



Industrial waste management market in Kazakhstan

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INTRODUCTION

Waste management is a critical component of any nation's sustainable development strategy, and Kazakhstan, with its vast and diverse landscape, is no exception. The country has experienced a significant increase in waste generation driven by economic growth and urbanization. Kazakhstan was one of the world's fastest-growing economies until 2015 and then drop downed till 4.5% GDP growth in 2019 which was lowered largely due to the global pandemic and decrease demand for oil as a result. The economy began to rebound in 2021, but the Russian invasion impacted negatively on the economic growth of the country in 2022. Despite this negative impact it's already expected that GDP will continue to grow and could reach 4.2% - 5.2% in 2023 according to the National Bank of Kazakhstan.

Further economic growth and the governmental strategy in investment in the leading industries such as oil & gas, mining in extraction of the natural resources and ongoing urbanization continue to contribute into waste generation. Kazakhstan's industrial sector, including mining, energy production and manufacturing generate substantial quantities of hazardous waste, including chemicals, heavy metals and other potentially harmful materials.

Experts noted that industrial waste is usually managed by the industry itself, and therefore receiving detailed data on industrial waste is especially difficult. However, according to the Ministry of Ecology over 800 million tons of industrial waste is generated annually in 2020 where the main source of hazardous waste generation is the mining industry. However, it's worth to note that there was significant decrease of industrial waste from **almost 800 million tons to around 309 million tons in 2021** across all industries but specifically in the mining from 91 million tons in 2020 to 25,5 million tons in 2021 according to the National Agency of Statistics. Despite such significant decrease, for example, the CO₂ intensity of Kazakhstan's GDP remains higher than the world average.

In response to the challenges the government of Kazakhstan has made progress in addressing waste management issues through implementation of regulations and support of various initiatives. One of the significant steps towards to "Green Economy" was adoption of the new Environmental Code of the Republic of Kazakhstan in 2021 with further tightening measures just recently introduced in October 2023. In addition to that, according to the "Green Economy" plans the level of the processed MSW should be **30% by 2030 and 50% by 2050**. The adopted Waste -to - Energy mechanism in November 2020 has aimed to further reduction of waste and compliance with the international standards.

In 2022, the processed municipal solid waste (MSW) was only 15% of the 5 million tons of MSW created annually in Kazakhstan. In addition to the low share of processed MSW, spontaneous landfills and the lack of modern landfills are still a key problem in waste management system.

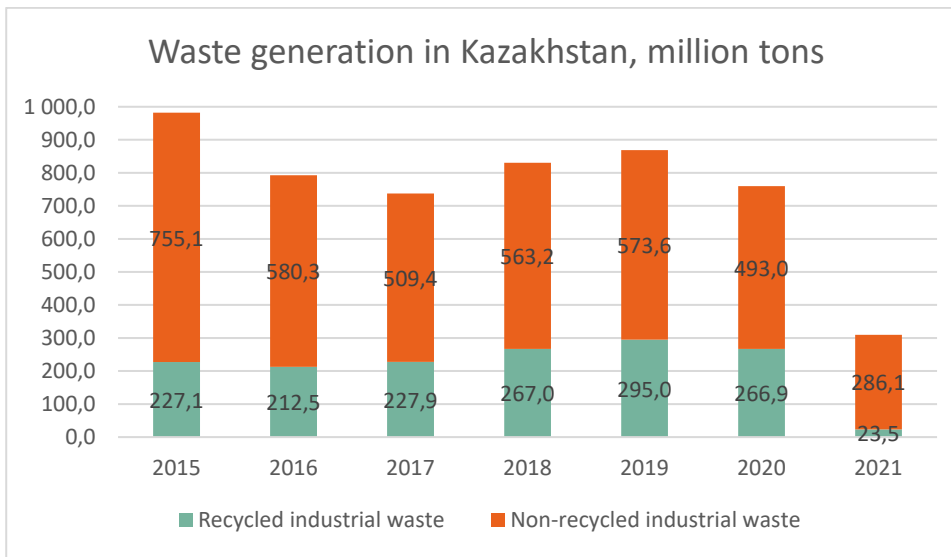
Kazakhstan's journey in waste management is marked by a dual narrative. On one hand, the dynamic of economy has led to increase of waste generation requiring more efficient waste management system. On the other hand, this period of growth presents an opportunity for the country to develop sustainable and environmentally friendly waste management practices that comply with the international standards.

TRENDS AND SCALE OF ENVIROMENTAL EXPENDITURE

As it is stated in the report of United Nations Economic Commission for Europe (UNECE), in recent years, Kazakhstan has become one of the leaders in Central Asia in applying the green economy approaches. The Concept for the Transition to a Green Economy was adopted in 2013 which identifies the green economy as a strategic goal.

