

INVENTORY OF PLASTIC POLLUTION SOURCES IN UZBEKISTAN



Designations and abbreviations

GDP	Gross domestic product
SMES	Garbage collection point
LTD.	Limited Liability Company
PET	Polyethylene terephthalate
RU	Republic of Uzbekistan
MSW	Municipal solid waste

Introduction

The generation, collection and recycling of plastic waste is a global threat of concern to the entire international community. Plastic waste poses serious risks to environmental safety and public health, harming the environment.

The Republic of Uzbekistan is a country in Central Asia, occupying an area of 448.9 thousand square kilometers with a population of more than 35 million people. The country borders Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan and Turkmenistan. Uzbekistan is rich in natural resources, including oil, natural gas, gold, uranium and cotton, making it a major exporter in the region.

The leading industries of the country are cotton processing, machine-building, textile, gas, electrical, radio-electronic, instrument-making, oil refining, automobile, as well as non-ferrous metallurgy, processing of agricultural products. Chemical and petrochemical industry, light industry, electric power industry, ferrous metallurgy, production of construction materials, etc. are also actively developing.

According to statistics for 2022, Uzbekistan 14th in the world in natural gas production, third in exports and sixth in cotton production, seventh in uranium production (4% of the world's reserves), and fourth in gold production in the world. Overall, the country has experienced growth in manufacturing, with its share of GDP increasing from 21.1% to 26.7% between 2017 and 2022 .¹

Uzbekistan has recently experienced significant population and economic growth, which is becoming a key driver of socio-economic and environmental change. The population's demand for quality food, water, energy and other natural resources is growing. At the same time, economic growth leads to an increase in the production of goods and services, income growth and the expansion of the country's role at the regional and global level. However, at the same time, the volume of plastic waste is also increasing, creating additional environmental risks and pressures on natural systems.

Since 2017, significant steps have been taken in the country to establish an effective municipal solid waste (hereinafter - MSW) management system, which resulted in a number of improvements. An important milestone was the adoption of the MSW Management Strategy for the period 2019-2028 and a number of waste management regulations

Nevertheless, the volume of waste continues to grow. While in 2016, the generation of municipal solid waste, which also includes plastics, was about 6.9 million tons, in 2023 this figure will exceed the 10 million tons mark.

The increase in plastic waste generation can be attributed to population growth, socio-economic development, changing lifestyles and the active use of single-use packaging.

¹ Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan. (2023). National Report on the State of the Environment: Uzbekistan. International Institute for Sustainable Development.

An international agreement on plastics, currently under development, aims to combat global plastic pollution by bringing countries together to address this critical issue. Adoption of this agreement will be an important measure to reduce plastic production and use, improve waste collection and recycling systems and protect the environment worldwide.

Taking into account international processes and national strategic objectives aimed at improving the system of waste collection, utilization and recycling, Uzbekistan needs to take decisive measures to reduce plastic waste.

One of the key tasks in this direction is to collect, analyze and generalize data on plastic waste management in order to develop a sound environmental policy. It is important to involve all participants of this process - from the authorities to the private sector and civil society - in the process of developing an integrated approach to solving the problem of plastic pollution.

The National Review «Plastic Waste in Uzbekistan: Production, Recycling and Pathways to Sustainability» (hereinafter - the Review) is intended to inform all stakeholders about the situation with plastic waste in Uzbekistan. It also serves as a tool for the formation of more effective waste management strategies and better coordination of actions at the national and regional levels.

Methodology

The methodology of this Survey is based on an integrated approach that includes analysis of statistical data, legislative framework, consultations and surveys of various target groups. The main focus is on studying production and export-import operations with plastic waste, assessing current collection and recycling infrastructure, and analyzing the level of public awareness and participation.

Various methods of information collection were used to conduct the study. Primary data analysis included statistical information on production, imports and exports of plastic products provided by official sources such as the Agency of Statistics under the President of the Republic of Uzbekistan and the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan.

Waste statistics in Uzbekistan are maintained in accordance with the Regulation «On the Procedure for State Accounting and Control in the Field of Waste Management» (PCM RUz No. 295 dated 27.10.2014), which is applied by the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan. However, the reporting contains general information, which includes waste both recyclable and non-recyclable.

Additional data on plastic waste collection and recycling volumes were obtained from the Republican Center for Organization of Sanitation Works through official requests, as this data is not publicly available.

Content analysis of legal and regulatory instruments such as Cabinet laws and regulations, Presidential Decrees, including the Solid Waste Management Strategy for the period 2019-2028, enabled the study of legislative and regulatory aspects of plastic waste management.

Surveys and questionnaires became an important tool to assess the awareness and involvement of the population, experience of state authorities, specialized enterprises and producers in plastic waste management. In the process of the study, a database of key actors in each sector was created, including producers, recyclers, municipalities and institutions responsible for waste collection and disposal. Based on this database, targeted questionnaires were distributed, which allowed to obtain a spectrum of opinions and to assess the readiness of different groups to implement the principles of sustainable waste management

The questionnaires contained questions on current waste management practices, applied alternatives to single-use plastics, identification of barriers to sustainable waste management, and possible improvements. It should be noted that the level of participation of representatives of various stakeholders in the questionnaires remained low. In addition, some of the questionnaires did not contain answers to all the questions posed. This may indicate low interest of producers, waste enterprises, civil society in disclosure of information and involvement in the processes of improvement of the waste management system in the country.

Various sources were used to analyze the current situation on the introduction of sustainable alternatives to disposable plastic in Uzbekistan. These include legal and regulatory acts of the Republic of Uzbekistan, results of surveys and questionnaires conducted within the framework of the project. Additionally, information from open sources was studied to better understand the practices and barriers to the use of alternative materials.

Despite the efforts made, it should be noted that the study is limited by data availability and survey coverage. In some cases, quantitative data may have been incomplete or inaccurate due to insufficient records or closed data. However, despite these limitations, the results presented provide an overview of the current status and prospects of plastic waste management in Uzbekistan

The collected data were structured and analyzed using both statistical and qualitative methods of analysis.

The review begins by analyzing data on production, import and export of plastic products in Uzbekistan, including volumes and types of plastic, data on import and export of plastic. The second section describes the situation on plastic waste management, including volumes of collection and recycling, existing infrastructure and main recycling methods. The third section of the report includes a description of policies and legislation in the field of plastic waste management. The fourth section describes public awareness and participation in plastic waste management issues. The availability of sustainable alternatives to single-use plastic is described in Section 5 of this review. Conclusions and recommendations formed in the course of analyzing the issues of production, collection and recycling of plastic waste in Uzbekistan are described in Section 6 of this Review.

1. Analysis of production, import and export of plastic products in Uzbekistan

1.1 Volumes and types of plastic production

Plastic production in Uzbekistan is a fast-growing and promising industry, supported by significant demand in the domestic market and government initiatives aimed at developing the industry.

Uzbekistan produces a wide range of polymer materials, from basic plastics such as polyethylene and polypropylene to more specialized types of polymers used in industry and construction. Modernization of older industries is facilitating the production of more sophisticated products such as medical devices. At the same time, there are changes in the role of cities, the location of production facilities, population demographics and lifestyles, all of which are influencing the increasing rates and volumes of production of different types of plastics and plastic products.

According to the Statistics Agency, in 2023 Uzbekistan produced 85.4 thousand tons of polymers in primary form, including polyethylene, polypropylene and other types.

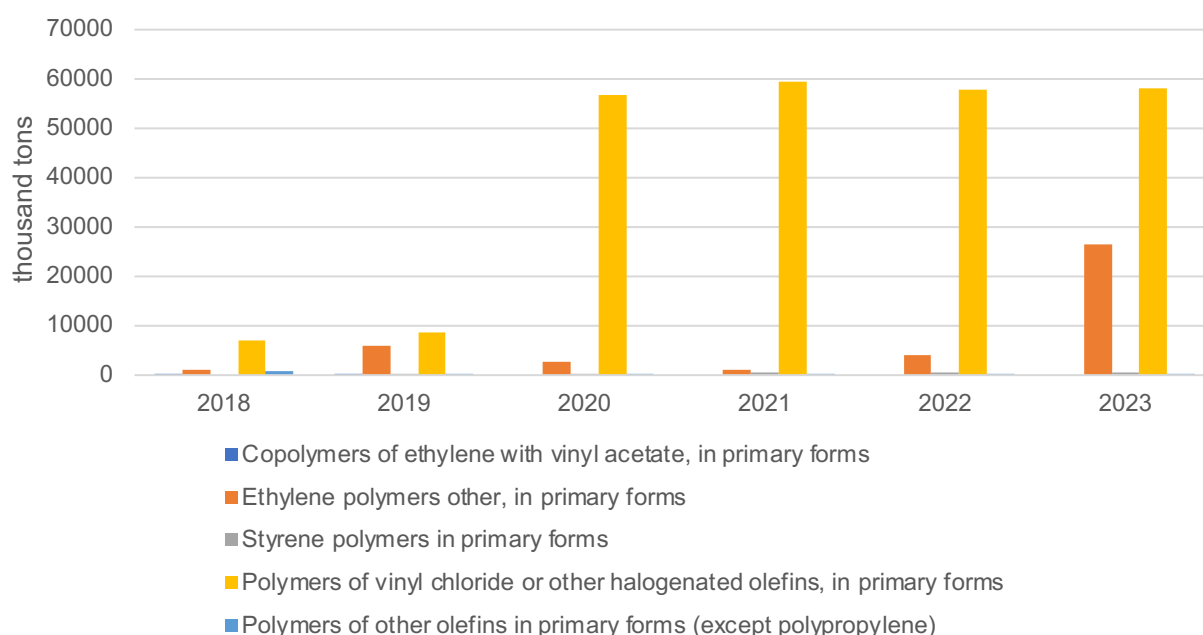


Fig. 1 - Dynamics of production of certain types of polymers in primary forms in the Republic of Uzbekistan, 2018-2023.

