Inventory of plastic pollution sources in Azerbaijan

The report is prepared by NGO Ruzgar within the framework of the project „Addressing the escalating plastic crisis in five countries of Eastern Europe, Caucasus and Central Asia (EECCA)“

Introduction

Plastics are a diverse group of synthetic or semi-synthetic materials made from various organic compounds. These materials are primarily created through the polymerization of monomers obtained from petroleum and natural gas. Chemical reactions result in the formation of long polymer chains, which impart the characteristic properties of plastics. Plastics are categorized into two main types: thermoplastics and thermosetting plastics.

Thermoplastics soften when exposed to heat and revert to a solid form upon cooling. For example, polyethylene and polypropylene fall into this category. Thermosetting plastics, once formed and cooled, cannot be remelted or reshaped. Materials like Bakelite and Melamine belong to this group. Chemical structure of plastics: Plastics consist primarily of organic compounds and are highly malleable, allowing them to be produced in various shapes and sizes.

History of plastics production: The history of plastics production dates back to the mid-19th century. The first plastic was invented by Alexander Parkes in 1855 and was named "parkesin." In 1907, Leo Bakeland invented Bakelite, a fully synthetic plastic, which marked the beginning of the plastics industry.

Identification and labeling of plastics: In the 1980s, the Plastics Industry Society developed a specific code and labeling system for identifying different plastic types. In this system, the number within the triangle indicates the type of plastic, and in some cases, letter designations related to the plastic type are also included.

Applications and Importance: Plastics are widely used in packaging, automotive, electronics, construction, and other fields due to their light weight, strength, and ductility. They play a crucial role in product protection, transportation, and energy conservation. However, the recycling of plastics and their environmental impact should also be considered.

Decomposition period in nature: Plastics may take 50-100 years to decompose naturally, and in some cases, it could take up to 100 years.

Development and trends in the production of polymeric materials in Azerbaijan

Plastic production in Azerbaijan plays a crucial role in the country's chemical industry. This sector, as part of the petrochemical industry, aims to meet domestic demand while boosting export potential. Since Azerbaijan's oil and petrochemical industry is relatively established, the production of plastic materials also has a long history and has developed rapidly. Since 1945, this production has undergone several key stages. The production of plastic materials not only satisfies industrial needs but also supplies essential raw materials for various sectors of the economy.

The production of polymer materials in Azerbaijan began with the reconstruction of the chemical industry in Sumgait during the 1970s and 1980s. One of the most significant projects in Azerbaijan's chemical industry was the construction of the "EP-300" complex. In the late 1970s, plans were made

to establish a new technological complex in Sumgait. The construction of this complex, which aims to produce ethylene and propylene from the hydrocarbon feedstock of Baku oil refineries, commenced in 1981.

The EP-300 complex was designed with a capacity of 260,000 tons of ethylene and 138,000 tons of propylene per year. It was commissioned in 1987, and expensive chemical products such as ethylene, propylene, butylene-butadiene fractions, methane, propane, and hydrogen started to be produced there. The operations of this complex have significantly contributed to the growth of the polymer industry in both domestic and international markets

Another significant advancement for polymer production was the establishment of the Polymer-120 complex. This complex was officially opened at the beginning of 1988 and was built using equipment imported from Germany and Czechoslovakia, enabling it to produce polyethylene at a capacity of 120 thousand tons per year. The launch of this facility strengthened the output of polymer products. At that time, the operation of the "EP-300" and "Polymer-120" complexes allowed Azerbaijan to produce high-quality polyethylene and gain access to the global market. Furthermore, the country achieved independence from foreign raw materials by utilizing hydrocarbon products from its own refineries.

Ethylene-polyethylene production plant

After Azerbaijan regained its independence in 1991, active modernization of industrial sectors commenced. During this period, the "Azerikimya" Production Association (PA) initiated reconstruction and development projects, utilizing modern technologies. The implementation of new technologies in the "Polymer-120" complex enhanced the plant's production operations, making them more modern and efficient.

The plant had a production capacity of 100-120 thousand tons of ethylene and 90-100 thousand tons of propylene annually. This capacity supported a diverse range of industrial applications and facilitated the production of products such as polyethylene and propylene. These materials were employed in the manufacturing of polymer pipes and coatings, various household items, and other industrial products.

The Ethylene-Polyethylene plant within the Azerikimya PU boasted a production capacity of 260,000 tons of ethylene, 136,000 tons of propylene, and 120,000 tons of polyethylene.

From 2012 to 2017, the polymer materials produced by the Ethylene-Polyethylene Plant were extensively utilized in the manufacturing of polymer pipes and coatings, the production of various household goods, as well as in the pharmaceutical and chemical industries industries.
Since 2016, as a result of the modernization of the EP-300 unit of the ethylene-polyethylene plant of State-owned Azerikimya, the production capacity has been increased to 190,000 tons per year for ethylene and 187,000 tons for propylene. Due to the highest quality of high-pressure polyethylene produced by the state-owned Azerikimya, this material is highly valued in both domestic and international markets.

Main plastics and polymer companies in Azerbaijan

SOCAR Polymer was established on July 16, 2013 and its production facilities consist of two polypropylene (PP) and high density polyethylene (HDPE) plants. The PP and HDPE plants with annual production capacities of 184,000 and 120,000 tons were commissioned in July 2018 and February 2019, respectively. Such production capacities allow us to increase the export potential of polymer products in the non-oil sector of Azerbaijan and become the market leader in the region.

Polymer Products Plant (PPP) is the largest enterprise of Sumgayit Technological Park and a leader in the production of polymer products in the South Caucasus region. More than 80 production lines operate at the plant. The production is equipped with modern equipment and the quality of products meets international standards.

With the help of modern technology, a wide range of polymer products are manufactured:

- Water and gas pipes with a diameter of 16-1200 mm made of PE 100 raw materials.
- PPRC fiberglass pipes with glass fiber, resistant to +90°C.
- Corrugated pipes (800-3500 mm) for electrical and telecommunication lines.
- PVC and PPC-based wide-mouth sewer pipes.

Annual production capacity:

- Polymer pipes: 40,000 tons.
- PVC door and window profiles: 25,000 tons.
- Plastic containers and other products: 15,000 tons.

Pipes, fittings, PVC profiles, polycarbonate sheets and other plastic products manufactured at the plant are intended for both domestic and foreign markets. In addition to state-owned enterprises, a wide range of plastic materials are also produced by private companies. The list of the main companies is given in Table 1.