Industry is the second most important sector with 23 % of GDP share in 2022 after the Service sector which contributes around 53% to GDP. The most important sectors of industry are oil & gas exploration and production followed by mining. **Oil & gas and mining are the most important sectors of the industry that bring the largest environmental threats at the country level.** Further development and rapid growth of both sectors actively supported by the government and investors lead to further destructions of natural landscape, air pollution, water contamination by oil products, compounds of zinc, iron, copper, nitrite nitrogen, ashes in air, etc.

In 2020, industrial sectors produced around 759 million tons of the waste but only 35% was recycled in comparison to 80% in the European Union or Japan. Despite the fact of low rate of recycling it's worth mentioning that **the volume of the waste decreased significantly more than two times from 759 million tons to 300 million tons within one year b/w 2020 and 2021.** One of the main reasons for such a significant dropdown could be in enforcement of the new Eco Code which was announced in the beginning of 2021 and then enacted in the same year shortly.

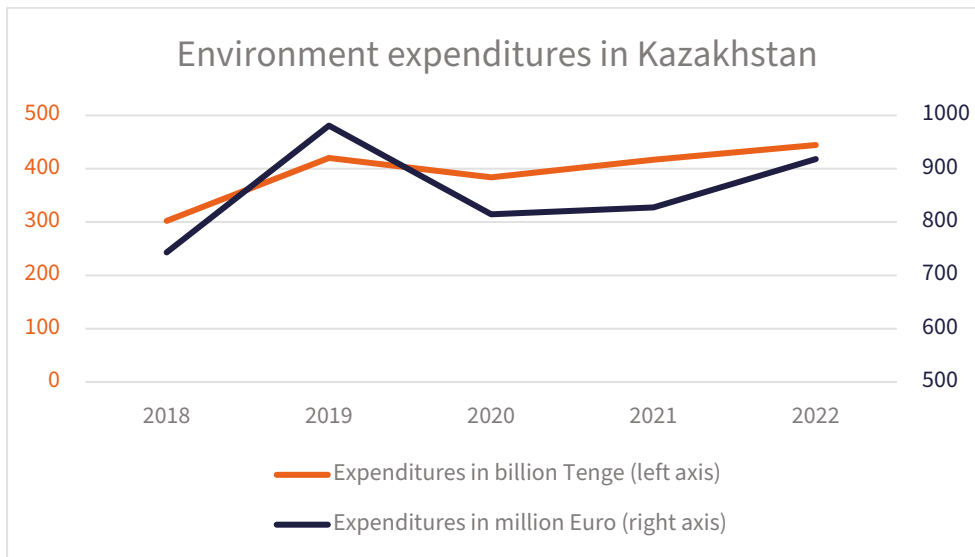


* *Data of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan*

It's expected that the new amendments in the Eco Code presented in September 2023 will continue to lead the industries **to modernize the equipment, technologies, and waste treatment measures through investing into the equity capital**. Yet, there is criticism of the new amendments already from the commercial sectors, claiming the new ones are more repressive i.e. increasing the size of penalties, criminal liabilities or requirements for laboratory conclusions. In contrary, local authorities should develop disposal sector through recycling technologies which are more effective and encouraging business to invest more in waste management treatment.

Nevertheless, there is a strong commitment of the Kazakh government to continue implementation of the international standards in preventing damage and harm to health and environment caused by waste and poor waste management. This commitment is proved by governmental initiatives in legislation and the Strategic plan of development till 2050 and the Concept "Green Economy and increase of environmental expenditures.

