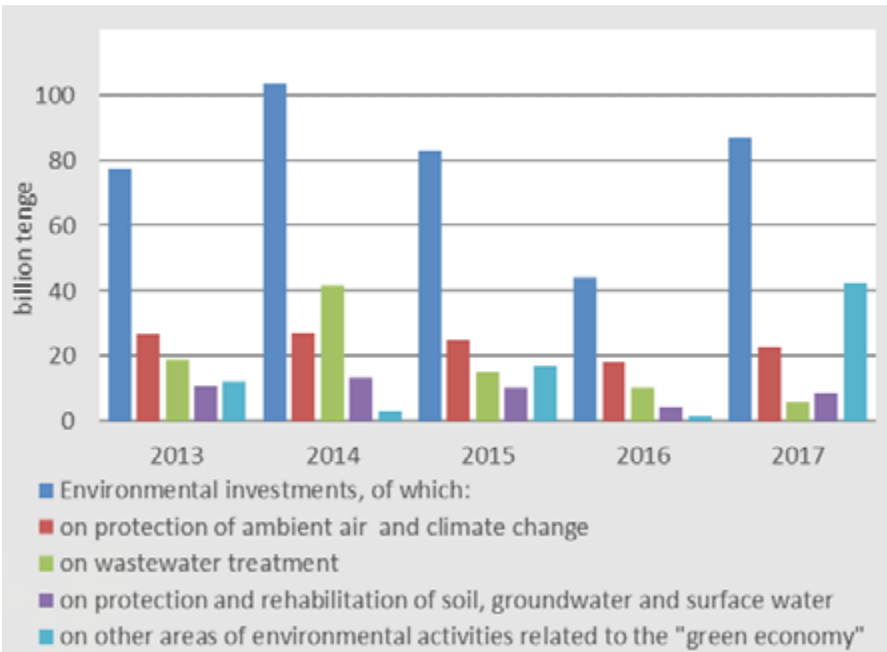
Unit of measurement:

million tenge,  
billion tenge,  
%

**Definition:** Investments aimed at the goals of a green economy and environmental protection, including budget funds, all types of payments for pollution, private investment, as well as investment of funds received from the transfer of carbon units.

The indicator is comparable to the Target 12.c “To rationalize inefficient subsidies for fossil fuel use leading to wasteful consumption, by eliminating market imbalances taking into account national conditions, including by reorganizing taxation and phasing out harmful subsidies where they exist, for taking into account their environmental effects ...” of the Goal 12 UN SDGs.

Figure 5.6. Environmental investments, billion tenge, 2013-2017



Source: <http://stat.gov.kz> Official statistical information (by industry) operational data (express information, bulletins)/Environmental protection/ Green economy indicators

According to the Ministry of Finance of the Republic of Kazakhstan in 2018, 98.7 billion tenge was allocated for the purpose of environmental protection, including 48.8 billion tenge for “green” projects.

The share of expenditures on research projects related to the green economy in the total amount of R & D expenditures maintained at 0.1%.

Box 9. Strategic Development Plan of Kazakhstan until 2025. Objectives in the field of investment.

Continue to stimulate and encourage innovation and investment in cleaner production of goods and services reducing greenhouse gas emissions and applying climate-resilient technologies. To this end, existing legislation in terms of tariff setting will be improved and the implementation of energy saving and energy efficiency measures will be continued through the modernization of industry, the introduction of innovative technologies, the interaction of science and production.

5-3 Prices and transfers  
5-3.1 Environmentally related taxation

Indicator 5.8 Environmental taxation

Key message:

The system of environmental taxation requires reform on principles of targeted use and transparency.

Unit of measurement:

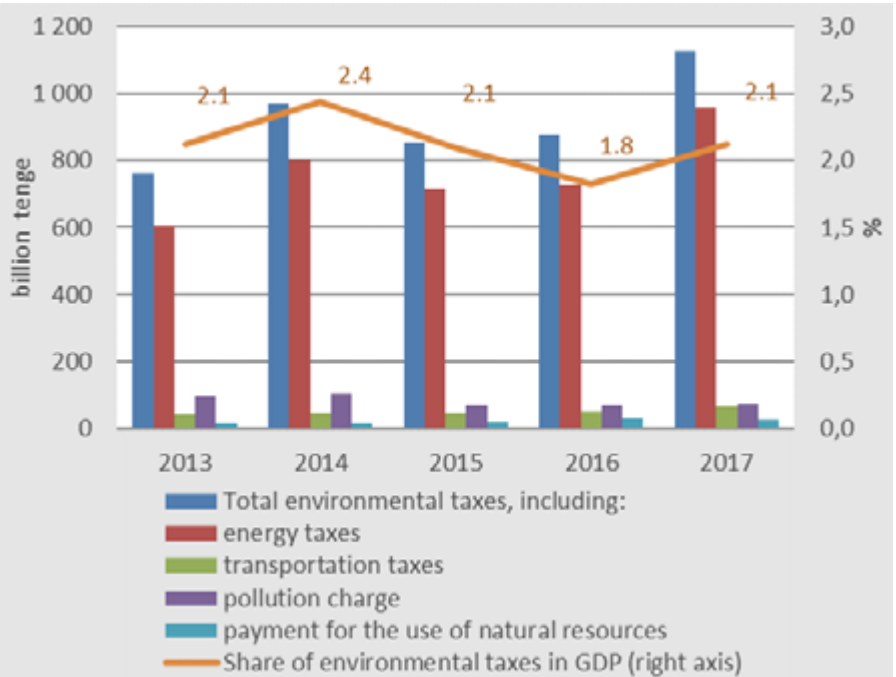
billion tenge, %

For 2010-2017 environmental taxes for the OECD countries decreased from 5.67% to 5.31% of the total tax revenues.

**Definition:** Ecological taxation is a type of mechanisms for the economic regulation of environmental protection and environmental management, including payment for emissions into the environment, payment for the use of certain types of natural resources, etc.

The indicator is comparable to the Target 17.1 “Strengthen the mobilization of resources from domestic sources, including through international support to developing countries, in order to increase national capacity to collect taxes and other incomes” of the Objective 17 of the UN SDGs.

Figure 5.7 Volume of environmental taxes, billion tenge, %, 2013-2017



Source: <http://stat.gov.kz> Official statistical information (by industry)/Operational data (express information, bulletins)/Environmental protection/“Green economy” indicators.

The largest share of revenues to the budget is provided by taxes on energy resources – 85.1%, payment for environmental pollution – 6.7%; transport taxes – 5.7% (in 2017).