Table 1: Main plastics and polymer companies in Azerbaijan

N	Company name	Products	Capacity
1	1997 - OOO METAK	Scaffolding and poles for construction and assembly works, plastic pipes and fittings made of polypropylene raw materials	
2	2000 - El Plastik Ltd.	Polyethylene covers, bags, insulating covers, plastic containers, dummies, bags and pouches, plastic pipes of various diameters	6-6.5 thousand tons/year
3	2011 - Azboru LLC	Production of gas pipes and drinking water pipes made of high density polyethylene PE100	
4	2013 - Azartek-Noline LLC (Polyethylene Products Plant)	Polyethylene pipes, pipes for drinking water and pressurized natural gas, sewer pipes	
5	2013 - SOKAR Polymer Ltd.	High density polyethylene (HDPE)	120 thousand tons/year
6	2015 - Polimart LLC	Plastic, PVC and polyethylene pipes	1500 tons/ year
7	2017 - Azplastic LLC	Polyethylene bags and other plastic packaging products	
8	Baki Polymer Istehsalat Ltd.	Stretch film and packaging products	
9	Nur Kauchuk LLC	Rubber products and rubber sealants. Customized products in EPDM, NITRILE, NEOPREN, NR (natural rubber), SBR and SILICON materials	1400 tons/ year
10	Neoplast MMC	Food products, fruit, packaging production, ethylene, propylene	1000 tons/ year
11	Qoşqar	PVC-food grade stretch, vinyl chloride	2200 tons/ year
12	Əzizov	plastik qranul/plastik tara, propilen	6000 tons/ year
13	Polyethylene boru istihsali sexi	Polyethylene tube, polyethylene terephthalate	8-10 tons/ year
14	Ismail Orukov	Ethylene, Propylene, Vinyl chloride, Styrene, Polyethylene terephthalate	600-1000 tons/year
15	INTERPLAST-AMC	Plastic products - lambier, windows, cornice, vinyl chloride	600 tons/ year

16	LIMBALUX MMC	Lambyrine, vinyl chloride	220 tons/ year
17	Klaus Plast MMC	vinyl chloride	60 tons/year
18	Hrplast MMC	ethylene, polyethylene terephthalate	600 tons/ year
19	Vegaplast MMC	window-door profiling, propylene	120,000 tons/year

Statistics on production of rubber and plastic products in 2024 in Azerbaijan

In the first half of 2024, Azerbaijan saw positive changes in the production of rubber and plastic mass products in the processing sector. According to the State Statistics Committee, rubber and plastic products worth AZN 221.5 million were produced in the country in January-May 2024. This is 16.5% more than in the same period last year. Overall, in 2024, the production of rubber and plastic mass products increased by 23.8%.

Production growth in various types of products:

In the first half of 2024, significant growth was recorded in various categories of plastic products. For example, production of other plastic bags other than polyethylene bags increased by 3 times. At the same time, production of other porous plastic boards and planks increased by 55.7%, production of polyethylene bags by 35.3%, and production of plastic bottles, vials and similar products by 24.2%.

The increase in the production of these products has led to the expansion of production as a result of technological developments and increasing demand in the plastics industry.

Significant growth was also observed in the raw materials industry. Production of polyethylene increased by 24.6%, ethylene - by 22.7%, propene - by 18.0

In 2023, compared to 2022, the following changes are observed in the production of various types of plastics and rubber products. Production of rubber and plastic products increased by 22.54%. The production of plastics in primary form increased by 21.69%. Polyethylene production increased by 21.23%. Production of polyethylene bags and sacks increased by 1.38%. However, production of hard plastic pipes, tubes, fittings and hoses decreased by 45.27%.
These increases are an indicator of continuous development in the areas of plastic industry in Azerbaijan. The increase in production recorded in the first half of 2024 indicates the strengthening of industrial potential and continued economic growth.

Conclusions
The history of plastic masses and rubber materials production in Azerbaijan has been strengthened by continuous development and application of modern technologies in the period from 1960s till today. This trend is aimed at meeting the demand of the domestic market and increasing export potential.

Production of plastic materials over the last 15 years

The following table (Figure 1) shows how plastics production in Azerbaijan has increased between 2009 and 2023 as a result of the advances in plastics technology mentioned in Section 1.

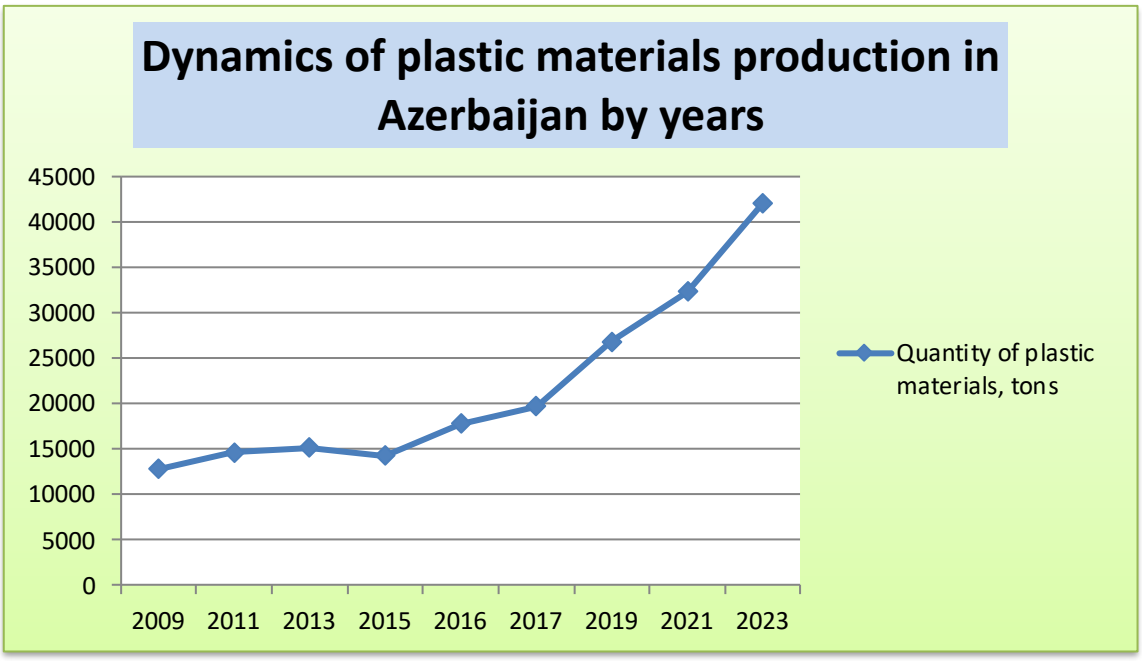

Fig 1 . Dynamics of plastic materials production in Azerbaijan by years

Between 2018 and 2023, the amount of plastic materials in Azerbaijan increased 1.8 times, from 23,249 tons to 42,134 tons. This is a really fast growth and it certainly affects the prospective amount of plastic waste, as these materials are a resource for waste in the future

Plastic products are produced by both state-owned enterprises and private corporations, as listed in Table 1. Some of the most common types of plastic are shown in the diagram below (diagram 2).