Source: Statistical Agency under the President of the Republic of Uzbekistan (2023).

Thus, the bulk of polymers in primary form as reported are polymers of polyvinyl chloride or other halogenated olefins in primary forms, which are typically used in the manufacture of building materials (e.g., plastic windows, pipes, and flooring), packaging materials, electrical insulation, and various medical devices.

Ethylene polymers, which are widely used in the packaging, construction and agricultural industries, also occupy an important place in the structure of production of certain types of polymers in Uzbekistan. Over the last three years there has been a significant growth in polyethylene production in the country.

Uzbekistan also produces styrene polymers, ethylene copolymers and polymers of other olefins. However, their production level remains low compared to other polymers. Production of styrene polymers shows a gradual growth from 199.6 thousand tons in 2019 to 652.2 thousand tons in 2023. Statistics on the production of polymers of other olefins show unstable dynamics. In 2018, the production volume amounted to 895.9 thousand tons, in 2019 - 8.0 thousand tons, in 2020 - 121.3 thousand tons, in 2021 - 3.5 thousand tons, in 2022 - 7.0 thousand tons, and in 2023 significantly increased compared to previous years and amounted to 150.6 thousand tons. Ethylene copolymers with vinyl acetate have not been produced in Uzbekistan in the last four years. At the same time, their production in 2018 amounted to 4.3 thousand tons, and in 2019 - 335.0 thousand tons.

In recent years, the number of enterprises producing certain types of polymers in primary forms and plastic products has been increasing in Uzbekistan.

According to the Agency of Statistics of the Republic of Uzbekistan, 2,010 plastic production enterprises were registered in the country in 2023, which is 11.4% more than in 2020.

Producers of primary forms of plastic and finished plastic products in Uzbekistan include JV LLC «Uz-Kor Gas Chemical» (<https://www.uz-kor.com/>), LLC «TECHNOPLASTIC» (<https://technoplastic.uz/>), LLC «MEP Group» (<https://mep.uz/about>), LLC «Plastmaster» (<http://plastmaster.uz/>) and others.

The production volume of plastic products in Uzbekistan in 2023 amounted to 618.8 thousand tons of plastic products, which include both primary polymers and processed products (e.g. packaging, pipes and other goods). The growth of plastic production volume in relation to 2020 amounted to 33.2%.

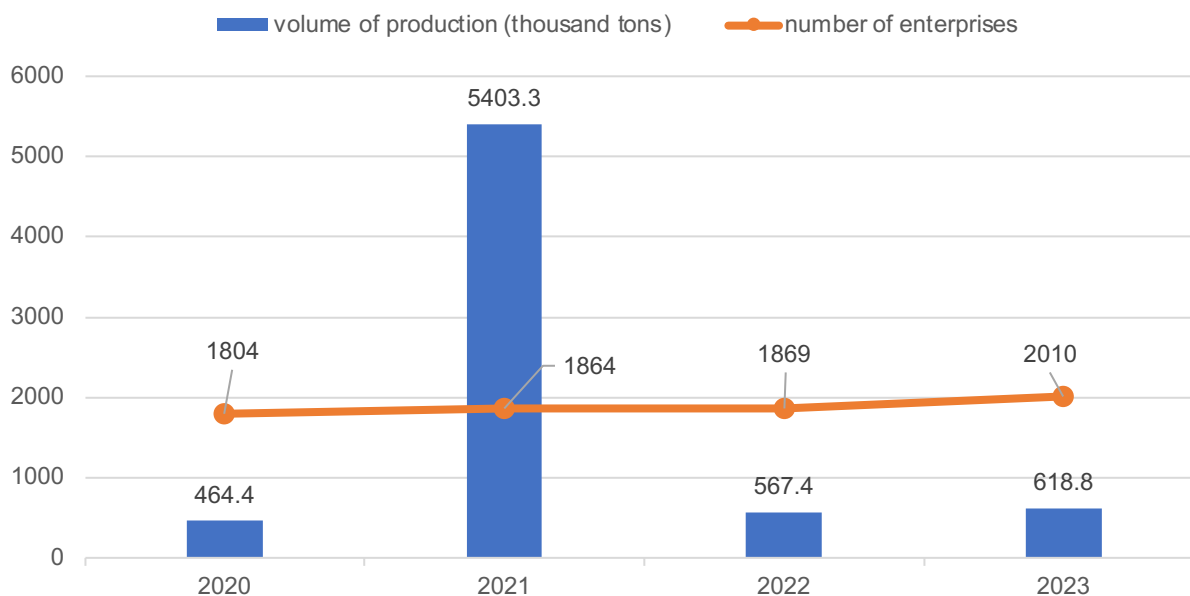


Fig. 2 - Dynamics of production of main types of plastic products and the number of plastic production enterprises in Uzbekistan 2020-2023.

Source: Statistical Agency under the President of the Republic of Uzbekistan 2024.

As shown by the dynamics of plastic products production (Figure 2) from 2020 to 2023, the production of plastics in Uzbekistan increased by 154.4 thousand tons, reaching 618.8 thousand tons in 2023.

At the same time, there is a significant jump in the production of plastic products in 2021. This may be related to the COVID-19 pandemic, as production and consumption of medical devices, including personal protective equipment made of plastic, increased during and after this period. The demand for disposable plastic products also increased, leading to an increase in both consumption and plastic waste. However, such a significant increase may be due to technical errors or changes in methodology in the collection and processing of statistical data.

It should be noted that the plastic production industry in Uzbekistan continues to actively develop. Thus, according to open sources², the largest private oil and gas company in Uzbekistan will build a gas chemical plant to produce olefins from methanol. Gas chemical complex of Uzbekistan plans to produce 300 thousand tons of polyethylene terephthalate, 350 thousand tons of polypropylene and other materials annually. The April 2024 press release notes, «according to a market research, annual polymer consumption in Uzbekistan is now 5.5 kilograms per capita, which is much lower than in other emerging economies. ..., which means that Uzbekistan's domestic market has significant room for expansion». Along with the general growth of industrial and consumer products in Uzbekistan, the demand for packaging materials is also increasing.

² <https://www.mrc.ru/news/412334-uzbekistan-stremitsya-stat-odnim-iz-krupneyshih-v-mire-proizvoditeley-olefinov>

According to a study conducted by a group of researchers in Uzbekistan³ modern packaging industry in Uzbekistan is developing at a great speed. According to the data of 2020 in the Republic of Uzbekistan polymer packaging had the largest share in the composition of wrapping and packaging products, and this share of the total amounted to 47%

The survey results show that soft polymer packaging is widely used for packaging of local products at existing production enterprises in Uzbekistan. There are hundreds of enterprises specializing in the production of packaging products in the country, equipped with modern printing technologies and equipment.

Thus, the growth of plastic production in Uzbekistan partially meets the increasing demand for plastic materials in construction, packaging and other sectors, but it is also accompanied by a significant increase in plastic waste.

1.2 Imports of plastic

Import of plastic in Uzbekistan is an important element of the domestic market, because despite the presence of its own production facilities, the country does not yet fully meet the needs for all types of plastic materials and products.

The main plastic supplier countries are Iran, China, Korea, Russia and Turkmenistan. These countries meet various needs of the Uzbek economy by supplying polymers for the packaging industry, construction, textile production and other industries.

Uzbekistan's plastics imports have increased significantly from 243,600 tons in 2018 to 417,000 tons in 2022, indicating the growing demand for plastics in the country.