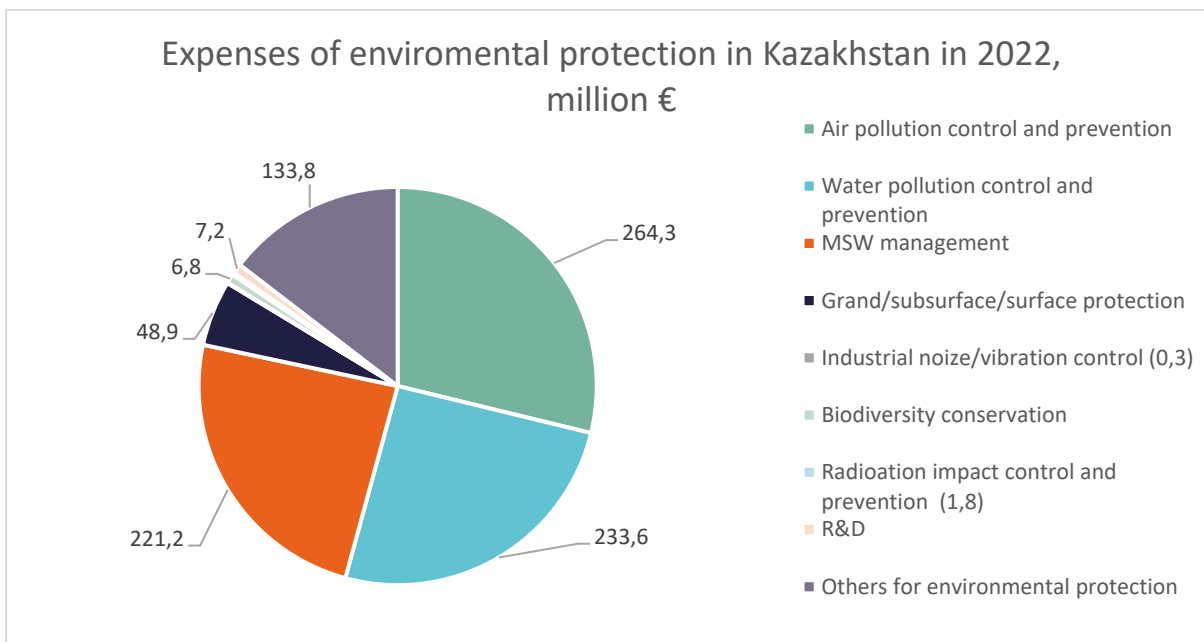
The volume of environmental expenditures in 2022 amounted to 921 million euro that is 11% more in value terms compared to 2021 and 6% less than the record spending in 2019. We can see that a recovery in spending more on environmental protection had started after the pandemic year. However, the expenditures in local currency (tenge) shows consistency in growth across the whole period of 2018-2022.



Statistics Agency of Republic of Kazakhstan / 2018-2022

More than half of all environmental expenditures fell on Atyrau which is the oil & gas region where the largest oil & gas companies such as Exxon Mobil, Chevron, CNPC, KazMunaiGaz (Samruk Kazyna’s Group) and others have been operating for many years. Atyrau’s regions contributed 208 million euro (23%) in 2022 to the total amount of the environment expenditures, Aktobe (93 million euro), Karaganda (95 million euro) where the main coal production is located such as ERG and Arcelor Metal. The next two regions are worth to mention – Pavlodar with 78-million-euro expenditures and Eastern Kazakhstan with 69 million euro.

In 2022 the highest costs for environmental protection accounted for Air pollution control and prevention that was almost 29% of all spendings for environmental protection. The industrial companies had increased their expenses on air pollution control and prevention by 55% in comparison with the previous year (2021). Water treatment is the second item in a budget with 24,5% of all spending for environmental protection with the growth of 20% in comparison with 2021. And the third largest item of expenses is **municipal solid waste prevention with 21% of all spendings including industrial waste** which has been growing steadily on 20% annually since 2020.



Statistics Agency of Republic of Kazakhstan / 2022

FINANCING AND INCENTIVES

The main source in financing the environmental protections' expenses were funded by the enterprises themselves, it was around 92% of all expenses on 2022 while the republican budget had financed around 10 million euro and 13 million euro came from the local budgets (akimat).

The growth of expenses is often driven by combination of factors such as search of new raw materials and technologies. In order to optimize expenses, **the solutions of recycled products should become more cost effective**, and this also requires commitment of the government to implement the international standards in environmental protection. This is one of the main approaches to drive companies towards further reduction of pollution or paying more money to the budget. In these conditions, companies are interested in investing in more "green" technologies and preventing negative impacts on the environment.

The main industries which require **the most investment and modernization are heat power industry, water supply and mining**. The recent economic program till 2030 approved on April 2023 by the president of Kazakhstan has identified those sectors in priority for development and modernization that includes resource and energy efficiency improvements, cleaner production and green industrial growth. The program also requires increasing investment and interventions into waste management infrastructure **starting from waste collection and disposal to waste-to-energy solutions**.

Another area that requires significant input to success in implementation of Green Concept is **human resources with the appropriate skills and knowledge of waste management's technologies and solutions**. More and more qualified personnel with engineering and management skills will be needed in the near future.

REGULATORY ENVIROMENT

Kazakhstan was the 1st country in the Central Asian region who established regulations governing the management of industrial waste, including requirements for proper disposal, treatment, and reporting, especially for hazardous waste. Among other regulations, **the strategy of "green economy concept" was approved in 2013**. This includes targets for 2020, 2030 and 2050 in several areas, including water resources, agriculture, energy efficiency, the power sector, air pollution and waste recycling. The Concept aims to use and implement alternative and green technologies in order to decrease significant dependency on "dirty" technologies by 2050.

Kazakhstan also ratified the Paris Agreement in 2016 that also impacted the efforts and intention towards "green economy" starting from decreasing carbon emission to more effective waste management.