Box 10. Strategic Development Plan of Kazakhstan until 2025. Objectives in the field of environmental taxes.

The introduction of the Polluter Pays Principle based on the proven fact of environmental damage is envisaged. It is also planned to introduce a system of incentives for integrated environmental permits to replace the command-administrative regulation of enterprises polluting the environment, based on the system of penalties and fines. Currently the process of environmental impact assessment serves as an environmental measure.



5-3.2 Energy Pricing

Indicator 5.9 Energy pricing

Key message:

In accordance with paragraph 2 of Article 12-1 of the Law of Kazakhstan "on Energy" the energy producing organization independently sets the selling price for electric energy, but not higher than the marginal tariff of the corresponding group of energy producing organizations.

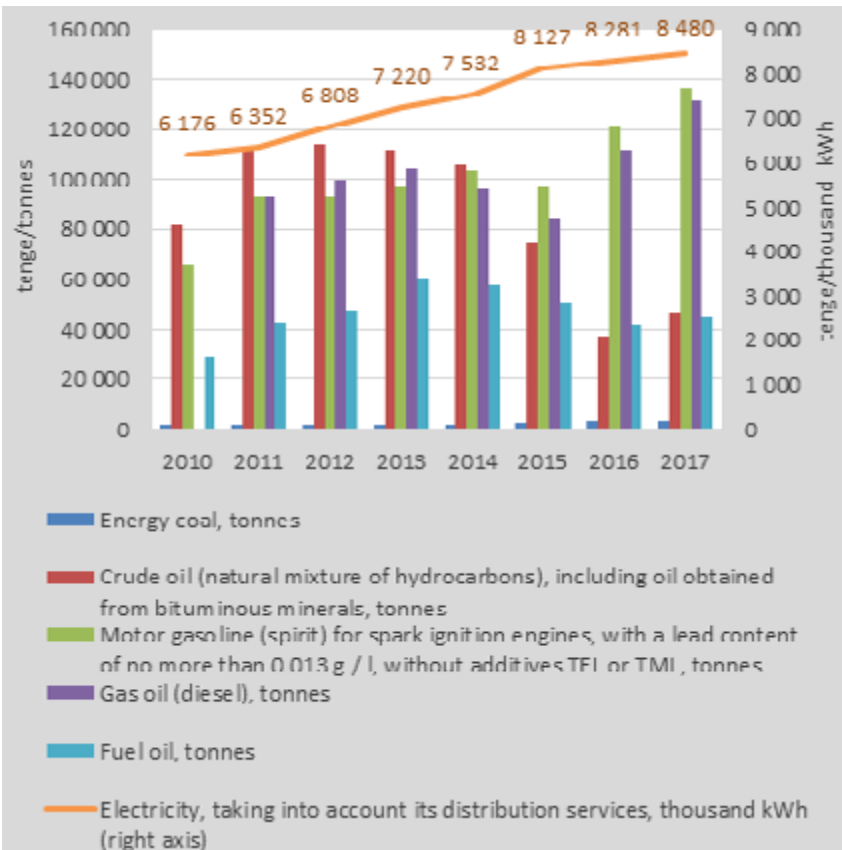
Unit of measurement:

tenge/tonnes,  
tenge/ thousand kW per  
hour

**Definition:** Setting the selling price of electricity and energy for energy reducing organizations.

The indicator is comparable to the Target 7.1 "By 2030, ensure universal access to affordable, reliable and modern energy supply" of the Goal 7 of the UN SDGs.

Figure 5.8 Prices of enterprises-producers of industrial products for electricity and certain types of energy, tenge/tonnes, tenge/ thousand kW hour, 2010-2017



Source: <http://stat.gov.kz> Official statistical information (by industry)/Operational data (express information, bulletins)/Environmental protection/"Green economy" indicators

In 2017, enterprises-producers price of electricity increased by 1.4 times compared to 2010, 2.1 times for gasoline, 1.6 times for fuel oil (mazut). At the same time, the price of oil has dropped by almost 2 times over the same period.

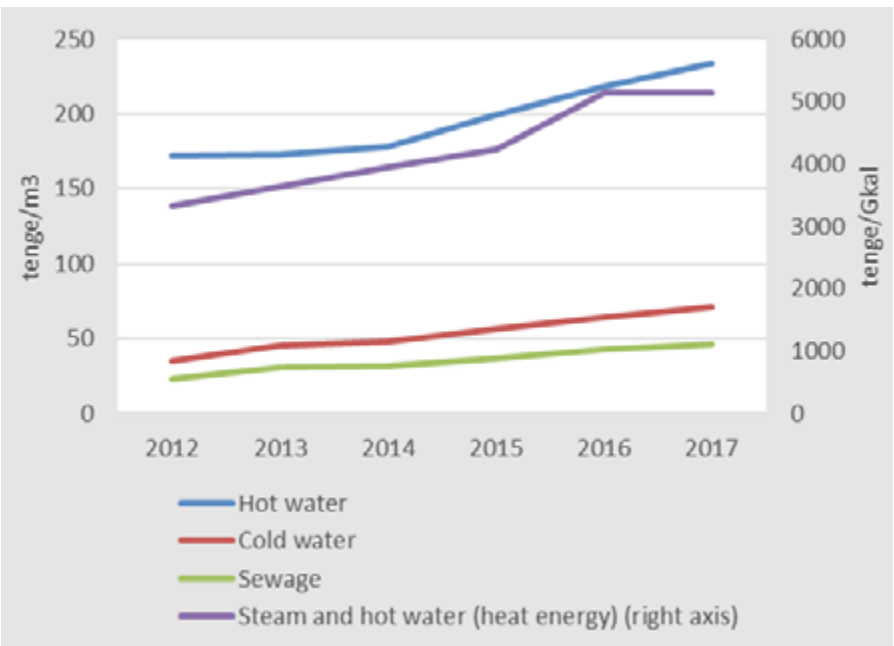
5-3.3 Water pricing and cost recovery

Indicator 5.10 Water pricing and cost recovery / Rate of cost coverage by price/tariff

**Definition:** Setting the rate of payment for the use of water resources. The degree of payback.

The indicator is comparable to the Target 6.1 "By 2030, endure universal and equitable access to safe and affordable drinking water for all" of the Goal 6 of the UN SDGs.

Figure 5.9 Average prices and tariffs for chargeable services for the population, tenge/m³, tenge/Gkal, 2012-2017



Source: <http://stat.gov.kz> Official statistical information (by industry)/Operational data (express information, bulletins)/Environmental protection/"Green economy" indicators

Water charge rates are set by local representative bodies of regions, cities of republican significance and the capital on the basis of the fee calculation method approved by the authorized state body in the field of use and protection of the water fund.