3 ECONOMIC EFFICIENCY OF PLYMER PACKAGING PRODUCTION IN UZBEKISTAN // Universum: Technical Sciences : electronic scientific journal. [et al.] 2023. 6(111). URL: <https://7universum.com/ru/tech/archive/item/15694>

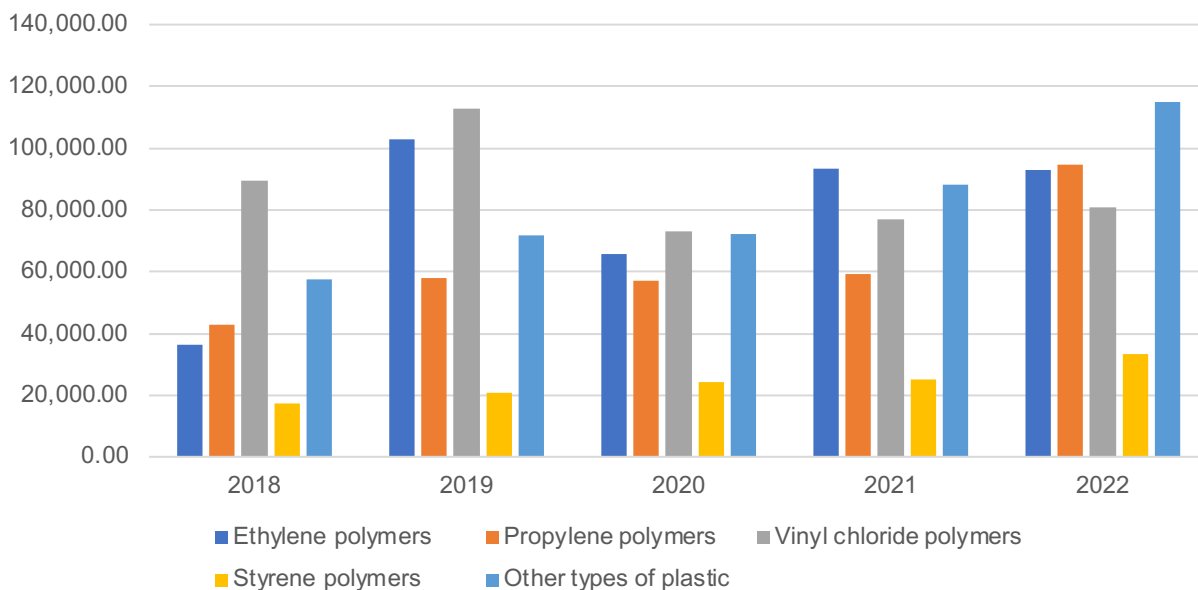


Fig. 3 - Imports of selected types of polymers in primary forms

Source: Statistical Agency under the President of the Republic of Uzbekistan 2024.

Imports of ethylene polymers in Uzbekistan showed significant fluctuations in the period from 2018 to 2022. In 2018, the volumes were 36.3 thousand tons, but already in 2019 they reached 103 thousand tons, which is explained by the growing demand in the packaging and construction industries. In 2020, imports decreased to 65.9 thousand tons, which is probably due to temporary economic changes and reduced demand. In 2021 and 2022, imports stabilize at around 93 thousand tons, indicating stable domestic consumption. Iran and Turkmenistan remain the main suppliers of ethylene polymers to Uzbekistan, due to their geographical proximity and developed petrochemical industry, which makes supplies more economically viable.

As shown in Figure 3, propylene polymer imports have shown a steady growth from 43,000 tons in 2018 to 94.5,000 tons in 2022. This is due to the expansion of the packaging and textile industry in Uzbekistan, where polypropylene is widely used as the main raw material for production. The largest suppliers of propylene polymers are the Republic of Korea and Iran, which hold leading positions in the global market due to quality products and competitive prices.

Vinyl chloride polymer imports peaked in 2019 with a volume of 112.6 thousand tons, but then declined to 73 thousand tons in 2020. There was a recovery to 81 thousand tons in 2022, due to the revival of the construction sector and increasing demand for PVC, which is widely used in construction and infrastructure projects. The main suppliers of vinyl chloride are China and Russia, given the high demand for this material in the construction sector.

Styrene polymer imports increased from 17.3 thousand tons in 2018 to 33.5 thousand tons in 2022, driven by increasing use of styrene foam in insulation and packaging. The Republic of

Korea and Russia remain the leading suppliers of styrene polymers given the high demand in construction and packaging sectors in Uzbekistan.

Imports of other types of plastic have doubled over the past five years, from 57,600 tons in 2018 to 115,100 tons in 2022. This is due to the diversification of consumption of specialized polymers, which find applications in medicine, electronics, and household goods. China and Iran are the major suppliers in this category, providing a wide range of materials for various production processes.

Thus, Uzbekistan demonstrates growth in imports of all major types of polymers, which is associated with an increase in domestic demand in industry and construction. The main supplier countries (Iran, China, Republic of Korea, Russia and Turkmenistan) support this growth due to developed petrochemical industry, favorable trade conditions and geographical proximity. The largest growth of imports to Uzbekistan is observed in the packaging, construction and textile industries, where most of the polymers are used.

1.3 Exports of plastic

The main export of plastics from Uzbekistan is represented by ethylene polymers, which occupies the leading position in the structure of exported polymers.

The main importing countries of Uzbek plastics remain unchanged: Kazakhstan, China, Latvia, Russian Federation, Turkey and Tajikistan.

According to official data from the Statistical Agency of the Republic of Uzbekistan, plastics exports from Uzbekistan decreased from 399.9 thousand tons in 2018 to 284.2 thousand tons in 2022 (Figure 4).

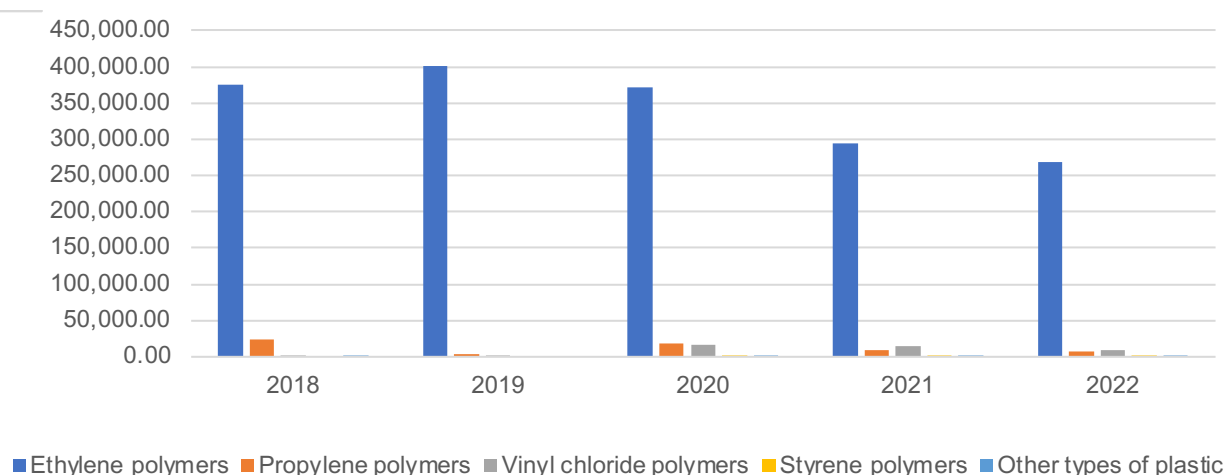


Fig. 4 - Export of selected types of polymers in primary forms

Source: Statistical Agency under the President of the Republic of Uzbekistan 2024.

Exports of ethylene polymers remain the largest by volume, although there has been a downward trend in recent years, from 375.8 thousand tons in 2018 to 268 thousand tons in 2022. Meanwhile, over the last five years, exports peaked in 2019 at 401.5 thousand tons

Vinyl chloride polymer export volumes increased from 0.56 thousand tons in 2018 to 15.8 thousand tons in 2020. However, by 2022, export volumes decreased to 8.9 thousand tons due to economic changes in the region and a decrease in external demand.

Thus, Uzbekistan's plastic exports from 2018 to 2022 show unstable dynamics. Despite the increase in production capacity and access to raw materials, export volumes are increasing and decreasing.

The reasons for the decrease in plastic exports may be related to the growth in domestic demand for polyethylene, which is actively used in packaging and construction materials.

In 2022, the growth rate of domestic production of consumer goods accelerated to 19.4%, leading to an increase in domestic consumption of plastics. This increase is mainly due to the active development of the local market, which encourages both the use of own raw materials and the import of necessary polymers to meet the growing demand and expand the product range. In addition, the domestic market offers more favorable conditions for sales, which stimulates the production of primary polymers, domestic plastics processing and the development of higher value-added products.

2. management of plastic waste in Uzbekistan

2.1 Generation of plastic waste

Plastic waste generation in Uzbekistan is increasing with the growing consumption of plastic products in households and various sectors such as food industry, construction.

Under the influence of several factors such as urbanization, increasing consumption, changes in lifestyle, the morphological composition of MSW is changing.

MSW in Uzbekistan has a complex multi-component composition, which includes food residues (vegetables, fruits, peels, peelings and organic part of other wastes), plastic, glass, metal, wood, textiles, as well as hazardous wastes.

According to morphological analysis, plastic waste accounts for 10.04% of the total MSW (Figure 5).