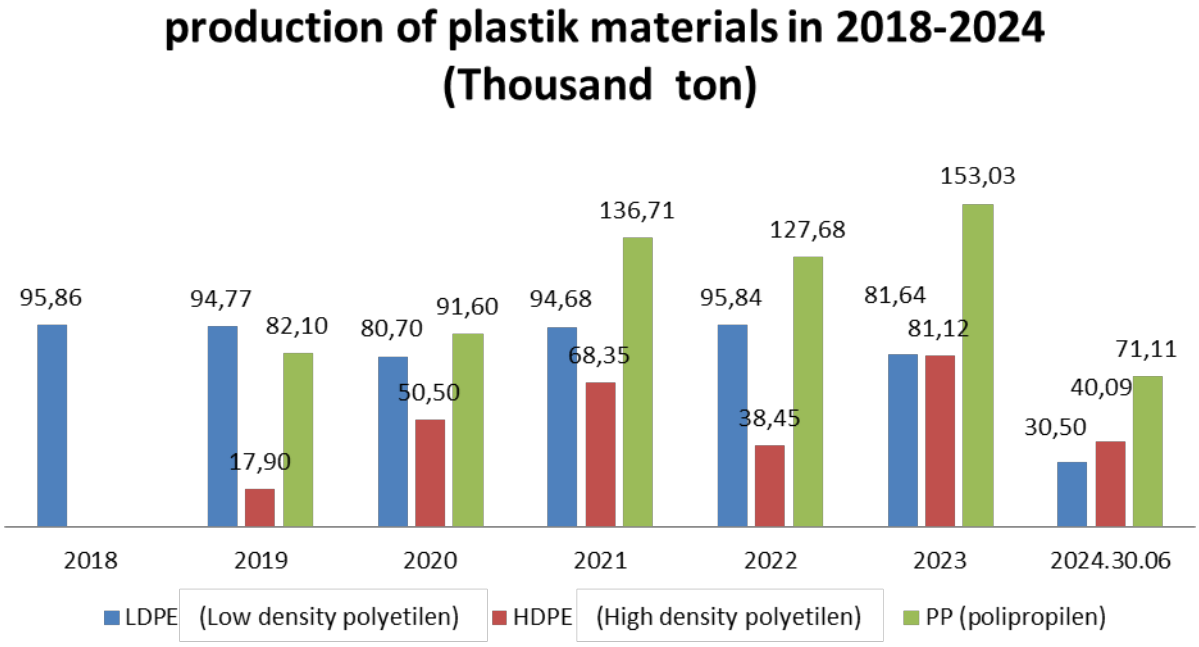

Diagram 2: Production of the main individual types of polymer materials

In 2018-2019, single-use plastics accounted for 65-90% of total products, and by 2023, the figure had dropped to 40%. This is due to the fact that packaging materials made of polyethylene less than 15 microns thick were banned by 2021.

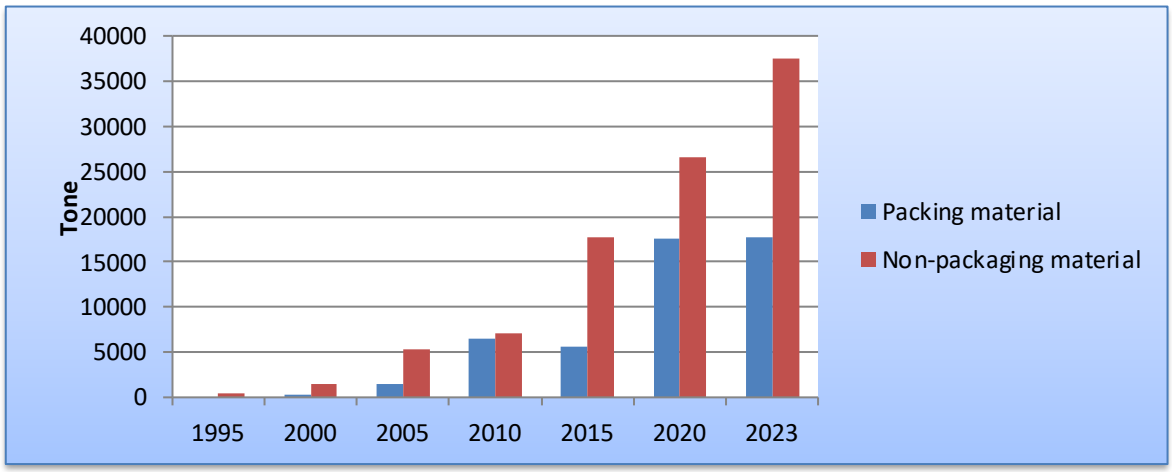

Fig 3. Production of packaging and total plastic materials in Azerbaijan in 1995-2023.

Import-export of plastic materials

Over the last six years, imports of plastic materials into Azerbaijan have increased by about 2.5 times, while exports have increased by less than 10%.

Imports and exports of plastic materials are mainly related to disposable packaging materials. The dynamics of their change by years 2018-2023 is presented in Diagram 4. The dynamics of imports of different single-use plastic materials to Azerbaijan by years is shown in Table 2.

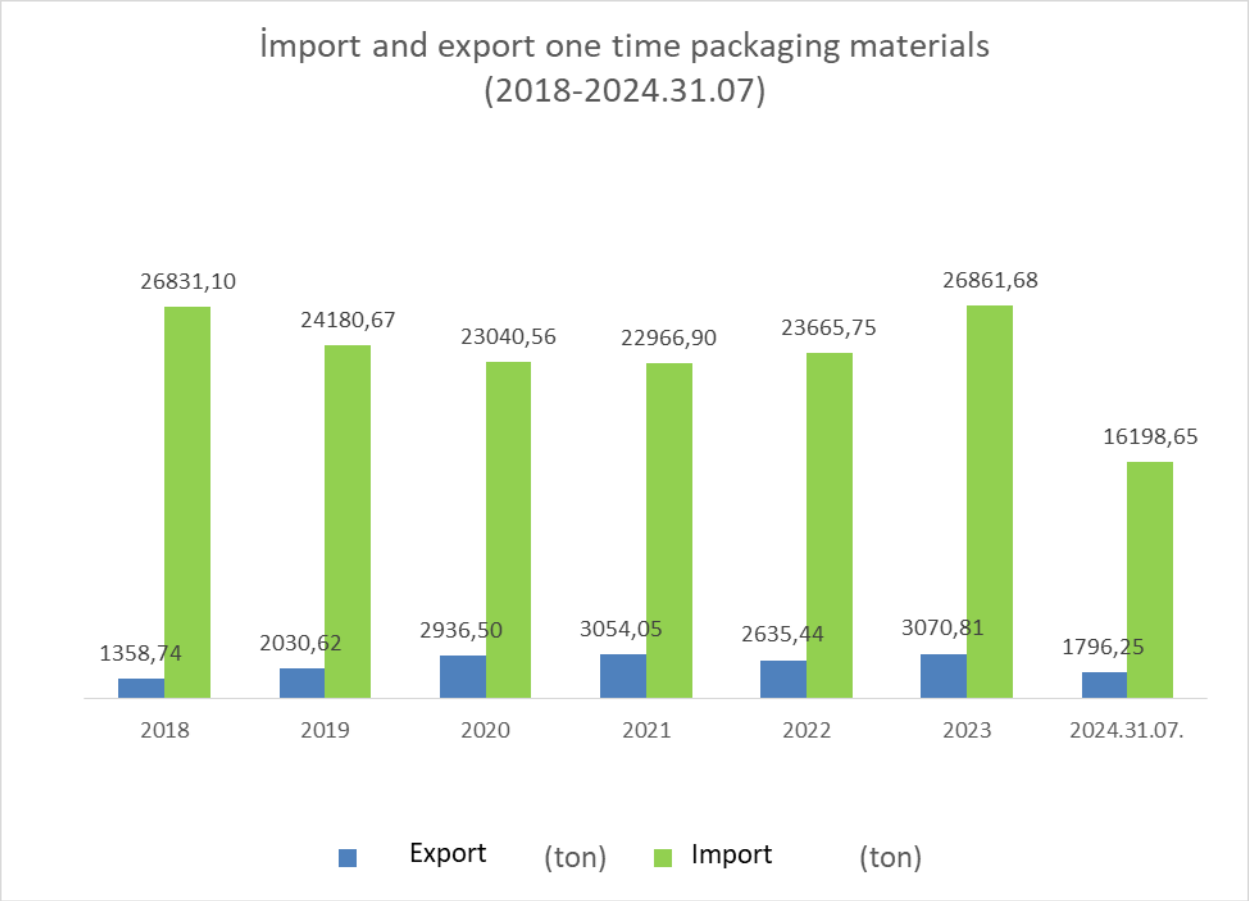

Diagram 4: Import-export of plastic materials in Azerbaijan

Table 2. Dynamics of import of different single-type plastic materials to Azerbaijan by years (tons)