Box 11. Strategic Development Plan of Kazakhstan until 2025. Objectives in the field of water pricing.

To improve the efficiency of the use and protection of water resources, the country will develop and implement systemic measures for water conservation in agriculture, industry and the public sector. The government will reform the types of state support that adversely affect water consumption and put a significant burden on the budget, and will also increase the contribution of multi-purpose water infrastructures to achieve higher levels of water, food and energy security.



**Indicator 5.11 Profitability (unprofitability) of the production of enterprises collecting, processing and distributing water, as well as water disposal**

**Key message:**

For 2015-2017, there is a positive dynamic of the indicator.

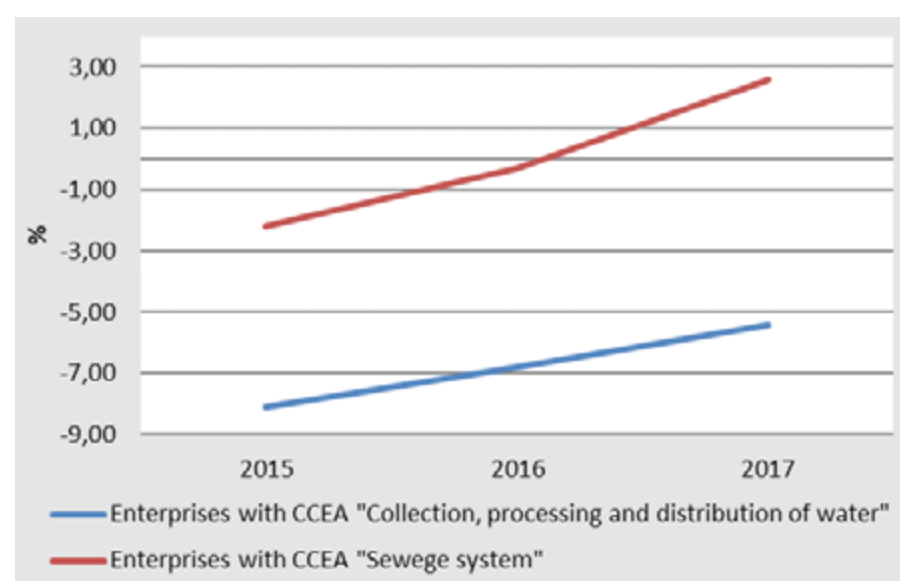
**Unit of measurement:**

coefficient

**Definition:** The ration of profit (income) of enterprises collecting, processing and distributing water, as well as drainage to the sum of all expenses (costs) of indicated enterprises.

The indicator is comparable to the Target 6.a "By 2030, expand international cooperation and support to strengthen the capacity of developing countries to implement water supply and sanitation activities and programs, including collection of surface runoff, desalination, water use efficiency, wastewater treatment and recycling and reuse technologies» of the Goal 6 of the UN SDGs.

Figure 5.10 Profitability (unprofitability) of the production of enterprises collecting, processing and distributing water, as well as water disposal, 2015-2017



Source: <http://stat.gov.kz> Official statistical information (by industry)/Operational data (express information, bulletins)/Environmental protection/"Green economy" indicators

Profitability of production of enterprises collecting, processing and distributing water for 2015-2017 increased from – 8.1 in 2015 to – 5.4 in 2017, in the field of water disposal from – 2.2 to 2.6, respectively.

**CONCLUSIONS AND RECOMMENDATIONS**

In the Republic of Kazakhstan for 2010-2017 a number of key country documents were adopted for the implementation of the principles and indicators of green development with the aim of greening the economy and long-term sustainable development. In order to effectively implement and monitor the progress achieved, the Statistics Committee of the MNE of RoK, together with other government agencies, is constantly working on the formation and updating of data characterizing indicators of the green economy.

At the same time, the tasks of integrating the country into the world economic system and joining the developed OECD countries club require, above all, improving the legislative and institutional framework for the transition to a green economy, strategic planning system and harmonization of the national statistical system. In this regard, the Ministry of National Economy of Kazakhstan (MNE), in the framework of the Agreement of the Government of Kazakhstan with the OECD, signed in July 2018, recommended a list of indicators of green growth for further integration into the national statistical system and the system of strategic planning of the country.

These indicators and the methodology for their calculation formed the basis of this Report, prepared by the national consultants (SREC Green Academy) together with the Office of Statistics of Production and Environment of the Statistics Committee of the Republic of Kazakhstan with the support of international consultants of the OECD.

From 54 of green growth indicators proposed by the OECD, 44 have been introduced into national statistics and including 6 are presented in the framework of this project for the first time (2 presented partially):

- Fish stocks resources;
- Expenditures on research projects related to the "green economy", including in the field of renewable energy;
- Number of patents granted in the field of environmental protection (including environmental and energy technologies);
- Official development assistance;
- Gross value added of EGS sector (partly implemented);
- Employment in the EGS sector (partly implemented).

The following 13 indicators (some of them were first collected and published) are included in the list for the qualitative characteristics of the green growth indicators:

1. The intensity of the formation of industrial and hazardous waste and the level of recycling;
2. The concentration of nutrients in agricultural lands;
3. Water consumption per unit of GDP;
4. Productivity of agricultural lands;
5. Incidence of the population, including certain infectious and parasitic diseases;
6. Skin and subcutaneous tissue diseases associated with exposure to radiation;
7. The incidence of the population in ecologically unfavourable regions and the Almaty city;
8. Mortality from lack of safe water, safe sanitation and hygiene (from lack of safe water, sanitation and hygiene services for all), from unintentional poisoning, per 100 thousand people;
9. The amount of funds allocated from the reserve of the Government aimed at the prevention and elimination of natural disasters;
10. Amount of damage from emergency situations (natural disasters);

11. Share of normative-treated wastewater in the total volume of wastewater flowing through treatment facilities in urban areas;
12. Investments aimed at environmental protection by types of environmental activities;
13. Graduation of specialists by higher educational institutions in environmental specialties.

In the course of assessing the current situation in the process of the country's transition to "green growth", the following positive trends in the national economy were identified based on the recommended list of OECD indicators:

1. The share of the commodity sector in the GDP structure decreased (18% in 2017) with a simultaneous increase in the share of the services sector (57.4%), manufacturing (11.2%), the share of processed goods in exports (32.1%).
2. There are about 75 facilities using renewable energy in the country, with a total capacity of 700 million MW, the share of generated "green" electricity increased from 1% to 1.3% in 2018.
3. The access of the population to the centralized water supply increased: 93.8% of the urban population, 80.5% of the rural population.
4. The share of recycling and disposing of industrial waste reached - 30.9%.
5. The volume of work performed on the "green" construction increased by 38 times compared with 2013 and amounted to 14.4 billion tenge.
6. The number of patents granted in the field of environmental protection for 2014-2018 increased from 205 to 357 units.