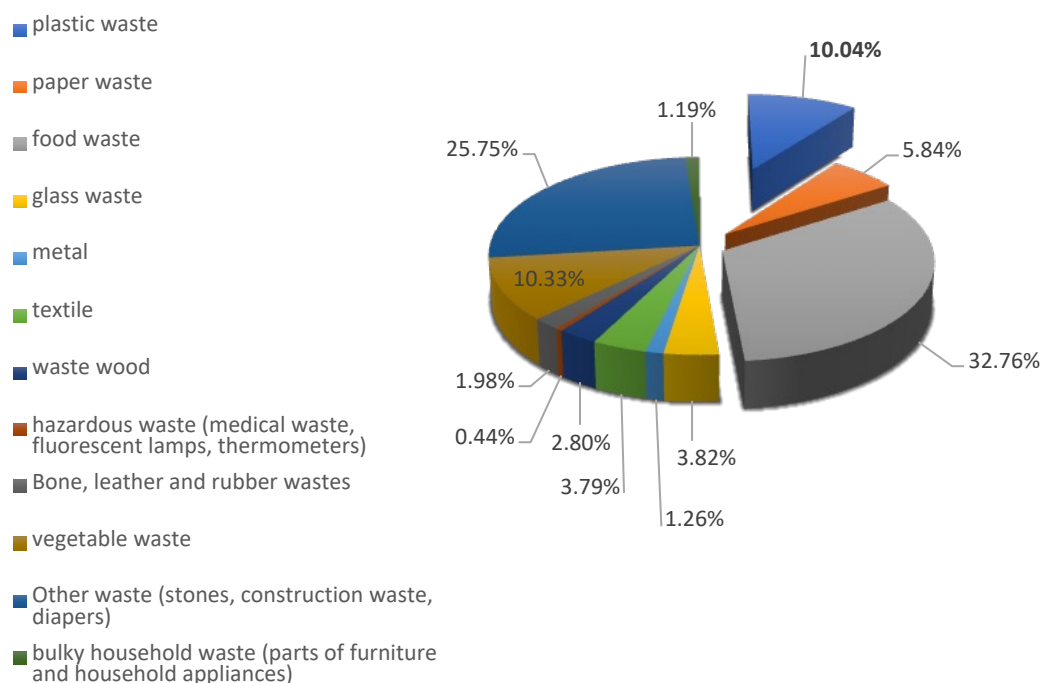


Figure 5 - Morphological composition of municipal solid waste

Source: Average annual results of research and timing works to determine the morphological composition of MSW conducted in multi-apartment and individual housing stock in cities and districts of the Republic of Uzbekistan in 2020-2022.

At the same time, according to data published on the Sustainable Development Goals portal in Uzbekistan⁴ it is noted:

«Every year, 35 million cubic meters of household garbage is generated in Uzbekistan. This is approximately 254 thousand railcars. Each citizen of Uzbekistan produces about 165 kg of household garbage every year. In the average garbage can, about 25% is food waste, 5-10% is paper, 50% is polymers, and the rest is metal, textiles, rubber, glass and other.»

According to the data of the Republican Center for Organization of Sanitary Cleaning Works, the volume of MSW generation in Uzbekistan has been gradually changing from 2016 to 2022.

In 2016, the volume of MSW was 6.9 million tons and decreased to 6.8 million tons by 2022 (Table 1). During this period, the maximum waste volume was recorded in 2020 and amounted to 7.4 million tons.⁵

Table 1 - Dynamics of MSW generation in Uzbekistan for 2016 - 2022.

Total in the republic, thousand tons	Years						
	2016	2017	2018	2019	2020	2021	2022
	6 933	7 034	7 151	7 283	7 425	7 108	6 816

Source: Republican Center for Organization of Sanitation Works (2023)

According to the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan the volume of MSW generation in 2023 reached 10.2 million tons. Thus, taking into account the morphological composition of MSW it can be assumed that plastic generation in 2023 amounted to about 1 million tons of plastic waste or even about 5 million tons, if we take into account the share of plastic in MSW in the amount of 50%.

The significant increase in MSW generation in 2023 (by almost 50% relative to 2022) can be attributed to the growing population of the Republic of Uzbekistan, as well as improved methods of waste accounting and statistical monitoring. The data collection system may have become more accurate, allowing for the potential inclusion of additional waste types that may have previously been unaccounted for or partially accounted for. However, technical errors and different approaches in the methodology of waste data collection and processing should not be ruled out.

Plastic waste generation in the industry of Uzbekistan is also an important source of plastic pollution.

⁴ <https://nsdg.stat.uz/goal/15>

⁵ Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan. (2023). *National Report on the State of the Environment: Uzbekistan*. International Institute for Sustainable Development.

Table 2 - Dynamics of plastic waste generation in the industry sector in Uzbekistan for 2019 - 2023.

Total for the republic, tons	Years				
	2019	2020	2021	2022	2023
	908,3	2 337,0	5 191,7	7 531,4	8 723,3

Source: Statistical Agency under the President of the Republic of Uzbekistan 2024.

As can be seen from Table 2 plastic waste generation in the industry shows significant growth dynamics. For the period from 2019 to 2023, the formation of plastic waste increased almost 10 times and amounted to 8.7 thousand tons.

The highest volumes of plastic waste production were recorded in Tashkent city, Samarkand province and Tashkent region.

Thus, in Samarkand region, the volume of waste plastics increased from 752.9 tons in 2019 to 2,686.3 tons in 2023. In Tashkent city, the growth was from 519.7 tons to 4,615.5 tons for the same period. This situation indicates a high level of industrial activity in these regions and an increase in the consumption of plastic materials in manufacturing.

Other regions are also seeing an increase in plastic waste. For example, in Jizzak region, the volume of waste increased from 40 tons in 2020 to 282.2 tons in 2023. In Navoi region, the increase was from 0.8 tons in 2019 to 89.6 tons in 2023.

These data emphasize the need to implement plastic waste recycling programs, especially in regions with the highest concentration of industrial production. Priority should be given to the development of infrastructure for sorting, recycling and reuse of plastic waste, which will contribute to reducing its negative impact on the environment.

For visual demonstration, the dynamics of plastic waste volumes by regions of Uzbekistan for 2019-2023 is presented (Figure 6).

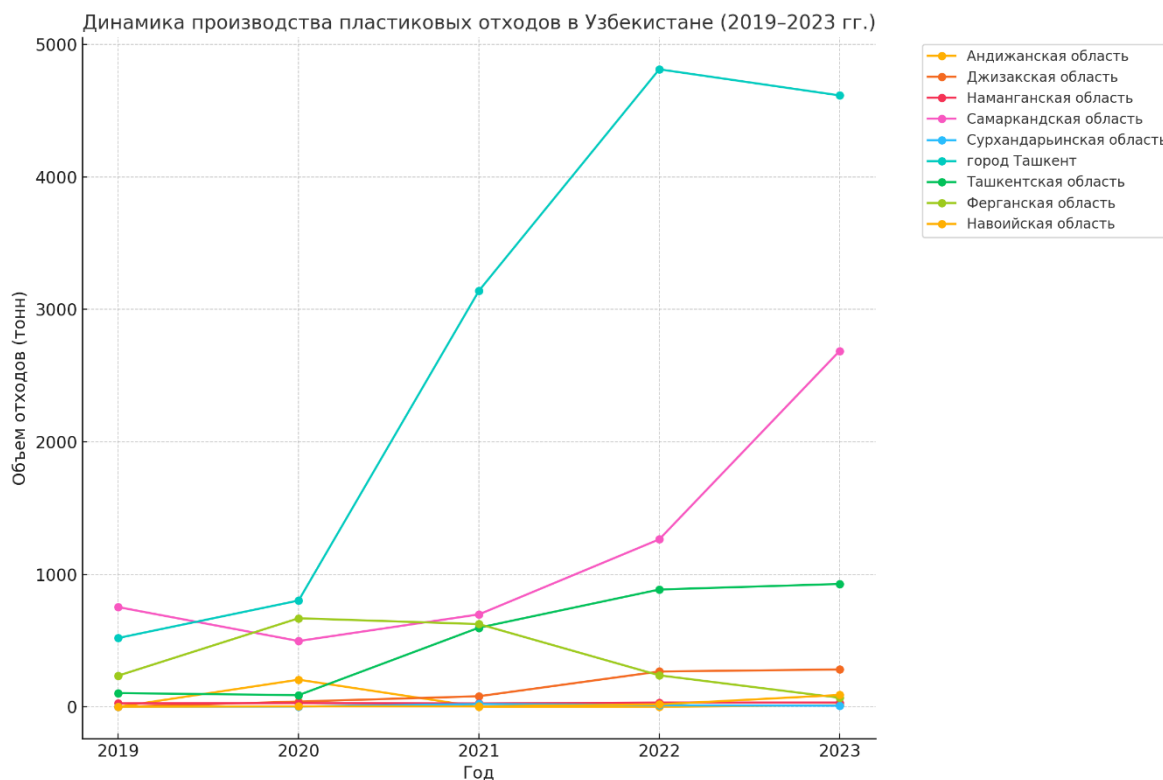


Fig. 6 - Dynamics of plastic waste generation by regions of the Republic of Uzbekistan

Source: Statistical Agency under the President of the Republic of Uzbekistan 2024.

2.2 Import and export of plastic waste

In addition to waste generated in the country, Uzbekistan imports waste plastic from other countries.

Import and export are regulated in accordance with the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal in the Republic of Uzbekistan, the requirements of which are integrated into national legislation. In particular, Uzbekistan adopted the following Cabinet of Ministers Resolutions: No. 43 of January 30, 2021 "On approval of lists of conformity assessment objects subject to mandatory conformity assessment in the Republic of Uzbekistan"⁶ and No. 75 of February 16, 2021 "On measures to further improve the procedure for import and export of environmentally hazardous products and wastes"⁷.