Years	**2009**	**2011**	**2013**	**2015**	**2017**	**2019**	**2021**	**2023**
Plastic boxes, crates, baskets	335,3	1029,8	838	557,0	1118,7	872,8	1223,5	1861,0
Plastic food and kitchen utensils	2247,3	2499,3	2504,5	2286,0	1693,0	2040,0	1833,9	1809,2
Polyethylene polymer bags	628,6	427,1	1350,6	1681,5	2938,3	3097,0	2888,3	6596,4
Large liquid containers, bottles, vials and similar articles	1587,7	2754,3	3127,7	2843,3	4820,3	4226,7	5056,4	3410,6
Other plastic products	452,9	268,02	501,9	554,6	766,1	1002,5	649,9	1935,7
Total	5251.2	6978.5	8322.7	7922.6	11336.7	11239.3	11652.2	15613.2

The sum of the production volume and the difference between imports and exports of plastic goods gives the potential to be used in the country and subsequently turned into plastic waste. Thus, the change in the amount of potential materials for plastic waste generation in the country by year is presented in Figure 5.

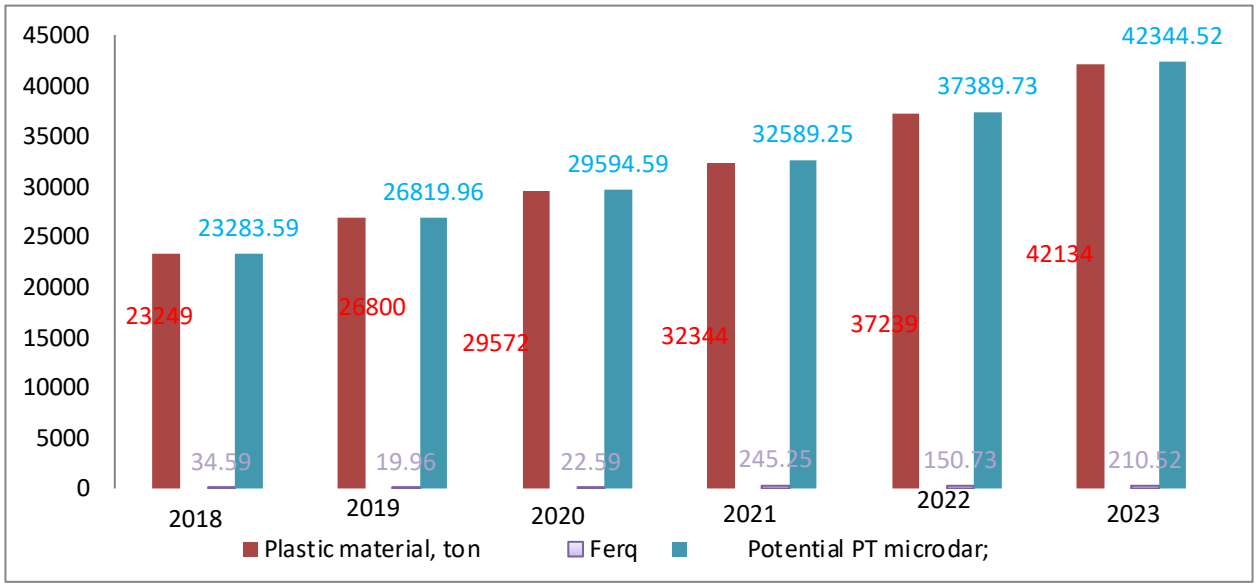

Figure 5: Potential amount of polymeric materials (production plus import-export difference) turned into waste

Thus, compared to 2018, the potential source of plastic waste in 2023 has increased by 1.8 times. Over the next ten years, the amount of plastic waste generated should increase by the same amount.

Plastic materials generated from single-use plastic packaging materials and import/export operations are becoming less and less viable sources of waste.

Plastic Waste Management in Azerbaijan

Current opportunities and needs in plastic waste management

The amount of plastic waste as part of household waste varies between homes, collection points and landfills. This variation is due to inadequate sorting at collection points and landfills. Since 90% of landfills are not properly supervised, unmonitored, unauthorized access by low-income people and unofficial sorting have a significant impact on final waste volumes.

Depending on the status of a settlement, the amount of plastic in waste varies. For example, in rural areas plastic makes up 7-8% of household waste, while in medium-sized cities (with a population of

100-300 thousand people) this figure rises to 8-10%. In megacities such as Baku, the share of plastic waste reaches 11-12%. On average in Azerbaijan, plastic waste accounts for 9-10% of household waste. This percentage also depends on the development of plastic waste processing industry. For example, in Sumgait, where there are more than 70 small processing industries, the share of plastic waste in household waste does not exceed 6%.

The inventory process determined the amount and types of household waste (food waste, iron/glass, paper/cardboard, plastic, hazardous waste) generated daily per person. Studies conducted in homes, collection points and landfills have shown that the daily generation of household waste per person is approximately 900-950 grams (350 kg per year). Of this, plastic waste accounts for 24-26 kg per person per year As part of the expeditions, the project assessed the impact of solid domestic waste on the environment, in particular on water bodies. Approximately 30 surveyed landfills do not dispose of plastic waste in accordance with environmental standards, and the landfills are not fenced or monitored. Many landfills are located in river valleys, where plastic waste during the rainy season is carried by the current into water bodies and the sea, gradually aggravating the environmental situation.

c) The expeditions assessed the institutional framework and technical capacities for plastic waste management in the regions. Studies conducted in pilot regions (Ismayilli, Salyan, etc.) under the project showed that waste collected over many years is stored in landfills.

It was found that the annual volume of plastic waste in Azerbaijan reaches approximately 250,000 tons.

The amount of different types of plastic waste generated, disposed of and used is shown in Figure 6 below.