At the same time, a number of problems of "green growth" remain unresolved in the following blocks:

#### **1. Economic growth, productivity and competitiveness**

The level of labour productivity, labour costs per unit of output, employment level compared with OECD countries remains low. The Gini index is growing, characterizing the income gap between the rich and the poor population.

#### **2. Environmental and resource productivity of the economy**

Sustainable growth of CO<sub>2</sub> emissions per capita, high energy intensity of GDP, decreasing of energy productivity reduce the competitiveness of products and create threats not only to achieve the SDGs and fulfil Kazakhstan's obligations under the Paris Climate Agreement (INDCs), but also in launching a number of country strategic documents.

#### **3. Environmental dimension of quality of life**

The increasing concentration of ground-level ozone and suspended particles in cities, as well as the lack of systematic research in the field of

assessing the impact of environmental risks, create serious threats to the health of the nation.

#### **4. Economic opportunities and policy responses**

The low level of investment in R&D (0.2% of GDP) and the share of enterprises with environmental innovations jeopardize the development and implementation of green technologies in the perspectives.

The system of environmental taxation needs to be radically reformed, taking into account the targeted use of incoming payments and the creation of stimulating mechanisms for enterprises and organizations introducing «green» technologies.

In general, the information provided and a brief statistical analysis for 2010-2017 suggests that most of the OECD-recommended indicators of green growth are in national statistics and can be recommended for annual statistical observations. At the same time, for the new indicators are important for assessing a country's progress in Green Growth, listed below, methodological and expert assistance is required in the development and implementation of them into national statistics, based on the OECD approaches:

#### *Recommendations*

1. Carbon market financing , in connection with the entry into force of the Paris Climate Agreement in 2020;
2. R&D related to Green Growth;
3. Efficiency (productivity) of use of non-energy materials (biotic and abiotic);
4. Green jobs (or green employment), production of environmental goods and services;
5. Multi-factor productivity - it is necessary to continue the experimental calculations together with the OECD;
6. Average trade weighted labour costs have to be calculated in accordance with the OECD definition and methodology;
7. Energy intensity have to be presented for selected sectors of economy.

To the Statistics Committee of the MNE RoK is recommend to carry out continuous joint work with the OECD on the development of «green» indicators and the system of environmental-economic accounting and its implementation into the strategic planning system.

In general, the Government of the Republic of Kazakhstan recommended the re-establishment of the Statistical Agency for the modernization of the national statistical system.

OECD GREEN GROWTH INDICATORS FOR THE REPUBLIC OF KAZAKHSTAN

Block	Groups	OECD №	Serial number according to available indicators	OECD Green Growth Indicators	Implemented/ Not implemented	Remarks
The environmental and resource productivity of the economy	Carbon and energy productivity	I-1		<b>Carbon productivity</b>		
		I-1.1	1	"The carbon productivity of GDP based on production (GDP per unit of CO2 emissions in energy sector)	Implemented	
		I-1.2	2	Carbon productivity based on demand (real income per unit of CO2 emissions in the energy sector)	Implemented	
		I-2		Energy productivity		
		I-2.3	3	<b>Energy performance</b> (GDP per TPES unit (total primary energy production))	Implemented	
	<b>Materials productivity (non-energy)</b>	I-2.4	4	Energy intensity by sector (agriculture, industry, transport, warehousing, services)	Implemented	
		I-2.5	5	Share of electricity generated from renewable energy sources (RES) in the total amount of produced electricity	Implemented	
		I-3		<b>Materials productivity (non-energy)</b>		
		I-3.6		The performance of the materials based on demand (comprehensive assessment; original units in physical terms) in correlation with real disposable income	Not implemented	"Experimental calculations on the performance of non-energy materials (including biotic and abiotic materials) were carried out
		I-3.7		Productivity of domestic materials (GDP/MSA)= GDP/(Production-export+import)	Not implemented	
		I-3.8		Biotic materials (food, other biomass)	Not implemented	
		I-3.9		Abiotic materials (metallic minerals, industrial minerals)	Not implemented	
		I-3.10		Waste generation intensity and their recycling (by sectors per GDP (GVA), per capita)	Implemented	
			6	Intensity of the formation of solid and municipal waste and their recycling (by sectors per GDP per capita)	Implemented	

	Resource productivity		7	Intensity of formation of industrial and hazardous wastes and level of their recycling (by sectors per GDP, per capita)	Additionally included in the list	
		I-3.11		Flows and balance of nutrients (N, P) *Balance of nutrients in agriculture (N, P) (per unit area of agricultural land and changes in agricultural production)	Implemented	
			8	Use of mineral and organic fertilizers	Implemented	
			9	The concentration of nutrients in agricultural lands	Additionally included in the list	
		I-4.12		<b>Water productivity</b>	Implemented	
	Multifactor productivity		10	Water productivity	Implemented	
			11	Intensity of the intake	Implemented	
			12	Water use efficiency (per unit of GDP)	Additionally included in the list	
		I-5.13		Multi-factor productivity reflecting environmental services (comprehensive measure: the original units in monetary terms)	Not implemented	On the basis of "Methods of measurement of multifactor productivity", approved by the order of the Chairman of the SC MNE RoK "6" December 2016, № 303. In the SC MNE RoK experimental calculations are being carried out
	Natural resource stocks	II-6.14		<b>Natural resources index</b> (complex indicator: initial units in value terms)	Not implemented	The methodology has been developed by SREC "Green Academy", at the same time there is not enough methodological information to form the indicator and no information in value terms
		II-7.15	13	<b>Renewable freshwater resources</b> Available renewable resources (groundwater, surface water, national, territorial) and associated abstraction levels	Implemented	