These decrees approved the list of products and wastes subject to mandatory environmental certification and the procedure for certification of environmentally hazardous products and wastes when imported into the territory of the Republic of Uzbekistan and exported from the territory of the Republic of Uzbekistan.

⁶ Cabinet Resolution: No. 43 of January 30, 2021 <https://lex.uz/ru/docs/5249380?ONDATE=13.01.2024>

⁷ Cabinet Resolution: No. 75 of February 16, 2021 <https://lex.uz/ru/docs/5293786>

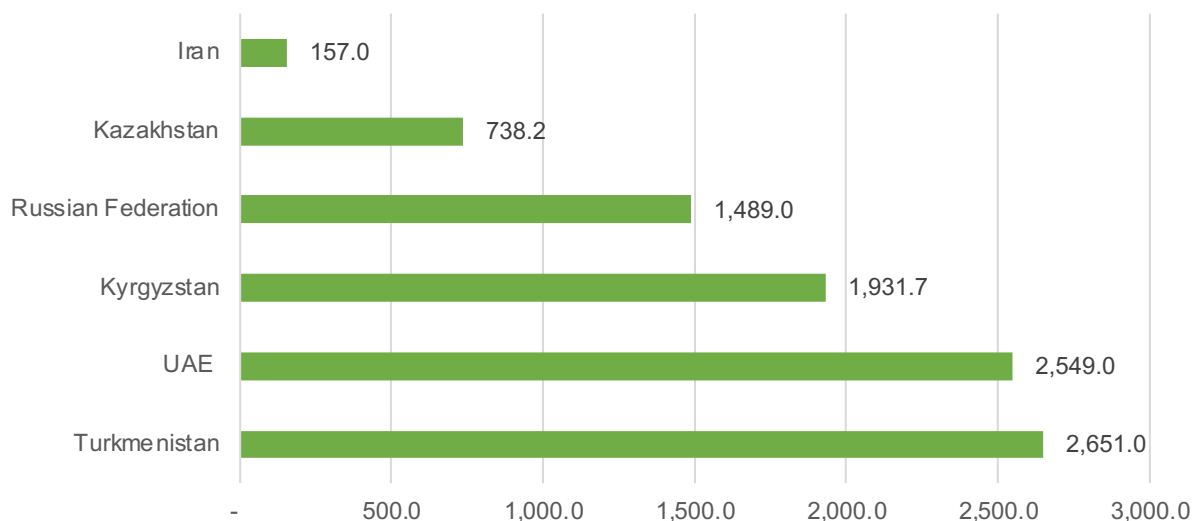


Figure 7 presents data on imports of plastic waste to Uzbekistan for 2022 according to the Customs Committee under the Ministry of Economy and Finance of the Republic of Uzbekistan.

Fig. 7 - Import of plastic waste to Uzbekistan in 2022, tons

Source: Customs Committee under the Ministry of Economy and Finance of the Republic of Uzbekistan

As can be seen from Figure 7, the main importers of plastic waste from Uzbekistan in 2022 are Turkmenistan, UAE, Kyrgyzstan, Russian Federation, Kazakhstan, and Iran. Total imports of plastic waste from these countries amounted to 9,515.9 tons. At the same time, according to the report of the Republic of Uzbekistan on the implementation of the Basel Convention⁸ for 2022, 12,406.9 tons of waste plastics were imported into the country (Table 3).

Table 3 - Import of waste plastics to Uzbekistan according to the Basel Convention report

Type of waste	Quantity, tons	Country of origin
Plastic waste	1 489	Russian Federation
Plastic waste	738.2	Republic of Kazakhstan
Plastic waste	1 931,7	Kyrgyz Republic
Plastic waste	2549	United Arab Emirates (UAE)
Plastic waste	5 542	Republic of Tajikistan
Plastic waste	157	Islamic Republic of Iran

All wastes mentioned in Table 3 were imported under Basel Convention code A4130 «Waste packages and containers containing substances listed in Annex I in concentrations sufficient to exhibit the hazardous characteristics defined in Annex III». The recovery operation specified in the report is R5 “Recycling/disposal of other inorganic materials”.

8 <https://ers.basel.int/ERS-Extended/FeedbackServer/fsadmin.aspx?fscontrol=respondentReport&surveyid=85&vot erid=58770&readonly=1&nomenu=1>

2.3 Collection and recycling of plastic waste

Uzbekistan is taking measures to improve the system of collection and recycling of plastic waste, aimed at reducing its impact on the environment.

At the moment, the collection of recyclable materials, including plastic, is done through collection points, but this process is not yet properly regulated.

Collection and removal of MSW in the multi-apartment residential sector is carried out from waste collection points (MCP), and in the individual residential sector from MCP (special containers for waste) or “signal method”, in which MSW is temporarily stored until the arrival of special vehicles (Figure 8).



Fig. 8 - Solid Waste Management Scheme (on the example of Tashkent city)

Source: Republican Center for Organization of Sanitary Cleaning Works

It should be noted that in Uzbekistan, as well as in other Central Asian and CIS countries, the informal sector in sorting secondary raw materials in MSW has a great role.

In recent years, attempts have been made in Uzbekistan to introduce a system of separate waste collection. Since 2021, a system of separate waste collection has been gradually introduced in the capital of Uzbekistan - the city of Tashkent⁹, research works aimed at improving the environmental culture of residents and legal entities in sorting solid domestic waste.¹⁰

However, the system of separate collection of waste, including plastic, is not fully operational in the country. Thus, waste separation is done at waste collection stations, in special vehicles, in SMEs and also in landfills. Separately collected recyclables - mainly plastic, paper, scrap metal - are bought up by «resellers» or agents who sell them to recycling companies.

9 <https://www.gazeta.uz/ru/2020/12/16/trash/?pre=de8c33264789e789cecb6349a7dc913f9038>

10 <https://eco.gov.uz/ru/site/page?numer=1185>

As of today, 116 enterprises are engaged in plastic waste recycling in the country. There are 82 special collection points for plastic waste in the country.

- Republic of Karakalpokstan
- Bukhara region
- Jizzak oblast
- Kashkadarya province
- Navoi region
- Namangan region
- Samarkand region
- Surkhandarya province
- Syrdarya province
- Tashkent region
- Fergana region
- Khorezm region
- r. Tashkent

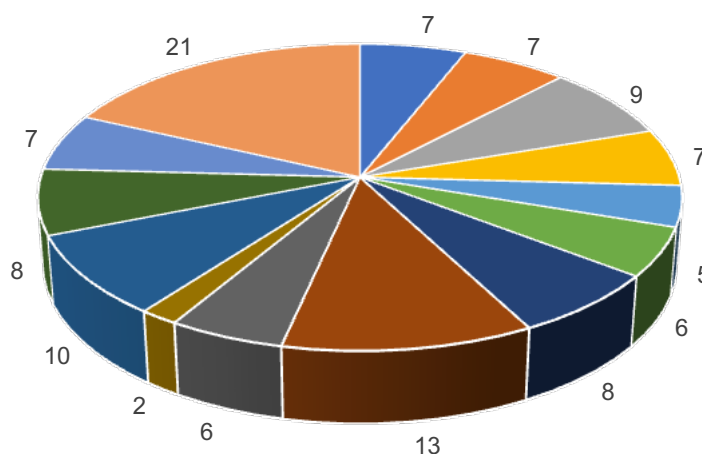


Fig. 9 - MSW processing enterprises

Source: Republican Center for Organization of Sanitation Works (2023)

As can be seen in Figure 9, the majority of plastic waste recycling enterprises are located in Tashkent city (21 enterprises), Samarkand (13), Tashkent (10), Bukhara (9), Namangan (8) and Fergana (8) oblasts. Regions with the highest population, such as Samarkand, Fergana, Kashkadarya, Andijan and Tashkent provinces, lead Uzbekistan in terms of plastic waste generation.

The plant recycles various types of waste, including plastic and cardboard. In 2017, the company was equipped with modern recycling equipment, including a line for the production of PET fibers and cardboard. This allows the company to efficiently handle significant volumes of waste and produce secondary raw materials.

In 2021, the company received 17 units of special vehicles for waste removal to improve logistics and service to the population. This was an important step to improve the quality of services and increase waste recycling in the region.

Figure 10 shows the dynamics of the number of waste treatment facilities and volumes of waste

treated in Uzbekistan from 2019 to 2023. There is an overall increase in the number of recycling facilities during this period, which indicates the development of waste management infrastructure in the country.