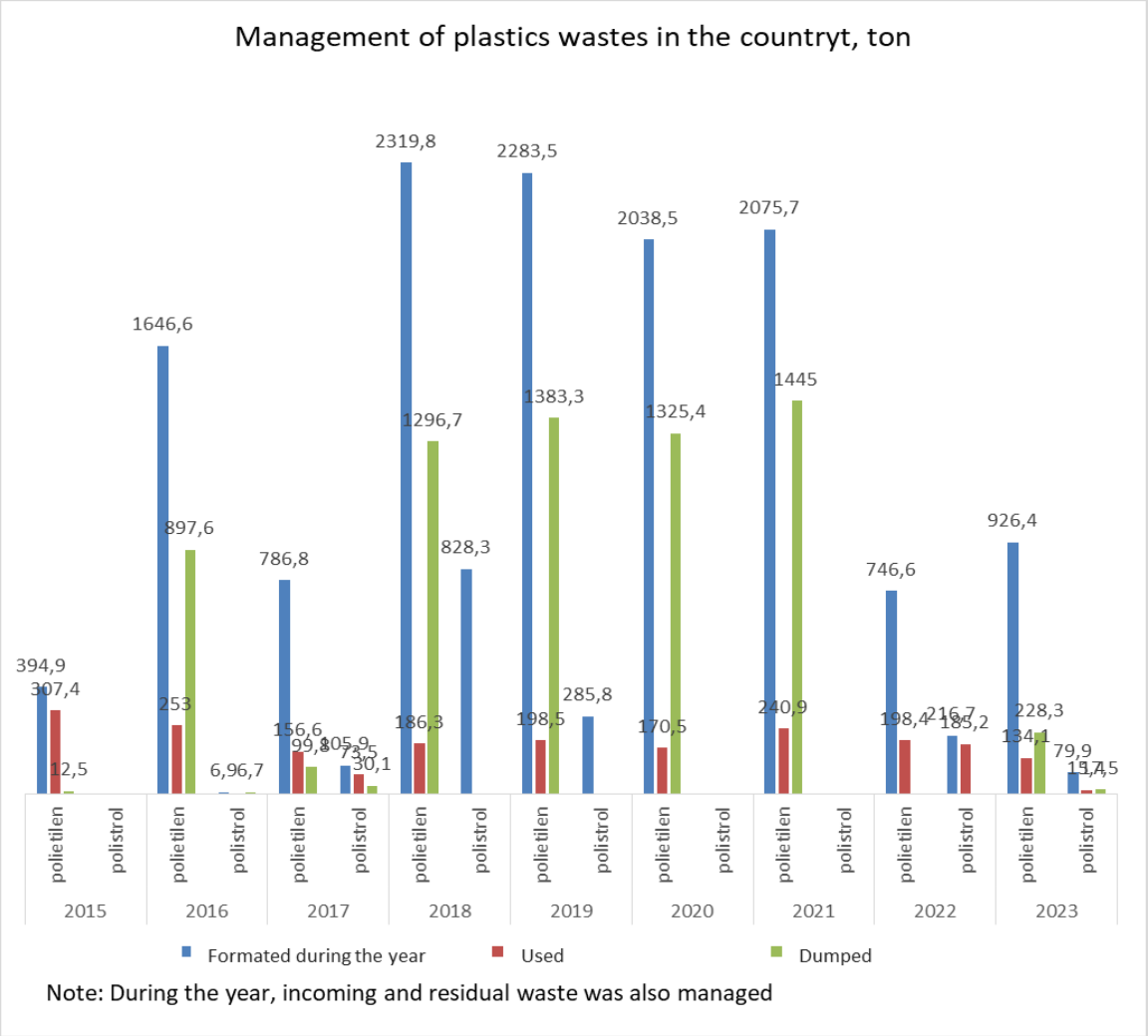

Chart 6: Plastic Waste Management in Azerbaijan in tons

Based on the degree of management, individual waste streams can be divided into three categories;

1. In "Greater Baku", where about 3 million people live, the disposal of plastic waste is fully organized. About 75,000 tons of generated waste are collected by the Baku City Executive Power and transported to the Balakhani landfill. At the Balakhani landfill, MSW is sorted and incinerated at Tamiz Shahar OJSC. Plastic waste during sorting is transferred to Technopark for recycling.
2. The sequence of waste management at Tamiz Shahar OJSC is presented on Photos 1-3 and Diagram 7.

Figure 1. Sorting and collection of plastic waste

Figure 2. Household waste collection after sorting into containers and separating residual plastic waste