The natural asset base				Renewable stocks		II-8.16	14	Forest resources Area and volume of forests; changes in stocks over time	Implemented	Data provided by the Forestry and Wildlife Committee of the MEGNR on the volume of fish resources for individual reservoirs. It is recommended to supplement with data on the Ust-Kamenogorsk reservoir, the Tobyl river, the Nura river	
Non-renewable stocks				Biodiversity and ecosystems	II-9.17	II-10.18	15	Fish stocks resources Proportion of fish stocks living in safe biological limits (globally)	Implemented during the Project	Information is formed, and the information is confidential	
								Mineral resources Available (global) reserves or reserves of individual minerals: metallic minerals, industrial minerals, fossil fuels, critical raw materials and associated production levels	Implemented		
							II-11.19	Land resources types of land cover, transformation and change of cover. State and changes from natural state to artificial or anthropogenic *Land use: state and changes	Implemented		
							16	Land resources			
							17	Productivity of agricultural land	Additionally included in the list		
				II-12.20	18	II-13.21	19	Soil resources The degree of loss of the topsoil on agricultural lands, other lands *Agricultural areas exposed to water and wind erosion	Implemented	It is recommended to add data on vascular plants, on the number of birds - forest, agricultural land populations, etc. in % of assessed or known species	
								Wildlife resources <i>Trends in the number and distribution of protected species.</i> <i>*Trends in bird populations - forest, agricultural land, nesting populations</i> <i>*Threatened species: mammals, birds, fish, vascular plants in % of assessed or known species</i> <i>*Changes in the number of populations</i>	Implemented		
							III-14.22	Environmental harm to public health and the costs to society (e.g. reduction in the number of years of healthy life due to environmental degradation). Population exposure to air pollution	Implemented		

The environmental dimension of quality of life				Environmental health risks		20	21	Ground-level ozone concentration in cities, suspended particles	Additionally included in the list		
						22	23	Morbidity of the population, including certain infectious and parasitic diseases	Additionally included in the list	It is recommended to consider the types of natural hazards	
								Skin and subcutaneous tissue diseases associated with exposure to radiation	Additionally included in the list		
							24	Incidence of the population in ecologically unfavorable regions and the Almaty city	Additionally included in the list		
							III-15.23	Mortality from lack of safe water, safe sanitation and hygiene (from lack of safe water, sanitation and hygiene services for all), from unintentional poisoning, per 100 thousand people	Implemented		
								Exposure to natural or industrial risks and related economic losses	Implemented		
				Environmental services		25	26	Number of natural disasters		Data is provided by the Committee of Emergency Situations MoIA RoK	
								The amount of funds allocated from the reserve of the Government aimed at the prevention and elimination of natural disasters.	Additionally included in the list		
							27	Amount of damage from emergency situations (natural disasters)	Additionally included in the list		
							III-16	Access to sewage treatment and drinking water			
							III-16.24	Population connected to sewage treatment (wastewater treatment systems)	Implemented		
						28	29	Population with sustainable access to safe drinking water	Implemented	Data is provided by Local Executive Bodies	
							III-16.25	Share of normative-treated wastewater in the total volume of wastewater flowing through treatment facilities in urban areas	Additionally included in the list		



The economic opportunities and policy responses										
Technology and innovation					Environmental goods and services					
IV-17		<b>R&amp;D expenditures of importance to green growth</b> * Renewable energy sources (% of R&D in energy) *Environmental technologies (% of total R&D, by type) All-purpose of business R&D (% of total R&D)								
IV-17.26	31	The volume of costs for research and development work in the field of business	Implemented							
IV-17.27	32	Expenditures on research projects related to the "green economy", including in the field of renewable energy	Implemented during the Project						Data is provided by the MES RoK	
IV-17.28		Costs of research and development in the field of environmental technologies	Not implemented							
IV-18		<b>Patents related to the green growth</b> (in % of the application in the country in accordance with the agreement on cooperation in the patent area) * Environment-related and total patents * Structure of environment-related patents							It is recommended that the indicator be supplemented with data on the number of patents in % of the application in the country in accordance with the OECD definition.	
IV-18.29		Multi-purpose patents and relating to the protection of the environment	Implemented							
	33	Number of licenses issued for works and services in the field of environmental protection								
IV-18.30		Structure of the portfolio of environmental patents	Implemented during the Project							
	34	Number of patents granted in the field of environmental protection (including environmental and energy technologies)							Data is provided by the National Institute of Intellectual Property MoJ RoK	
IV-19		<b>Environment-related innovation in all sectors</b>								
IV-19.31	35	Number of enterprises with environmental innovation	Implemented						Methodological assistance is required	
IV-20		<b>Production of environmental goods and services (EGS)</b>								
IV-20.32		Gross value added in the EGS sector (% of GDP)	Partly Implemented during the Project							
	36	Volume of work performed in green construction	Implemented during the Project							
	37	Production of environmentally friendly products	Implemented during the Project							
	38	Gross value added in industries related to environmental protection, section E Water supply; sewage system, control over the collection and distribution of waste (CCEA 36, 37, 38, 39)	Partly Implemented during the Project							

				Employment in the EGS sector (% of total employment)	Partly Implemented during the Project	Methodological assistance is required
			39	Employment in industries related to environmental protection, section E Water supply; sewage system, control over the collection and distribution of waste (CCEA 36, 37, 38, 39)	Partly Implemented during the Project	
			40	Employment in renewable energy facilities	Implemented during the Project	
		IV-21		International financial flows of importance to green growth (% of total flows, % of GNI)		
		IV-21.34	41	Official development assistance	Implemented during the Project	
		IV-21.35		Carbon market financing	Not implemented	There is not enough methodological information to form the indicator. Methodological assistance is required
		IV-21.36		Foreign direct investment	Implemented	
			42	Investments aimed at environmental protection (external, internal, by type of CCEA)		
			43	Investments aimed at environmental protection by types of environmental activities	Additionally included in the list	
		IV-22		Environmental taxation		
		IV-22.37	44	Environmental taxation	Implemented	
		IV-22.38		Structure of environmental taxes (by type of tax base)	Supplemented	
		IV-23.39	45	Energy pricing (share of taxes in end-user price)	Implemented	
		IV-24.40		Water pricing and cost recovery	Implemented	
			46	Water pricing		
			47	Profitability (unprofitability) of production of the enterprises performing collecting, processing and distribution of water, and also water disposal	Additionally included in the list	