The main framework of industrial waste regulations is **the Environmental Code enacted in July 2021**. The Environmental Code is the main legal document that encompasses a wide range of environmental issues, including waste management. It sets the foundation for 1) defining industrial waste categories according to the European catalog, specifying permissible disposal methods, 2) outlining responsibilities and minimizing of waste generation, 3) reusing and disposal at landfills, etc. In addition, a licensing procedure is being introduced for the implementation of activities for the processing, utilization, and destruction of hazardous waste. The code concludes **the specific regulations** that focus on industrial waste management by introducing the best available technologies (BAT). According to the Code the companies must prepare and follow a "program for improving environmental efficiency" for implementing relevant **BAT within 10 years**.

These regulations provide detailed guidelines for the classification, handling, transportation and disposal of different types of industrial waste. It's worth pointing out the specific provisions for the management of hazardous waste recognizing the high risk associated with these materials.

To enhance transparency and accountability the government also **implemented reporting requirements for industrial facilities**. These reporting mechanisms help track the types and quantities of waste generated, facilitating data driven decision making which allows to implement improvements and new solutions in waste management. It also provides access to information and public participation procedures and measures to strengthen the protection of environment. Nevertheless, some advanced

concepts of environmental legislation (e.g. integrated permitting, environmental audit or environmental insurance) introduced a decade ago, do not yet work properly according to the report of Environmental Performance Review by United Nations in 2019. As response to lack of efficiency in September 2023 the government presented the new amendments into the Environmental Code which will be enacted from April 2024 and lead to tighten responsibilities of companies for waste generation i.e. increasing criminal liabilities and size of fines/penalties. Despite the criticism about a significant number of amendments many international organizations such as the Economic Commission of United Nations, USAID, etc. have recognized some aspects i.e. codification rather successful. In addition, the international experts also noted that **Codes in Kazakhstan have a higher legal value than laws**, which brings an undisputable value to all efforts of the national government.

INSTITUTIONS

In Kazakhstan the management of industrial waste is overseen by several key institutions, each playing a crucial role in regulating, monitoring and implementing waste management practices. The Ministry of Ecology, Geology and Natural Resources is the central authority.

The Ministry of Ecology, Geology and Natural Resources (MEGNR), which took its current form in 2019, is responsible for environmental protection policy, climate policy, “green economy” development and waste management, among other issues.

The Committee on Statistics of the Ministry of National Economy is responsible for the quantitative and qualitative characteristics of indicators to monitor progress towards the country’s green economy transition. The Committee of Statistics collects certain information on financial flows, such as investment and current (or operational) expenditures for environmental protection.

Committee for Environmental Regulation and Control is operating under MEGNR. This committee focuses on enforcing environmental legislation including industrial waste.

JSC Zhasyl Damu is a subordinate organization of MEGNR responsible protection, restoration and improvement of the quality of the environment ensuring the transition of the Kazakhstan to low-carbon development.

Atameken National Chamber of Entrepreneurs is a non-governmental institution which promotes sustainable business practice including in waste management. It collaborates with businesses guiding on environmentally friendly approaches and advocating for the best practices in waste reduction and recycling.

Regional Environmental Departments are the regional level agencies responsible for implementing and enforcing environmental regulations within their respective regions/jurisdictions. They work closely with the central government to monitor industrial activities and ensure adherence to waste management standards.

Yet, the central governmental authorities define strategies and goals on waste management, but implementation is fully on the shoulders of municipalities and the private sector.

INTERNATIONAL COOPERATION AND FINANCE

According to the United Nations Development Program (UNDP) the Ministry of National Economy of the Republic of Kazakhstan estimates that this transformation will require US\$647.5 billion in investment over the next 40 years by 2060. It's expected that the private sector should provide 95% of the financing. In order to meet such an ambitious goal, the appropriate legal and finance frameworks should be developed and implemented to create a green financial system.

Along with the state support **the international financiers and donors** play a key role at this stage as well. Kazakhstan has facilitated collaboration with the international organizations such as the European Bank of Reconstruction and Development (EBRD), Asian Development Bank (ADB), the U.S. Agency for International Development (USAID) and UNDP.

EBRD is the largest investor into the country. To date it has invested around 10 billion US Dollars through 304 projects where the investment into the green projects is around 1,5 billion US Dollars already.

ADB has already invested into 105 projects in total with 6 billion US dollars. ADB assists starting from development of the regulatory framework for renewable technology heat supply to generation facilities with hydro, hybrid, and power storage.

USAID finances almost 2.24 billion US Dollars in format of private investments resulting in about 60 renewable projects to date as new private investments with target on decreasing greenhouse emissions.

UNDP's green portfolio consists of 34 projects with 900 million US dollars. These projects cover various areas, such as ecosystem restoration, sustainable food systems, climate resilience, energy efficiency, renewable energy and national adaptation plans according to Sukhrob Khojimatov, UNDP Deputy Resident Representative in Kazakhstan.

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