Figure 3. Sending the obtained mass to the furnace for combustion

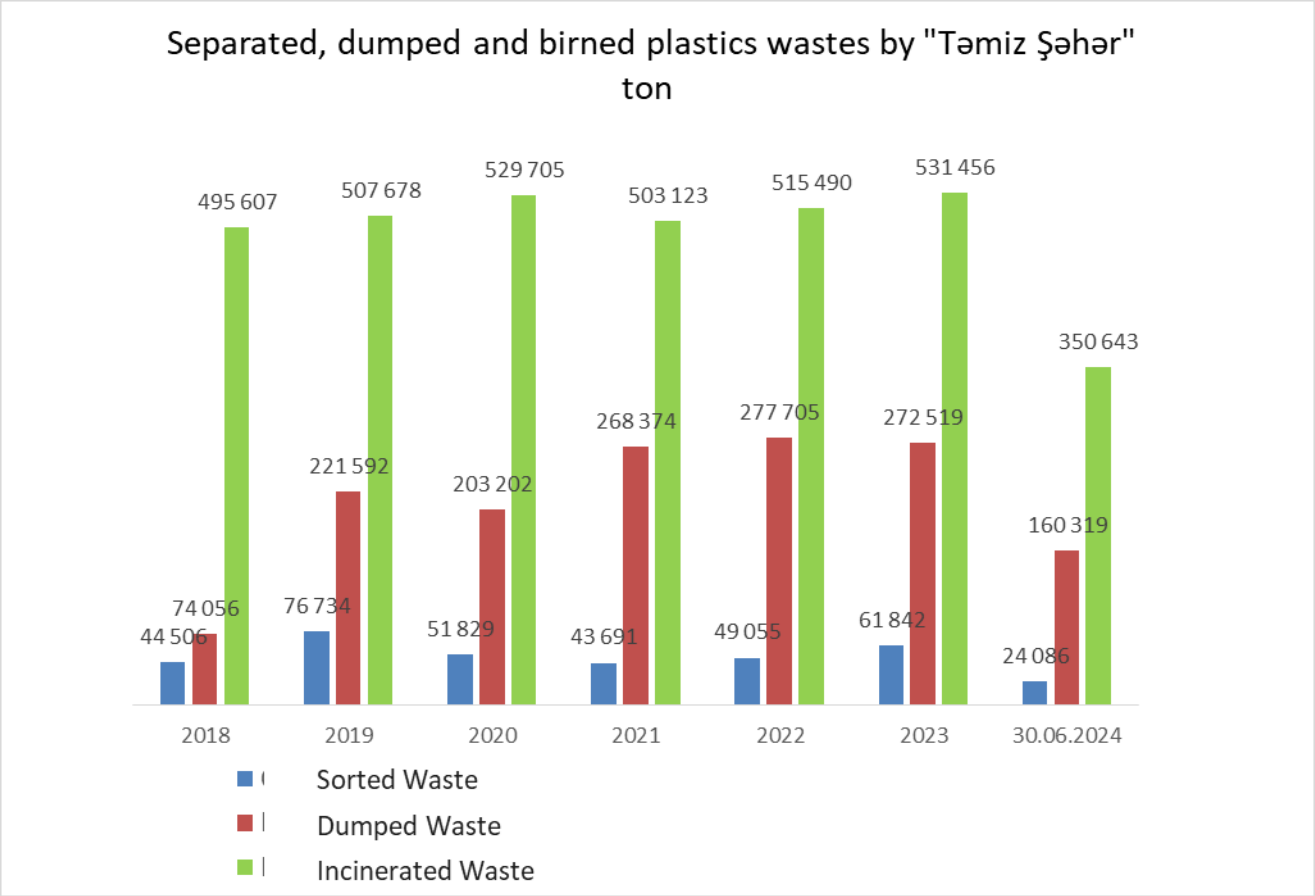

Diagram 7 : separation, disposal and incineration of waste at Tamiz Shahar JSC

3. In four cities with a population of up to 220 thousand people, 63 district centers and up to 70 urban-type settlements across the country, about 55 thousand tons of MSW are generated annually. This MSW is partially utilized, i.e. it is taken to landfills, which are not fully controlled by the district executive authorities. Waste at landfills is either buried or incinerated, and in some cases landfills are located in river valleys from where waste is carried away by flood waters during high tides. The results of the inventory of solid waste at existing landfills in Ismayilli and Salyan districts, selected as pilot sites, are presented in Annex 1.

4. The population of 4,348 villages across the country produces more than 120,000 tons of MSW. This waste is not collected in an organized manner, instead it is burned outdoors by the population or indiscriminately dumped into the environment, often ending up in water bodies. In all cases, the public plays an important role in plastic waste management. Residents carry plastic packaging waste from their homes and places of primary use to collection points - containers. Both the population and small and medium-sized businesses are primarily responsible for the discharge of MSW into the environment. To solve these problems, expeditions, round tables, meetings are organized to raise public awareness, surveys are conducted, educational materials are prepared - booklets, banners, leaflets, press releases. The population should be informed about the toxic impact of plastic waste. Environmental NGOs, the Environmental Propaganda Division of the Ministry of ecology and natural resources and other organizations conduct river and sea coastal clean-up campaigns, conferences, round tables, meetings, other awareness-raising initiatives, and organize wide distribution of materials among the population. Informing and educating the population, executive authorities and decision makers is crucial to reduce plastic pollution in Azerbaijan.

Legislation Controlling Plastic Waste Management in Azerbaijan

Over the last 20 years, many efforts have been made in the field of solid waste management, including plastic waste management, as well as environmental protection, natural resource management, waste management, recycling, reuse and low-waste or zero-waste technologies. This chapter reviews the capacity developed in this area and provides information on the institutional capacity in this area in the country.

Over the last ten years, plastic waste has become a separate category of waste. Thus, earlier legislation, regulations and other policy documents classify them as "municipal solid waste", which includes plastic waste. The table below summarizes documents 1.35-1.38 and 2.6 that specifically mention plastic waste.

No	Papers	Date of adoption	Note
1. LAWS AND REGULATIONS			
1.1	Law of the Republic of Azerbaijan on Waste	June 30, 1998.	No. 514-IQ, as subsequently supplemented (May 22, 2007, etc.).
1.2	Law of the Azerbaijan Republic "On Environmental Safety".	June 04, 1999.	Act No. 677
1.3	Law of the Republic of Azerbaijan "On Environmental Protection"	June 08, 1999	Law No. 678-IQ
1.4	Guidelines for cleaning cities and other settlements, taking into account sanitary, hygienic and environmental requirements, as well as recommendations for regular transportation, temporary storage and neutralization of household waste	April 21, 2005	Decree of the Cabinet of Ministers of the Republic of Azerbaijan No. 074
1.5	Law of the Republic of Azerbaijan "On Protection of Consumer Rights"	September 19, 1995.	Law No. 1113
1.6	Law on Improving Household Waste Management in Baku City	August 06, 2008	Order of the President of the AR
1.7	Law on Improvement of Household Waste Management in Baku City.	August 08, 2008	Order No. 2983
1.8	Law of the Republic of Azerbaijan on Municipalities	November 30, 2004.	Decree No. 637 of the President of the AR
1.9	Law "On Establishment of Balakhani Industrial Park in Baku".	December 28, 2011.	Order № 1947
1.10	Law "On measures to ensure the activity of the Balakhani Industrial Park in Baku".	December 28, 2011	Order № 1948
1.11	Law "On Approval of the List of Activities Requiring Special Compliance (License)".	Oct. 4, 1997	As amended on July 1, 2000 and October 23, 2003.

1.12	“Regulations on setting fees for collection (accumulation), disposal, use and utilization of waste”	August 12, 2008	Decree of the Cabinet of Ministers of the Republic of Azerbaijan No. 185
1.13	Payments for natural resources, payments and fines for harmful substances released into the environment and guidance on the use of these payments	March 03, 1992	Cabinet of Ministers Resolutions No. 122, No. 216 as amended
1.14	Guidelines for the issuance of special licenses	December 06, 2000.	Cabinet of Ministers Resolution No. 217
1.16	On authorizing the construction of hazardous waste treatment plants	June 29, 1999.	Resolution No. 12 of the Cabinet of Ministers
1.17	Law of the Republic of Azerbaijan “On Foodstuffs”	November 18, 1999.	Law No. 759-IQ
1.18	“Guidelines for the Transportation of Hazardous Waste”	January 27, 2000.	Decision No. 10 of the Cabinet of Ministers of the Republic of Azerbaijan
1.19	“Model Regulations on Industrial Parks”	April 24, 2013.	Ordinance No. 865
1.20	Guidelines for the cleaning of cities and other settlements, taking into account sanitary, hygienic and environmental requirements, as well as guidelines for the regular transportation, temporary storage and neutralization of domestic waste	April 21, 2005	Decision No. 74
1.21	Instruction on the system of inventory and classification of waste generated in production and service areas	March 31, 2003.	Decision of the Cabinet of Ministers of the Republic of Azerbaijan No. 41 of July 1, 2003, certificate No. 419
1.22	“Regulation of the inventory of waste generated in the manufacturing process”	January 25, 2008.	Decision No. 13 of the Cabinet of Ministers of the Republic of Azerbaijan
1.23	“On Approval of the Regulation on Transboundary Transportation of Hazardous Wastes”	July 25, 2008.	Decision No. 167
1.24	Regulation of hazardous waste passportization	March 31, 2003.	Decision No. 41 of the Cabinet of Ministers of the Republic of Azerbaijan
1.25	“Regulations on setting fees for collection (accumulation), disposal, use and utilization of waste”	August 12, 2008	Decision No. 185