## DESCRIPTION OF INDICATORS (GLOSSARY)

Definition	Methodology/unit of measure	Data source
The most important macroeconomic indicator characterizing the final result of the country's economic activity.	<p>Source: SC MNE RoK</p> <p>Frequency: quarterly, annually</p> <p>Unit of measure: tenge (dollars)</p> <p>Methodology: Method of calculation of gross domestic product by the income method (No. 131 of 20.09.2017)</p>	<a href="https://databank.worldbank.org/data/reports.aspx?source=2&amp;series=NY.GDP.MKTP.PP.KD&amp;country=">https://databank.worldbank.org/data/reports.aspx?source=2&amp;series=NY.GDP.MKTP.PP.KD&amp;country=</a>
Income that the institutional unit (sector) can use for final consumption and saving includes the balance of primary income increased by the amount of current transfers received and reduced by the amount of income transferred as current transfers.	<p><b>Gross disposable income (GDI)</b></p> <p>Source: SC MNE RoK</p> <p>Frequency: annually</p> <p>Unit of measure: tenge</p> <p>GDI is calculated as GDP/GNI in market prices minus remuneration for labour of employees and taxes on production and imports; plus subsidies on production and imports</p>	<p>Official statistics (by industry)/National Accounts - Integrated Accounts/Bulletins/National Accounts of Domestic Economy</p> <p><a href="http://stat.gov.kz/faces/wcnav_externalId/publicationsPage?lang=ru&amp;_afriLoop=3925548711592422#%40%3F_afriLoop%3D3925548711592422%26lang%3Dru%26_adf.ctrl-state%3Dtr1otc2x_47">http://stat.gov.kz/faces/wcnav_externalId/publicationsPage?lang=ru&amp;_afriLoop=3925548711592422#%40%3F_afriLoop%3D3925548711592422%26lang%3Dru%26_adf.ctrl-state%3Dtr1otc2x_47</a></p>
Production efficiency indicator characterizing output per unit of used resources, which is the ratio of production volume to labor costs.	<p><b>Labour productivity</b></p> <p>Source: SC MNE RoK</p> <p>Frequency: quarterly, annually</p> <p>Unit of measure: tenge/person</p>	<p>Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators</p> <p><a href="http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159</a></p>
Characterizes the growth rate of output in addition to the growth caused by extensive factors (increase in the volume of resources involved in production)	<p><b>Multi-factor productivity</b></p> <p>Source: SC MNE RoK is undertaking experimental calculations</p> <p>Methodology: Methodology for measuring multi-factor productivity (No. 303 of 6.12.2016)</p>	-
The sum of all costs (expenditure) of employers (enterprises, organizations) related to the maintenance and use of labour force, regardless of the source of financing, in relation to trade enterprises	<p><b>Average cost of labour in trade</b></p> <p>Source: SC MNE RoK</p> <p>Frequency: annually</p> <p>Unit of measure: tenge per employee, per 1 hour worked by the employee</p>	<p>Official statistics (by industry)/Operational data (express information, bulletins)/Labour</p> <p><a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLabor?_afriLoop=3925720208613445#%40%3F_afriLoop%3D3925720208613445%26_adf.ctrl-state%3Dtr1otc2x_73">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLabor?_afriLoop=3925720208613445#%40%3F_afriLoop%3D3925720208613445%26_adf.ctrl-state%3Dtr1otc2x_73</a></p>

<b>Relative importance of trade</b>		
The relative value of international trade measures aggregate trade flows, including exports and imports of goods and services relative to GDP, and assesses participation in and pressure on international competition in foreign and domestic markets.	<p>Source: SC MNE RoK</p> <p>Frequency: annually, by reporting calculation</p> <p>Defined as the ratio of imports and exports of goods and services relative to gross domestic product expressed in constant prices.</p>	<p>Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators</p> <p><a href="http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159</a></p>
<b>Consumer price index</b>		
The consumer price index is an indicator that characterizes the change in the average price level over time for a fixed list of goods and services purchased by the population for personal consumption. It is a generally accepted indicator of consumption inflation.	<p>Source: SC MNE RoK</p> <p>Frequency: monthly</p> <p>Unit of measure: tenge per unit of production</p> <p>Methodology: Methodology for calculating Consumer Price Index (No. 230 of 30.12.2015)</p>	<p>Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators</p> <p><a href="http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159</a></p>
<b>Prices of food; crude oil; minerals, ores and metals</b>		
Price of one unit of manufactured product excluding VAT, excise duties, other indirect taxes, trade, sales margins, transportation and other expenses related to the movement of products from the manufacturer to the buyer	<p>Source: SC MNE RoK</p> <p>Frequency: monthly</p> <p>Unit of measure: tenge per unit of production</p> <p>Methodology: Methodology for calculating producer price indices in industry (No. 98 of 31.05.2016)</p>	<p>Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators</p> <p><a href="http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind_Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtr1otc2x_159</a></p>
<b>Employed population</b>		
Employed population - all individuals persons of the appropriate age, who by their condition over a given period of time, can be put into one of the following categories: a) "employee"; b) "self-employed"	<p>Source: SC MNE RoK</p> <p>Frequency: quarterly, annually</p> <p>Unit of measure: people</p> <p>Methodology: Methodological recommendations on the main indicators of the labour market (No. 3 of 29.12.2014)</p>	<p><a href="http://stat.gov.kz">http://stat.gov.kz</a> Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators of the Republic of Kazakhstan<a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLabor?lang=ru&amp;_afriLoop=3926253981933096#%40%3F_afriLoop%3D3926253981933096%26lang%3Dru%26_adf.ctrl-state%3Dtr1otc2x_187">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLabor?lang=ru&amp;_afriLoop=3926253981933096#%40%3F_afriLoop%3D3926253981933096%26lang%3Dru%26_adf.ctrl-state%3Dtr1otc2x_187</a></p>
<b>Unemployment rate</b>		
Share of the unemployed in the labour force, measured as a percentage	<p>Source: SC MNE RoK</p> <p>Frequency: quarterly, annually</p> <p>Unit of measure: %</p> <p>Methodology: Methodological recommendations on the main indicators of the labour market (No. 3 of 29.12.2014)</p>	<p>Official statistics (by industry)/Operational data (express information, bulletins)/Labour</p> <p><a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLabor?lang=ru&amp;_afriLoop=3926253981933096#%40%3F_afriLoop%3D3926253981933096%26lang%3Dru%26_adf.ctrl-state%3Dtr1otc2x_187">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLabor?lang=ru&amp;_afriLoop=3926253981933096#%40%3F_afriLoop%3D3926253981933096%26lang%3Dru%26_adf.ctrl-state%3Dtr1otc2x_187</a></p>