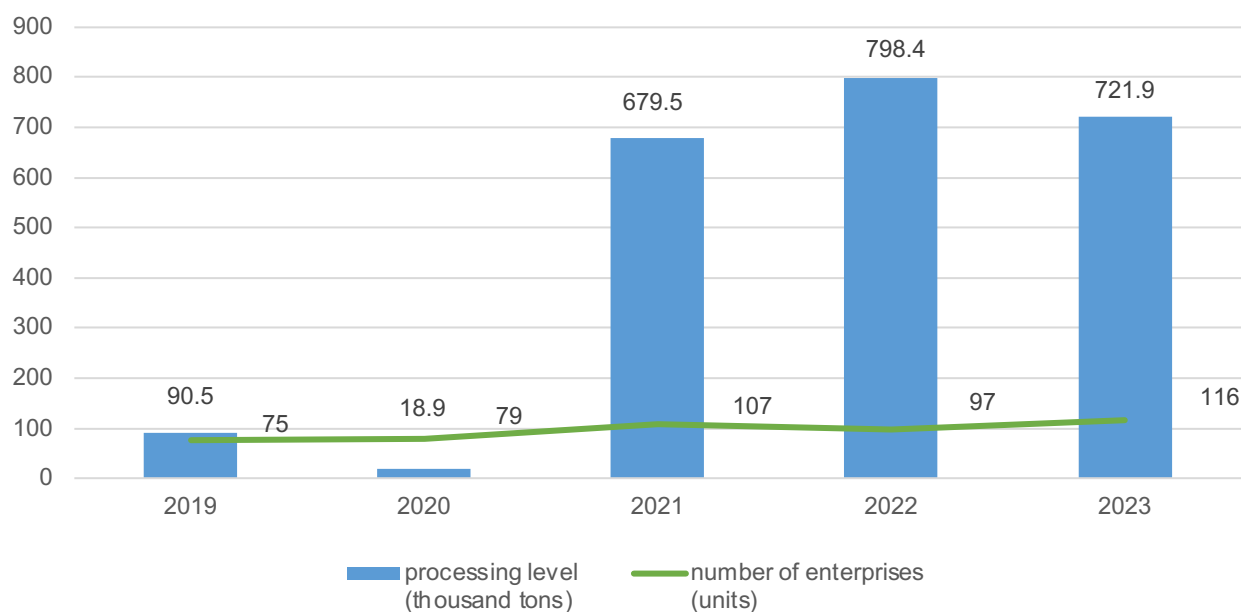


Figure 10 - Information on recycling facilities and level of plastic waste recycling in Uzbekistan

Source: Republican Center for Organization of Sanitation Works (2023)

Recycling volumes increase significantly from 2019 to 2022, peaking at 798.4 thousand tons in 2022. However, there is a slight decrease to 721.9 thousand tons in 2023, which may be due to temporary economic or operational difficulties.

In 2023, the enterprises of Uzbekistan recycled 721.9 thousand tons of plastic waste. Thus, it can be assumed that the level of plastic recycling in Uzbekistan in 2023 amounted to about 72% of the estimated volume of plastic waste generation, taking into account that the content of plastic in MSW is 10.04%. If we take into account that the share of plastic in MSW is 50%, it can be assumed that the volume of plastic recycling rate was about 14.44% in 2023.

According to official data, 351,033.5 tons of plastic products were produced as a result of recycling

Table 4 - Recycling of plastic waste in the Republic of Uzbekistan in 2023.

Total nationally	Number of enterprises	including	
		processed (tons)	plastic products produced (tons)
	116	721 976,5	351 033,5

Source: Republican Center for Organization of Sanitation Works (2023)

The largest number of products from recycled plastic was produced in Tashkent, Samarkand, Surkhandarya and Navoi oblasts, which account for almost 83% of plastic waste products produced (Figure 11).

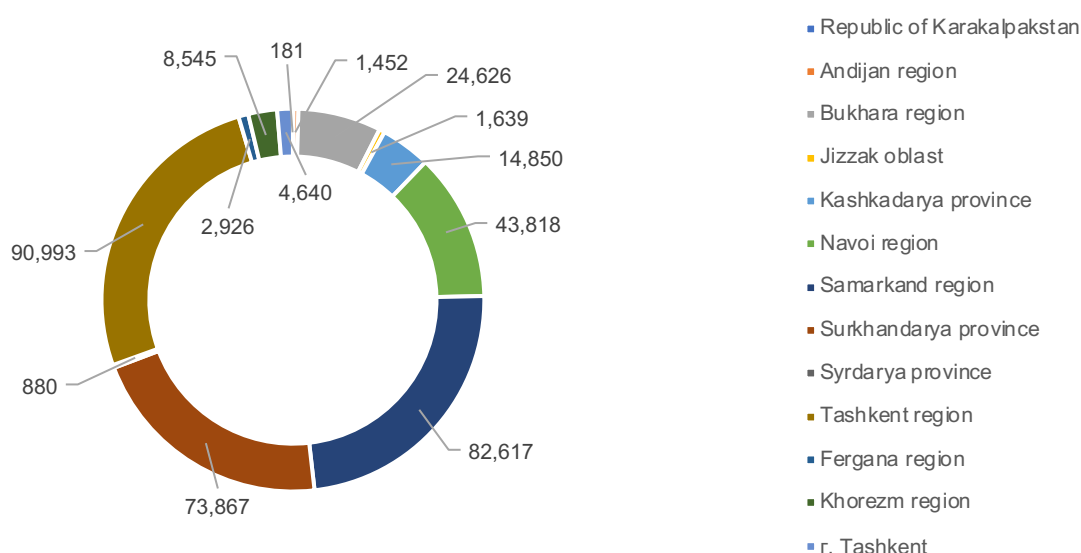


Fig. 11 - Production of plastic waste products in 2023 by region Republic of Uzbekistan

Source: Republican Center for Organization of Sanitation Works (2023)

In regions with relatively large populations, the consumption of plastic products and, consequently, plastic waste is also increasing.

Overall, despite slight fluctuations, the data demonstrates Uzbekistan's commitment to developing a recycling system that contributes to increasing the share of plastic recycling in the country. Although some initiatives have been implemented, the country's plastic collection and recycling system still needs to be improved, including addressing hazardous chemicals in plastic and developing a non-toxic circular economy.

3. Policies and legislation on plastic waste management

3.1 Policy on plastic waste management

The general policy of the Republic of Uzbekistan in the field of plastic waste management is based on the «Strategy on Solid Municipal Waste Management for the period 2019-2028» approved on April 17, 2019. The main objective of the Strategy is to create an effective waste management system, including collection, transportation, disposal and recycling of plastic waste to minimize its impact on the environment and public health.



The Strategy aims to increase the recycling rate of household waste, including plastic waste, to 60% by 2028. The document also envisages the introduction of the «polluter pays» principle, requiring a legislative and economic framework for reimbursement of waste utilization costs at the expense of producers and importers.

Implementation of the Strategy envisages two stages:

- the first stage (2019-2021) - improvement of the legislative base and mechanisms of economic regulation in the field of MSW management, development of material and technical base and infrastructure of sanitary cleaning in order to ensure the organization of an effective system of provision of services for MSW collection and removal, strengthening of payment discipline, creation of methodological and information support for the development of environmental education system in the field of MSW management;
- the second stage (2022-2028) - development of investments aimed at the development of infrastructure for separate MSW collection, optimization of landfills, construction of transloading stations and waste processing facilities, improvement of the activities of clusters for integrated waste management, development of their potential for MSW processing. By this date 100% of the population will be covered by MSW transportation services, and the level of recycling will reach 60%.

At the moment, the Strategy has been implemented for more than five years and positive changes in the solid waste management system can be noted. The President of the Republic of Uzbekistan attaches great importance to the development of the waste collection and recycling system in the country, as evidenced by the organization of conference calls and instructions on this issue .¹¹

At the beginning of 2024, the Decree of the President of the Republic of Uzbekistan «On measures to improve the waste management system and reduce their negative impact on the environmental situation»¹² was adopted, which envisages a number of decisive changes and innovations aimed at reforming the waste management system.

In order to implement consistent measures to minimize the negative impact on the environment, implement the «zero waste» principle and develop the circular economy, the following measures are envisaged:

- increasing the amount of fines for offenses related to waste disposal in unidentified places;
- organization of waste collection with sorting into «recyclable», «non-recyclable» and «food» categories;
- establishment of the Agency for Waste Management and Circular Economy Development (on the basis of the Republican Center for Organization of Sanitation Works) as a link between the population and sanitation enterprises on waste

11 <https://www.gazeta.uz/ru/2022/02/03/recycling/>, <http://surl.li/ekolqm>

12 <https://lex.uz/ru/docs/6733912>

management issues;

- establishment of the Republican Commission for coordination of the waste management system and development of the circular economy, which includes the heads of various ministries and agencies;
- as of 2030, a ban on disposal of waste suitable for recycling and alternative energy generation by thermal method in household waste landfills as a result of implementation of targeted programs and prospective projects and a number of other measures.

In addition, in September 2024, the Decree of the President of the Republic of Uzbekistan «On Measures to Ensure Transparency and Further Improvement of the Management System in the Spheres of Ecology and Environmental Protection» was adopted¹³, which also establishes a number of innovations and clarifications in terms of previously planned measures.