1.26	On Approval of the "Regulation on Storage of Hazardous Waste" of the Cabinet of Ministers of the Azerbaijan Republic	June 14, 2016.	Decision No. 228
1.27	"On tariffs for paid services for transportation, storage and disposal of hazardous waste (including radioactive materials)"	December 25, 2007	Decision No. 26
1.28	"Additional conditions required for granting special compliance (license) depending on the specifics of types of activities"	November 07, 2002.	Decision No. 174
1.29	"On tariffs for paid services for transportation, storage and disposal of hazardous waste (including radioactive materials)"	December 25, 2007	Decision No. 26
1.30	Law of the Republic of Azerbaijan "On Environmental Protection".	June 8, 1999.	No 678-IQ
1.31	"Requirements for the management of medical waste"	December 28, 2007	Decision No. 213 of the Cabinet of Ministers of the Republic of Azerbaijan
1.32	Law of the Republic of Azerbaijan "On the Fundamentals of Urban Planning".	October 23, 2003.	Decree No. 953 of the President of the Republic of Azerbaijan
1.33	On the form of the annual official statistical report No. 2-TG (on waste) on the generation and movement of hazardous waste and instructions for its completion.	April 08, 2013.	Decision No. 24/11 of the State Committee on Statistics
1.34	On the form of annual official statistical report No. 14-(on secondary raw materials (waste)) "On the formation and use of secondary raw materials (waste)" and instructions for its completion.	June 27, 2013.	Resolution No. 82/11 of the State Committee on Statistics
1.35	Tax Code of the Republic of Azerbaijan	2021	Articles 102 and 106
1.36	Customs Code of the Republic of Azerbaijan	2021	331 and other articles
1.37	Criminal Code of the Republic of Azerbaijan	2021	Articles 248 and 260.2
1.38	Code of Administrative Offences of the Republic of Azerbaijan	2021	Articles 234.0.5, 244.1, 266, 271 and 275.1.9.

1.39	"On regulation of tariffs for solid domestic waste collection, transportation and disposal services"	June 29, 2024	Decision No. 08 of the Tariff Council of the Republic of Azerbaijan
2.	**PROGRAM DOCUMENTS**		
2.1	National Program of Environmentally Sustainable Socio-Economic Development in the Republic of Azerbaijan	February 18, 2003.	Order No. 1152 of the President of the AR
2.2	On approval of "Complex Action Plan on improvement of ecological situation in the Republic of Azerbaijan for 2006-2010"	September 28, 2006	Decree No. 1697 of the President of the Republic of Azerbaijan
2.3	"State Strategy for Hazardous Waste Management in the Republic of Azerbaijan"	August 25, 2004.	Decision No. 117 of the Cabinet of Ministers of the Republic of Azerbaijan
2.4	"Azerbaijan 2020: Development Concept "Vision of the Future	December 29, 2012.	Approved by Decree No. 800
2.5	National Strategy for 2018-2022 to Improve Municipal Solid Waste Management in the Republic of Azerbaijan"	Nov. 01, 2018	Order No. 637
2.6	"Action Plan for 2019-2020 to reduce the negative environmental impact of plastic packaging waste in the Republic of Azerbaijan"	February 07, 2019	Order No. 935
2.7	"Strategy of socio-economic development of the Republic of Azerbaijan in 2022-2026"	July 22, 2022.	Order No. 3378
2.8.	"Regulations on the State Fund for Environmental Protection"	February 22, 2001.	41 Decision No. 41
3.INTERNATIONAL OBLIGATIONS			
3.1.	UN Convention on the Control of Transboundary Movements and Disposal of Hazardous Wastes of 22.03.1989 (Basel Convention) and the Law of the AR on accession to this Convention	February 16, 2001.	NO. 80-IIQ
3.2	"Partnership and Cooperation Agreement between the European Union and its Member States and the Republic of Azerbaijan"	April 22, 1996.	Approved by AR Law No. 169-IQ dated 08.10.1996.

6. Institutional capacity

No	**Institution dealing with waste management, including plastic waste**	**Brief description of duties**

	Ministry of Ecology and Natural Resources (MENR)	Responsible for providing statewide waste management activities. MENR's responsibilities include, but are not limited to, the following: - Ensuring environmental safety, prevention of damage to natural ecosystems as a result of waste management activities; - Operational and external environmental monitoring, auditing and inspection; - Setting limits for waste management activities and companies - Determination of emission standards for enterprises and activities; - Granting special permits (licenses) for waste management activities; - Coordination of scientific research in the field of waste management; - Providing expert advice on the implementation of engineering, technical and procedural controls in waste management. - consideration of plans of measures, projects, technologies and facilities in the field of waste management, organization of state expertise of documents on environmental impact assessment of waste management enterprises - Issuance of documents reflecting environmental impact indicators, for enterprises that have an impact on the environment in accordance with the legislation - standards of permissible waste, standards of permissible discharges and environmental passport; - Elimination of illegal dumps and strengthening of environmental control. Increasing financial responsibility for illegal use of natural resources; - Improvement of norms and rules in the field of waste management; - Use of modern methods of separation, reuse and recycling of household waste; - Establishment of environmental protection funds.
	Ministry of Economy	Has full responsibility for strategic planning of waste management initiatives, infrastructure development (including waste treatment plants), attracting foreign and public investment, and other financial and commercial matters. The Ministry oversees the effective and efficient management of Tamiz Sheher JSC, ensures the effective utilization of public investments made in the JSC, and approves the recognition of revenues and losses in the annual reports.

	Ministry of Science and Education	Conducts scientific research in the field of waste recycling, reuse and utilization. Waste management research includes, but is not limited to, the following areas: • Bringing environmental protection costs, payments and penalties related to the use of natural resources and environmental impact in line with current prices. • Development of new methods for assessing environmental damage • Development of new methods for calculating atmospheric emissions • Development of environmental certification methods • Development of new methods and tools for determining the degree of toxicity of chemicals used in water management works • Review of technical standards for efficient utilization of energy and heat resources and reduction of losses. • Development of modern landfill biogas collection methods.
	State Statistics Committee	It is responsible for collecting and storing data on the quantity and volume of waste generated at industrial facilities, public enterprises, municipalities and settlements. The State Statistics Committee, together with MENR and ANAS, has the following responsibilities: • Development of waste database • Improvement of waste classification • Development of evaluation indicators for organizations working in the field of waste management • Comparison with international standards and trend analysis
	Ministry of Health	It has full responsibility for the development of sanitary and epidemiological norms for waste-related activities and enterprises in accordance with international standards and control over compliance with these norms, sanitary and hygienic audit of waste management enterprises, as well as assessment of the impact of environmental pollution on human health.

	Ministry of Emergency Situations	It is fully responsible for the review and approval of design documents, plans and regulations for the construction of waste management facilities in terms of technology and process safety and emergency preparedness.
	Non-governmental organizations (NGOs) and international institutions	They are involved in strengthening solid waste management infrastructure and capacity. UN DPs, the European Union and the World Bank are currently implementing projects in this area. They provide financial and practical support to improve waste management policies, legislation and infrastructure. NGOs make valuable contributions to public discussions and awareness raising projects.

Recycling of plastic waste

Plastic waste recycling started in Azerbaijan after 2005. In this process, preference is given to low-density polyethylene and polypropylene, as well as other soft recycling materials. At present, waste recycling facilities for various purposes have been established in Baku, Sumgait, Ganja, Sheki and other cities. Up to 20 enterprises have been surveyed within the project. Information about some of them is given below.

AZEKOL Company

The main activity of AzEkol is recycling of PET bottles collected from landfills.

The production process goes through the following steps: Collection of plastic PET materials, washing and cleaning, and shredding. Commercial polyethylene terephthalate is usually produced in the form of pellets of 2-4 mm.