Natural population growth		
The difference between the number of births and the number of deaths in a given period	Source: SC MINE RoK Frequency: monthly, annually Unit of measure: people Methodology: Methodology for calculating population size and structure (No. 134 of 21.09.2017)	Official statistics (by industry)/Operational data (express information, bulletins)/Population <a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersPopulation?_afriLoop=3926337714490654#%40%3F_afriLoop%3D3926337714490654%26_adf.ctrl-state%3Dtxrlotc2x_230">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersPopulation?_afriLoop=3926337714490654#%40%3F_afriLoop%3D3926337714490654%26_adf.ctrl-state%3Dtxrlotc2x_230</a>
The number of years that one person in a generation would live on average, provided that the mortality rate at each age of the generation remains the same as in the year when the indicator is calculated	Source: SC MINE RoK Frequency: annually Unit of measure: years <b>Life expectancy</b>	Official statistics (by industry)/Operational data (express information, bulletins)/Population <a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersPopulation?_afriLoop=3926337714490654#%40%3F_afriLoop%3D3926337714490654%26_adf.ctrl-state%3Dtxrlotc2x_230">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersPopulation?_afriLoop=3926337714490654#%40%3F_afriLoop%3D3926337714490654%26_adf.ctrl-state%3Dtxrlotc2x_230</a>
The coefficient of uneven distribution of income among the population (the Lorenz curve or Gini index) makes it possible to quantify the degree of inequality, determines the deviation level of the actual income distribution among numerically equal population groups from the line of equal distribution	Source: SC MINE RoK Frequency: annually Unit of measure: index <b>Income inequality: GINI coefficient</b>	Official statistics (by industry)/Operational data (express information, bulletins)/Standard of living of population <a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLivingStandard?_afriLoop=3926391288854175#%40%3F_afriLoop%3D3926391288854175%26_adf.ctrl-state%3Dtxrlotc2x_256">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersLivingStandard?_afriLoop=3926391288854175#%40%3F_afriLoop%3D3926391288854175%26_adf.ctrl-state%3Dtxrlotc2x_256</a>
This indicator represents the coverage by higher education of the number of students, regardless of age, enrolled in technical and vocational education institutions (ISCED-5) and universities (ISCED 6-8) relative to the total population aged 18-22	Source: SC MINE RoK Frequency: annually Unit of measure: people, % Methodology: Methodology for forming statistical indicators on education according to the International Standard Classification of Education-2011 (No. 220 of 23.12.2015) <b>Gross enrolment ratio in higher education</b>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersEducation?lang=ru&amp;_afriLoop=3926411171573933#%40%3F_afriLoop%3D3926411171573933%26lang%3Dru%26_adf.ctrl-state%3Dtxrlotc2x_269">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersEducation?lang=ru&amp;_afriLoop=3926411171573933#%40%3F_afriLoop%3D3926411171573933%26lang%3Dru%26_adf.ctrl-state%3Dtxrlotc2x_269</a>
GDP volume (in fixed prices) per unit of CO <sub>2</sub> emissions during production.	Source: SC MINE RoK, on CO <sub>2</sub> emissions – JSC "Zhasyl Daru" MEGNR RoK Frequency: annually Unit of measure: tenge (dollar)/tonnes of CO <sub>2</sub> equivalent Methodology: Calculated as the ratio of GDP to total volume of CO <sub>2</sub> emissions <b>GDP's CO<sub>2</sub> productivity (production-based)</b>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>

Demand-based CO <sub>2</sub> productivity		
The indicator is determined by the ratio of real national income per unit of CO <sub>2</sub> emitted. Demand-based emissions include the sum of production and import emissions minus export emissions	Source: SC MINE RoK, on CO <sub>2</sub> emissions – JSC "Zhasyl Daru" MEGNR RoK Frequency: annually Unit of measure: tenge /tonnes of CO <sub>2</sub> equivalent Methodology: Calculated as the ratio of GDI to total volume of CO <sub>2</sub> emissions	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
GDP (in fixed prices) produced per unit of total primary energy supply (TPES)	Source: SC MINE RoK Frequency: annually Unit of measure: tenge (dollars)/TOE Methodology: Calculated as the ratio of GDP to volume of TPES <b>GDP's energy productivity</b>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
The amount of energy spent for a specific activity or result by subsectors (manufacturing, transport, households, services) and for final consumption goals	Source: SC MINE RoK Frequency: annually Unit of measure: TOE/USD as of prices in 2000. Methodology: Methodology for forming the fuel and energy balance and calculating individual statistical indicators for energy industry (No. 160 of 08.11.2016) <b>Energy intensity by sector</b>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Share of renewable energy sources (hydropower, wind energy, solar energy, biomass) in the total electricity produced in the country	Source: SC MINE RoK Frequency: annually, by reporting calculation Unit of measure: % <b>Share of electricity generated from renewable energy sources (RES) in the total amount of produced electricity</b>	Energy and Commodity Market Statistics - Fuel and Energy Balance Statistical Bulletin <a href="http://stat.gov.kz/faces/wcnav_externalId/homeNumbersCommodity?lang=ru&amp;_afriLoop=3926565929891896#%40%3F_afriLoop%3D3926565929891896%26lang%3Dru%26_adf.ctrl-state%3Dtxrlotc2x_282">http://stat.gov.kz/faces/wcnav_externalId/homeNumbersCommodity?lang=ru&amp;_afriLoop=3926565929891896#%40%3F_afriLoop%3D3926565929891896%26lang%3Dru%26_adf.ctrl-state%3Dtxrlotc2x_282</a>
Ratio of total waste generation per unit of GDP or value added	Source: SC MINE RoK, on volume of industrial, hazardous waste and MSW - MEGNR RoK Frequency: annually, by reporting calculation Unit of measure: kg (tonnes)/tenge (dollar) <b>Waste generation intensity and recovery ratio</b>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>



Consumption of mineral and organic fertilizers		
Total mineral/organic fertilizer consumption per unit of land area	Source: SC MNE RoK Frequency: annually, by reporting calculation Unit of measure: tonnes/ha of land	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Economic result per unit of water used by economic sectors	<b>Water productivity</b> Source: SC MNE RoK, on water usage - Committee on Water Resources MEGNR RoK Frequency: annually, by reporting calculation Unit of measure: tenge (dollar)/ m <sup>3</sup> Methodology: The ratio of GDP (GVA by sector) to water used by sector.	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Part of the water resources that are recovered annually from the global water cycle (global hydrological cycle)	<b>Renewable stocks</b> Source: Committee on Water Resources MEGNR RoK Frequency: annually Unit of measure: m <sup>3</sup> Methodology: Defined as the sum of the total volume of river runoff and groundwater formed in natural conditions solely through precipitation on the territory of the country and the actual volume of inflow of rivers and groundwater from neighboring countries	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Percentage of forested land to total area of the country (land area)	<b>Forest resources</b> Source: Forestry and wildlife committee MEGNR RoK Frequency: annually Unit of measure: %	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Fish stocks by individual water bodies	<b>Fish stocks resources</b> Source: Forestry and wildlife committee MEGNR RoK Frequency: annually Unit of measure: thousand tonnes	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>