In accordance with this Decree it is determined that the Agency for Waste Management and Circular Economy Development is a state body responsible for the development, testing and implementation of uniform norms and standards, coordination of activities in the field of waste management. In addition, the Agency develops and organizes the implementation of measures to:

- improvement of the sphere of management of household, construction, liquid, toxic chemical, medical and electronic waste in the republic, application of modern methods of their processing and utilization, as well as introduction of the «zero waste» principle;
- development of circular economy by establishing the production of energy resources, raw materials and materials as a result of sorting and processing of waste in the country;
- creation of eco-industrial zones for collection, sorting, disinfection, processing, incineration, utilization and destruction of waste on the territory of waste landfills and a number of other measures.

Thus, it can be noted that the policy of the Republic of Uzbekistan in the field of improvement of the waste collection and recycling system is given great attention. The adopted measures and legislative initiatives, such as the Solid Waste Management Strategy, the establishment of the Waste Management Agency and the development of circular economy, demonstrate the desire to minimize environmental damage and ensure sustainable waste management.

3.2 Regulation of toxic substances in plastics

In the Republic of Uzbekistan, the content of toxic substances in plastics is regulated through a set

13 <https://lex.uz/uz/docs/7128168#7128350>

of sanitary norms and rules aimed at ensuring product safety and protecting public health.

Some of the key documents include the following:

- **SanPiN No. 0273-09** «Hygienic Requirements for the Production and Processing of Synthetic Polymeric Materials» ;¹⁴
- **SanPiN No. 0176-04** «Polymeric and polymer-containing building materials, products and structures. Hygienic safety requirements»¹⁵ .

SanPiN No. 0273-09 «Hygienic Requirements for the Production and Processing of Synthetic Polymer Materials» regulates sanitary standards for enterprises engaged in the production and processing of polymers. It applies to the production of synthetic polymeric materials, polyacrylate, polyvinyl chloride, phenol-formaldehyde and epoxy resins and polymers based on them, low and high pressure polyethylene, polypropylene, polyvinyl alcohol and its derivative polymers and copolymers, styrene, polyurethane foam, as well as to enterprises engaged in their processing.

In accordance with SanPiN when obtaining polymeric materials it is necessary to use raw materials and additives having toxicological characteristics and MAC, giving preference to less toxic ones. The Sanitary Regulations require that when phthalic acid-based plasticizers are used, less toxic and less volatile compounds should be used. The least toxic adhesives and solvents should be used when gluing polymer products.

SanPiN prohibits the use of toxic solvents to remove excess and drips of uncured resins from products. The document establishes permissible levels of toxic substances in finished products, safety criteria for raw materials and additives used, and requirements for sanitary and chemical tests of materials.

SanPin establishes a list and characterization of harmful substances emitted into the environment and methods of their control. The list includes 35 substances for which MPCs in the working area air, in the air, in water and in soil, as well as maximum permissible levels of contamination of skin and hands are established (Table 5).

Table 5 - Characteristics of harmful substances emitted into the environment and methods of their control

№	Name of substance	Hazard class	MPC				IAPs for
			in working area air mg/m ³	in atmospheric air mg/m ³	in water body water mg/l	in soil mg/kg	
	Acrylonitrile (propene-2-nitrile)	II	0,5	-/0,03	2,0		0,001
	Acrolein /propene-2-al/	II	0,2	0,03	2,0		
	Ammonia	IV	20,0	0,2/0,04	2,0		

14 <https://lex.uz/ru/docs/1820873>

15 <https://lex.uz/ru/docs/1869919>

Acetaldehyde	III	0,5	0,01	0,2	10,0	
Benzene	II	15/5	1,5/0,1	0,5		0,05
Benzaldehyde	III	5,0	-	0,003		
Butyl acrylate	III	10,0	0,00075			
Vinyl acetate	III	10,0	0,15	0,2		
Vinyl chloride	III	5/1	0,005/1,0			
Hydrogen chloride	II	2	0,2			
Hydrogen cyanide	II	0,3	-/0,01	0,1		
Hexamethylenediamine	I	0,1	0,001	0,01		
Dibutyl phthalate (dibutyl ether of phthalic acid)	II	0,5	0,1	0,2		
Dimethylformamide	III	2,0	0,03	10,0		
Caprolactam	III	10,0	0,06	1,0		
Acrylic acid	III	5,0	0,04	0,5		
Methacrylic acid	III	10,0	0,07	1,0		
Formic acid	II	1,0	0,2	3,5		
Acetic acid	III	5,0	0,2	1,2		
Methylacrylate	III	5,0	0,01	0,07		
Methyl methacrylate	III	10,0	0,1	0,01		
Low-pressure polyethylene	III	10,0	0,1			
Propylene	IV	100	3,0	0,5		
Metal mercury	I	0,01/0,005	0,0003	0,0005	2,1	
Lead	I	0,01/0,005	0,0003	0,03	20	
Propyl alcohol	III	10,0	0,3	0,25		
Methyl alcohol	III	5,0	1,0/0,5	3,0		0,02
Aliphatic (limiting) hydrocarbons	IV	300				
Carbon oxide	IV	20,0	5/3			
Phenol	II	0,3	0,01/0,003	0,0001		
Toluene	III	50,0	0,6	0,5	0,3	0,05
Phenol formaldehyde	II	0,5	0,035/0,003	0,05	7	
Cyclohexane	IV	80,0	1,4/1,4	0,1		
Ethyl acetate	IV	200	0,1/0,1	0,2		
Ethylene	IV	100	3,0	0,5		

In accordance with SanPiN, a set of measures aimed at environmental protection at the design stage should, among other things, provide for the replacement of highly hazardous substances with less hazardous ones.

SanPiN No. 0176-04 «Polymeric and polymer-containing building materials, products and structures» establishes hygienic requirements for the safe use of polymeric materials in the

construction of buildings and structures.

In accordance with this SanPiN, polymeric construction materials should not emit volatile substances into the environment in such quantities that may have a direct or indirect adverse effect on the human body (taking into account the combined effect of all emitted substances). During their operation in the indoor air should not be emitted from polymeric building materials of chemical substances belonging to the 1st class of hazard. The content of other substances emitted from polymeric building materials should not exceed the maximum permissible concentrations (annual average of the atmospheric air of residential areas).

The SanPiN also notes that polymeric materials made from secondary resources and production waste are subject to hygienic assessment as new materials.

The following can be noted as tools for controlling the content of toxic substances in plastics in Uzbekistan:

- Sanitary and epidemiological welfare authorities conduct inspections of enterprises for compliance with sanitary norms in the production and processing of polymeric materials;
- Plastic products are subject to mandatory certification, confirming their compliance with the established hygienic requirements;
- The content of toxic substances in air, water and soil is monitored in accordance with hygienic standards.

3.3 Basic requirements of waste legislation

The legislative base of Uzbekistan in the sphere of waste management is based on the Law «On Nature Protection»¹⁶, the Law «On Waste»¹⁷ and a number of by-laws.

According to the Law «On Nature Protection», the responsibility for safe waste management is imposed on waste owners, and storage and burial of waste in the territories of settlements is prohibited. The Law «On Waste» regulates relations aimed at waste reduction and its rational use. The main provisions of the Law include requirements for state registration of wastes, their passportization and maintenance of the cadastre of waste disposal sites, as well as requirements for waste owners on waste management.

In particular, legal entities are obliged to ensure proper storage and prevention of destruction and deterioration of wastes having resource value and subject to utilization; to take measures to develop and implement technologies for utilization of wastes of which they are owners; not to incinerate wastes without the use of special technical devices.

16 Law of the Republic of Uzbekistan, of 09.12.1992, No. 754-XII «On Nature Protection» (with amendments and additions as of 12.10.2021) <https://lex.uz/ru/docs/7065>

17 Law of the Republic of Uzbekistan, of 05.04.2002, No. 362-II «On Waste» (with amendments and additions as of 15.11.2019) <https://lex.uz/acts/44872>

In accordance with the Law «On Waste», waste that is the object of sale and purchase, export-import operations, as well as hazardous waste subject to transportation, must undergo environmental certification for compliance with sanitary norms and rules, environmental standards in the field of waste management, according to the results of which the owners of waste are issued an environmental certificate.

The classification of wastes and the procedure of accounting and control in the field of waste management in Uzbekistan is carried out in accordance with the Resolution of the Cabinet of Ministers No. 295 dated October 27, 2014¹⁸. It establishes the classification of wastes into toxic and non-toxic, recyclable and non-recyclable.

Plastic waste is classified as non-toxic and is categorized into recyclable and non-recyclable. Recyclable plastic waste includes:

- granulated polyethylene, polypropylene, polyvinyl chloride, terephthalate that have lost their consumer properties;
- defective polymer products;
- polymer sleeve and film scraps;
- deteriorated plastic containers.