Polyethylene terephthalate is a synthetic linear thermoplastic polymer belonging to the class of polyesters. It is a polycondensation product of monoethylene glycol and terephthalic acid. Polyethylene terephthalate exists in amorphous and crystalline states, with the degree of crystallinity depending on the prior thermal history of the material. Polyethylene terephthalate becomes amorphous upon rapid cooling and crystalline upon slow cooling. Amorphous polyethylene terephthalate is a hard, transparent material, while crystalline polyethylene terephthalate is hard and opaque.

The degree of crystallinity can be adjusted by baking at a specific temperature depending on the glass transition temperature and melting point. Although PET was first produced on an industrial scale as a

fiber-forming polymer, it has quickly become a leader in the polymer packaging industry.

Polyethylene terephthalate is currently the fastest growing polymer material due to increasing consumption levels. Fiber-forming polyethylene terephthalate is known in the market under the trade names Lavsan and Polyester.

Sheki polymer waste recycling company

This company produces water pipes of various diameters by recycling plastic films and other lightweight plastic waste. It has been operating since 2022. The daily output is 700-1000 kg. The plastic raw material is supplied by the city utility company.

Pilot waste treatment plant at Gushenye landfill in Ismailli district
The company recycles 130-150 kg of light plastic waste per day and prepares insulating tubes for cables in construction.

Annex

RESULTS OF the STUDY OF PLASTIC WASTE LANDFILLS IN THE SALAN AND ISMAILLAH REGIONS

	Category	Description	
		Salyan	**Ismayilli**
1	Region	Salyan district	Ismailli district
2	City	Salyan City	Ismailli city
3	Population	42700 people	20900 people
4	Territory	1799 ha.	715 ha
5	Organizations responsible for household waste management	Salyan Public Utilities Department	Ismaili Municipal Utility Complex
6	Supervisory organizations for sound waste management	Salyan City Executive	Executive Body, Center for Hygiene and Epidemiology (CHE) and Environmental Committee (regional)
7	Recycling facilities for sustainable waste management		15 m^3 / day (incineration). Sorting is performed.
8	Daily garbage collection Including plastic waste	27,456 tons 2,700 tons	13,438 tons 1,075 т
9	Garbage collected at the landfill Including plastic waste	126.0 tons 19 tons	52.00 т. 8 tons
10	Technical capacity for waste management, including		
	Cars	12 vehicles	8 cars (4 automatic, 4 manual)
	Containers	185 units	104 waste containers
	Special equipment	2 units	3 units
	Others	-	

11	**Capacity at the legislative and regulatory level to manage municipal solid waste**, including	-	
	Cabinet of Ministers Resolution No. 74 (2005)	-	Cabinet of Ministers Resolution No. 74 (2005)
	Regulations approved by local executive bodies	6 manat/family/ month	Approved by the executive branch: 5 manat/(family/month) and 3-10 manat/(shop/month)
	Economic mechanisms (tariffs, fines)	-	5-10 manat/(fine/time) approved by CHE
	Contracts	Available	Available
	Rules applied by individual ministries	Ministry of Health and Ministry of Ecology and Natural Resources	Ministry of Health and Ministry of Ecology and Natural Resources
	Others		
12	Expected development in waste management, including:		
	Realized projects	No	Embassy of Japan
	Projects prepared	No	No
	Others		
13	Human resources, including:		
	Managers	1 person	2 persons
	Management office staff	8 people	9 people
	Engineering staff	3 persons	2 persons
	Employees	Total: 177 people	Total: 126 people
14	The procedure and frequency of household waste collection, including		
	Containers	+	Boxes/(every day)
	Gathering things in homes	+	With bags / (in the city every day, out of town *2 times a week)
	Frequency of collection	Every day.	Every day.

15	Landfill condition, including		
	The neighborhood in which it is located	Salyan district, Babazanan territory	Gushanja village, between mountains (valley)
	Distance from the city center	8 kilometers	11 kilometers
	Coverage area	600 m^2	2 ha
	Determination of its status (decision on its use)		Municipal land
	Territorial affiliation	-	In the municipality of Gushanja on contract.
	Estimated amount of garbage collected	126 t	52.0 t
	Safety	Available	Separated by a fence
	Waste reception procedure	No	The calculation is made
	Management	No	from CHC
	Sorting	No	Sorting (paper, plastic, iron, wood, glass, food)
	Neutralization and isolation	Neutralized	Insulation
	Landfill Road Condition.	All right.	Asphalt and 1 km of gravel
	Others		
16	Environmental impact of landfills		
	Sanitary protection zone	No	Available
	Relief	Simple	Mountain
	Landscape	Semi-desert	Foothills
	Distance from the nearest water body	2 km.	2 km (height above ground)
	Distance from nearest accommodation	8 kilometers	2 km.
	Distance from protected areas	15 km	No
	Remoteness from and connection to tourist centers	No	No
	Distance from the highway	4 km (Salyan-Baku)	1 km (Ismayilli-Goychay highway)
	Information on the depth of groundwater table	8 m	N/A
	Land condition	Useless	Useful
	Visual and phenomenological effects of the environment (odor, smoke, bodies of water, organisms, etc.)	The faint odor of a landfill	The faint odor of a landfill
	Others	-	-
17	Note on sampling for laboratory analysis	-	-

Project Manager _____ _____Date _____

Annex

Analysis of the country's capacity to reduce plastic pollution based on interviews with plastic producers and recyclers

The views of industry representatives on the following issues:

Can the production of plastic and plastic products be reduced?

Plastic material producers surveyed are opposed to reducing production. Some of the survey participants noted that production may decrease if demand declines. Recycled plastic is used to make pipes for process water, cable insulation, etc. and used in the domestic market.

If so, by what percentage and for how long can plastic production be reduced?

There was no response to this request.

What social and economic consequences might such a decline have?

While manufacturers recognized that they would suffer financial losses, there was no opinion on the social impact.

What plastics can be replaced with safe alternative materials and products?

According to the entrepreneurs participating in the survey, it is possible to replace single-use plastics as well as plastic bags with alternative goods (paper, fabric, bioplastic, etc.). There are entrepreneurs interested in establishing a bioplastic (PLA) production and recycling facility in the country. In line with the country's priority to reduce the use of plastic, entrepreneurs willing to invest in this production sector have applied to the Ministry of Environment.

Do plastic manufacturers and recyclers know the chemical composition of plastic?

The manufacturers surveyed said their products do not contain toxic compounds.

What is the opinion of manufacturers and processors on the importance of disclosing information about the chemical composition of plastics, especially the presence of toxic additives?

The manufacturers surveyed said their products do not contain toxic additives.

Is the industry aware of progress in developing a legally binding agreement to combat plastic pollution?

69.25% of manufacturers surveyed, 93.8% of recyclers and 100% of supermarket chain representatives answered yes to this question.

If yes, what are their views on the importance of such an agreement?

Respondents do not consider such an agreement appropriate in the short to medium term.

Will it be beneficial to plastics manufacturers and processors?

No.

Which sections of the future agreement do they consider most important and why?

They don't want to make the hard decisions and consider the issue as real in the long run.

10. If industry representatives are not familiar with the agreement, would they be interested in participating in workshops on this topic?

However, 92.3% of the manufacturers surveyed, 94.1% of the recyclers and 100% of the supermarket chain representatives said yes to participating in such a workshop.

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