Land resources		
Land that is used or may be used in economic and other activities to satisfy material, cultural and other needs of society (Article 12 of the Land Code)	Source: Land resources management committee MoA RoK Frequency: annually Unit of measure: m <sup>2</sup>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Status of fauna and flora populations belonging to species groups of critical resource importance and bearing biodiversity significance.	<b>Number of endangered species relative to the number of known or counted species</b> Source: Forestry and wildlife committee MEGNR RoK Frequency: annually Unit of measure: units, thousand heads/heads, %	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Weighted total annual value of maximum daily 8-hour average ozone concentrations in cities above a certain threshold.	<b>Ground-level ozone concentration in cities</b> Source: Kazhydromet RSE MEGNR RoK Frequency: annually Unit of measure: mg/m <sup>3</sup>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Particles with diameters less than 10 µm (PM10) and particles with diameters less than 2.5 µm (PM2.5)	<b>Particulate matter</b> Source: Kazhydromet RSE MEGNR RoK Frequency: annually Unit of measure: mg/m <sup>3</sup>	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>
Number of diseases among the population first registered in the reporting period	<b>Morbidity of the population (including from certain infectious and parasitic diseases)</b> Source: MoHC RoK Frequency: annually Unit of measure: cases per 100,000 people	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://old.stat.gov.kz/getimg?id=ESTAT298257">http://old.stat.gov.kz/getimg?id=ESTAT298257</a>
The indicator reflects the amount of damage and the number of natural disasters in Kazakhstan as a whole and across the regions	<b>Damage from natural disasters/Number of natural disasters and amount of damage from natural disasters</b> Source: Committee on Emergency Situations MoIA RoK, local executive bodies Frequency: annually Unit of measure: units, million tenge	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtxrlotc2x_159</a>

Share of the population using improved drinking water sources: domestic water connection, public standpipe, well, closed well, protected spring, rainwater and affordable drinking water.	<b>Population with sustainable access to safe drinking water</b>	
	Source: Committee on Construction, Housing and Utilities Services MIID RoK Frequency: annually Unit of measure: in % of the total population	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
Share of the country's population with access to sewage treatment	<b>Population connected to sewage treatment</b>	
	Source: Committee on Construction, Housing and Utilities Services MIID RoK Frequency: annually Unit of measure: in % of the total population	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
A set of activities/services that includes research, experimentation, search, research and production of prototype and small-scale products, prior to the launch of a new product/service for industrial production for the purpose of conserving natural resources and related to green growth	<b>Research and development expenditure of importance to green growth</b>	
	Source: MES RoK Frequency: annually Unit of measure: tenge	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
Number of environment specialists graduating from higher education institutions	<b>Graduation of specialists by higher educational institutions in environmental specialties</b>	
	Source: SC MINE RoK Frequency: annually Unit of measure: people, %	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
Patents of importance to green growth.	<b>Patents of importance to green growth</b>	
	Source: National Institute of Intellectual Property MoJ RoK Frequency: annually Unit of measure: units	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
Number of enterprises with environment-related innovations. Ecological (green) innovations - new products, technologies, methods of production organization ensuring protection and extended reproduction of the natural environment.	<b>Number of enterprises with environmental innovations</b>	
	Source: SC MINE RoK Frequency: annually Unit of measure: units, % Methodology/Methodology for forming indicators of research and development and innovation statistics (No.232 of 6.10.2016). The indicator is formed on the basis of the annual national statistical observation according by the form 1-Innovation "Report on innovation activity".	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>

Construction works performed in accordance with the construction standards of energy efficiency and energy saving (usage of new technologies in constructing new facilities, thermal modernization of existing buildings during reconstruction and use of environmentally friendly building materials).	<b>Volume of work performed in green construction</b>	
	Source: SC MINE RoK Frequency: annually Unit of measure: tenge The indicator is formed on the basis of the annual national statistical observation according by the form 1-KC "Report on completed construction works (services)".	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
Expenditure aimed at environmental protection and rational use of natural resources	<b>Environment-related investments</b>	
	Source: SC MINE RoK Frequency: annually Unit of measure: tenge Methodology: Methodology for forming investment activity indicators (No. 296 of 2.12.2016). The indicator is formed on the basis of the annual national statistical observation according by the form 1-invest "Report on investment activity".	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://old.stat.gov.kz/getimg?id=ESTAT107790">http://old.stat.gov.kz/getimg?id=ESTAT107790</a> <a href="http://old.stat.gov.kz/getimg?id=ESTAT297281">http://old.stat.gov.kz/getimg?id=ESTAT297281</a>
Environmental taxation is a type of mechanism for economic regulation of environmental protection and use, including: payment for emissions into the environment, payment for the use of certain types of natural resources, etc.	<b>Environmental taxation</b>	
	Source: State Revenue Committee MoF RoK Frequency: annually Unit of measure:tenge, %	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
Setting the selling price for electricity and energy carriers	<b>Energy pricing</b>	
	Source: SC MINE RoK Frequency: monthly, annually Unit of measure: tenge/tonnes, tenge/tonnes, thousand kWh	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://old.stat.gov.kz/getimg?id=ESTAT107792">http://old.stat.gov.kz/getimg?id=ESTAT107792</a>
Average prices and tariffs for hot and cold water and sewage for the population. Purchase prices of hot water and steam (heat energy) for industrial enterprises.	<b>Water pricing</b>	
	Source: SC MINE RoK Frequency: monthly, annually Unit of measure: tenge/m <sup>3</sup> ; tenge/m <sup>3</sup> ; thousand kWh; tenge/Gcal	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>
Ratio of profit (income) of enterprises engaged in water collection, treatment and distribution, as well as water disposal to the sum of all costs (expenses) of these enterprises	<b>Profitability (unprofitability) of the production of enterprises collecting, processing and distributing water, as well as water disposal</b>	
	Source: SC MINE RoK Frequency: monthly, annually Unit of measure: coefficient	Official statistics (by industry)/Operational data (express information, bulletins)/Environmental protection/Green economy indicators <a href="http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159">http://stat.gov.kz/faces/wcnav_externalId/Ind.Green_Economy?_afriLoop=3925944899011706#%40%3F_afriLoop%3D3925944899011706%26_adf.ctrl-state%3Dtx1otc2x_159</a>

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*On the cover is a reproduction of the  
painting by kazakhstani artist D. Kasteev «Zhailau».*

**INTRODUCTION OF GREEN GROWTH INDICATORS  
IN THE REPUBLIC OF KAZAKHSTAN**

**National Report based on the OECD  
Green Growth Indicators**

Signed to the press 08.11.19

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