Non-recyclable plastic waste includes:

- waste solid polyester complexes;
- synthetic cords that have lost their consumer properties;
- solidified waste of molding masses (thermosetting plastic);
- waste solid polystyrene, polystyrene foam or film;
- fabric and paper-based oilcloth waste;
- waste cured polyurethane, polyurethane foam or film;
- cured polyamides, polyvinyl acetate, polyvinyl alcohol rigid foam (excluding polyvinyl chloride);
- plastic hoses that have lost their consumer properties;
- waste solidified polyacrylates, polycarbonates, organic glass;
- polyvinyl acetate waste;
- ion exchange resins for water treatment, which have lost their consumer properties,

¹⁸ Decree of the Cabinet of Ministers of the Republic of Uzbekistan, of 27.10.2014 on the procedure for the implementation of state accounting and control in the field of waste management

for softening drinking water;

- imidoflex waste;
- glass ludoplast waste;
- cured compound waste, cured etrols (cellulose ester-based plastics);
- waste solid acrylonitrile butadiene styrene plastic ABS, celluloid, cellophane, polyethylene terephthalate (including films based on it).
- waste of film synthetic cardboard, film asbocardboard;
- waste photo and movie film, x-ray film;
- of cured polyvinyl chloride and polyvinyl chloride foam;
- glass laminating waste;
- waste mixture of solidified heterogeneous plastics.

Thus, a limited list of plastic waste is recyclable in Uzbekistan, while a significant part of various plastic products is not recyclable.

It should also be noted that all types of plastic waste are classified as non-toxic, while they may contain toxic additives added during the manufacturing process to give certain properties to the products.

Uzbekistan currently lacks a system of extended producer responsibility for plastic products and packaging.

The recycling fee applies only to wheeled vehicles, self-propelled machines and trailers, tires and rubber pneumatic tires.

Thus, the legislative base of Uzbekistan in the sphere of waste management provides legal regulation of waste accounting, storage and utilization. However, the current system of plastic waste classification does not comply with international approaches and does not take into account the potential hazard of plastic waste, which creates additional environmental risks. The lack of an extended producer responsibility system also limits the possibilities of recycling plastic and reducing the negative impact on the environment.

3.4 Specific requirements for plastic waste management

To effectively manage plastic waste and reduce its negative impact on the environment, Uzbekistan has adopted several key by-laws. Each of them makes a significant contribution to the regulation of plastic management, including restrictions on the production and use of single-use products, as well as incentives for recycling.

1- Restrictions on the use of plastic bags

Presidential Decree No. PP-3730 of May 18, 2018, laid the groundwork for regulating the handling of plastic bags and restricting their use in the country:

- As of 2019, the Republic of Uzbekistan has banned the free provision of plastic bags in retail outlets, which aims to reduce their consumption.
- The ordinance also bans the production of plastic bags made from plastic film less than 40 microns thick. The move was aimed at reducing the number of non-degradable and difficult-to-recycle bags, which are often used only once and pose a significant threat to the environment. The thickness limit helps to improve the quality of the bags, which in turn can encourage their reuse.

2. Supporting the waste recycling industry

Presidential Decree No. UP-5 of January 4, 2024 aims to support recycling and defines a list of materials suitable for recycling:

- The decree provides support for recycling companies, which promotes the development of the recycling industry and the creation of infrastructure for recycling plastic waste.
- The document also establishes a list of waste types suitable for recycling. This helps to better prioritize areas for recycling and encourages businesses to focus on waste types that can be effectively recycled and reused. In this way, the decree contributes to reducing the amount of waste sent to landfills and supports the circular economy.

3. Reduce consumption of single-use plastic products

Decree No. PP-171, dated May 31, 2023, aims to further reduce the consumption of single-use plastic products and encourage the development of alternative solutions:

- According to the decree, work is underway to draft legislation restricting the production and sale of **single-use** plastic products such as bags, tubes and cups. This restriction will reduce the consumption of single-use plastic, which makes up a significant portion of plastic waste and is rarely recycled.
- The decree also aims to encourage a shift towards the use of more environmentally friendly materials and alternatives. The introduction of such restrictions promotes the adoption of conscious consumption practices and the reduction of plastic waste, which has a long-term negative impact on the environment.

Thus, Uzbekistan is consistently developing and improving legislation in the field of plastic waste management, focusing on the principles of circular economy and seeking to reduce the negative impact of plastic waste on the environment and public health.

4. public awareness and participation

4.1 Current level of awareness

The current level of awareness of the population of Uzbekistan about the problems associated with plastic waste remains at an insufficient level. Analysis of questionnaires and surveys shows that many residents of the country do not have sufficient information about the impact of plastic on the environment and human health, and are not aware of measures that can be taken to reduce plastic pollution. Most citizens are not aware of separate waste collection programs and plastic recycling opportunities. The main reasons for low awareness are limited access to environmental education, lack of information campaigns and limited information through mass media and public events.

Example: one of the interviewed non-governmental organizations notes: «*One of the key problems is the lack of accessible information about the places where plastic waste is collected. People do not know where they can dispose of plastic and continue to dispose of it with regular garbage.*»

Uzbekistan has not yet implemented large-scale campaigns aimed at raising public awareness of the importance of separate collection and recycling of plastic waste. This leads to the fact that many residents of the country continue to throw plastic together with household waste, which complicates the recycling process and creates additional environmental problems.

To improve the situation, some companies and public organizations are introducing their own initiatives. For example, the Coca-Cola Company has installed special containers for collecting plastic bottles in public places, including parks and shopping centers in Tashkent. This initiative is aimed at drawing attention to the need for separate collection and recycling of plastic, as well as facilitating the city residents' access to the plastic waste disposal system.¹⁹

Another problem is the lack of educational initiatives that could contribute to the formation of environmental culture among the population, especially among young people. Uzbekistan's educational institutions, both schools and universities, have not yet introduced mandatory courses on environmental issues and proper waste management. This leads to the fact that the young generation is not sufficiently informed about the importance of recycling and proper handling of plastic and other wastes. The introduction of environmental education from an early age would contribute to the formation of a responsible attitude towards the environment and awareness of the consequences of improper waste management in children and adolescents.

Also one of the reasons for the low level of awareness is limited information through mass media and public events. To address this problem, along with business initiatives, public events are organized in the country to draw attention to separate collection and recycling of waste. One

19 Internet resource Gazeta.Uz <https://www.gazeta.uz>

such example is the annual environmental action “Khashar”²⁰, in which residents of Tashkent and other cities gather to clean and improve their territories. This event helps to temporarily solve the pollution problem and creates a positive example for citizens, but without continuous information and support, such initiatives remain short-term and do not have a sustainable impact on the behavior of the population.

Uzbekistan is also introducing programs to encourage citizens to participate in separate collection. One initiative by non-governmental organizations offers residents financial rewards for sorting and recycling plastic. Such a program encourages citizens to participate in separate collection, increases interest in proper plastic disposal and demonstrates the possible benefits for those who support environmental initiatives.²¹

Despite the growing interest in separate waste collection, many residents of Uzbekistan face a number of obstacles. Lack of information on the location of plastic collection bins, lack of convenient infrastructure, and lack of incentives to participate in these programs remain problems. In some areas, there is a lack of communication between local authorities and the population, as well as a lack of education on how to recycle plastic. These factors significantly limit the involvement of citizens in separate waste collection and recycling initiatives.

4.2 Participation of the population in separate waste collection

In Uzbekistan, public participation in separate waste collection is gradually increasing due to the efforts of both public and private initiatives. In some cities, events and activities are organized to draw attention to environmental issues and foster a culture of separate waste collection. However, such activities are still of a point nature and require a larger scale coverage in order to form sustainable habits among the population.

To increase the participation of citizens in separate waste collection, environmental actions such as the republican eco-action “Zero Waste” are organized. In 2023, on the occasion of the International Day for a World without Waste, the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan together with the Ecological Party of Uzbekistan organized a republican waste collection action. The participants of the event cleaned areas from plastic and other types of waste, which demonstrated the importance of separate collection and drew attention to the problem of excessive consumption and waste.

Mass events are also regularly organized, such as the “Day of Universal Cleanliness”, which takes place annually on the third Saturday of September. As part of this action, more than 100,000 participants collected about 40,503 tons of municipal solid waste nationwide in 2022. These events help engage citizens in separate collection, promoting the concept of responsible consumption and waste management among the general public.²²

Plogging, an environmental activity that combines running with separate waste collection, is

20 Internet resource Gazeta.Uz <https://www.gazeta.uz>

21 Internet resource Gazeta.Uz <https://www.gazeta.uz>

22 Internet resource of the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan

also gaining popularity in Uzbekistan. One example was the UzPlogging event organized by the Ministry of Ecology, the ProRun running school and Sanfa, which took place in Tashkent in August 2023. Participants of the event ran more than three kilometers, collecting plastic waste along the way. As a result of this environmental action, about 150 kilograms of plastic waste were collected, and the most active participants received awards and cash prizes.²³

Plogging not only promotes physical activity, but also draws attention to the need for proper waste disposal. Participants received medals and T-shirts made of recycled materials for the collected plastic, which emphasizes the significance of recycling and the importance of closed loop consumption.

One of the key aspects of successful plastic waste management is awareness and active participation of the population. In the Republic of Uzbekistan this issue requires significant attention, as according to the results of surveys, the current level of public awareness of the problems related to plastic waste remains low.

Increasing public awareness and involvement in plastic waste management is critical to achieving environmental sustainability in Uzbekistan. This requires an integrated approach including educational activities, creation of infrastructure for separate collection and introduction of incentives for active participation of the population. These measures will help not only to reduce the amount of plastic waste, but also to create a responsible attitude towards the environment among citizens.



²³ Internet resource of the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan

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