Global
INNOVATION TRADE

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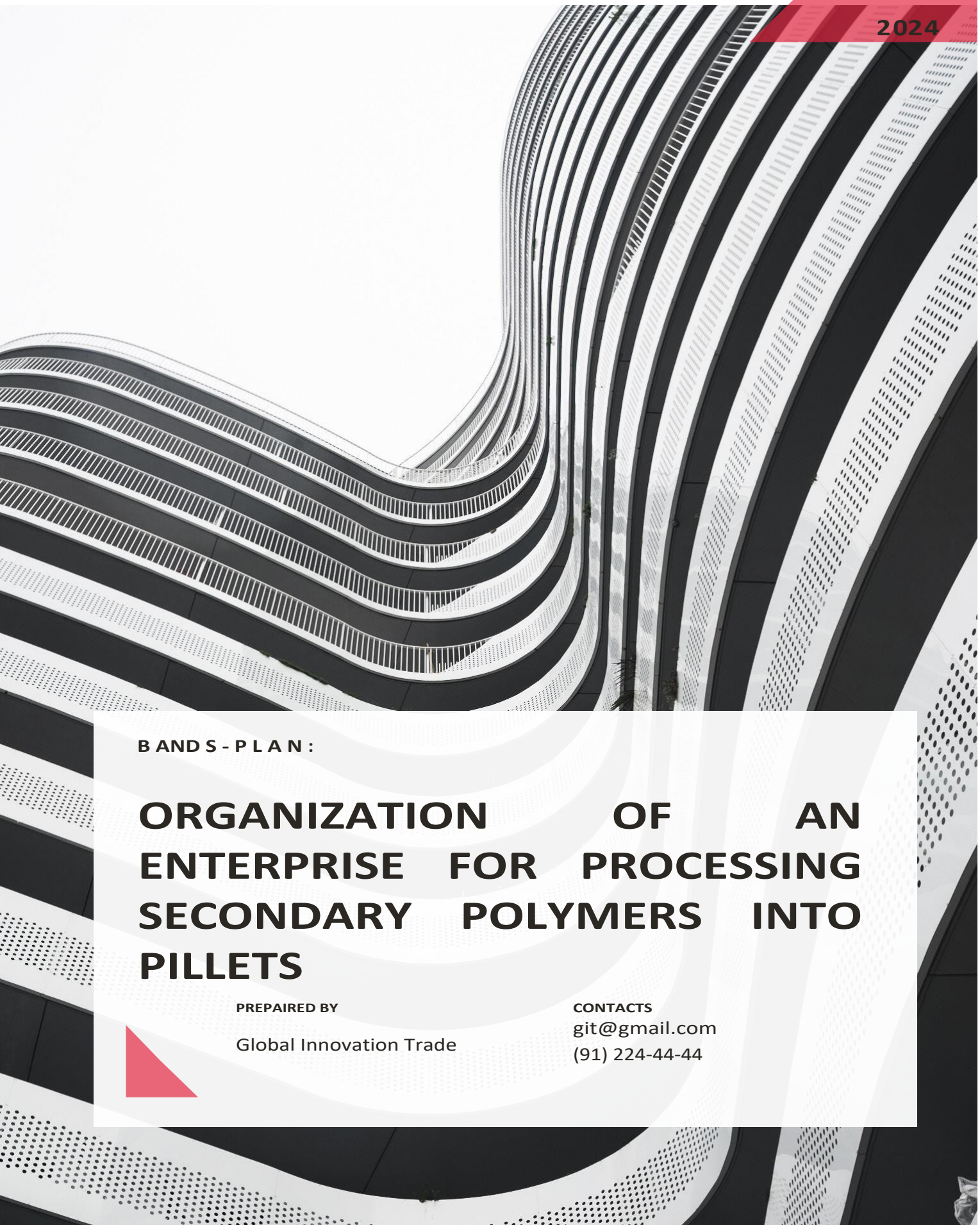

B AND S - P L A N :

ORGANIZATION OF AN ENTERPRISE FOR PROCESSING SECONDARY POLYMERS INTO PILLETS

PREPAIRED BY

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Methodological comments on the business plan

This paper is a project of business operations, activities of the firm, containing information about the company, products and services, markets, marketing, organization of operations and their effectiveness.

The planning period is 2024-2031.

The object and subject matter of the business plan:

The object of the business plan is an investment project of an enterprise for processing secondary polymers into pellets.

The subject of the study is the evaluation of the effectiveness of investment in the organization of the enterprise for processing of secondary polymers into granulate.

Goals and objectives of the business plan

The purpose of the business plan: to assess the feasibility of the organization of the enterprise for processing of secondary polymers into granules and to determine the economic efficiency of investment in this project.

Objectives of the business plan:

- assessment of the volume, capacity and structure of the market;
- analysis of consumers and main competitors;
- assessment of trends and prospects for market development;
- justification of investment funds for the implementation of the project;
- assessment of the economic efficiency of the project.

Sources of information

- Industry Statistics.
- Specialized databases Global Innovation Trade.
- Ratings.
- Information resources of market participants.
- Open information about project participants.

Distribution of the business plan

The business plan materials are not intended for wide distribution or publication. When submitting the business plan, users should be made aware of the purpose of the document, the assumptions adopted for its preparation, and any restrictions on its use.

Scope of analysis

The business plan has been prepared on the basis of information received from the customer as well as from general public sources.

Limitation of liability

All opinions, conclusions and estimates contained in this business plan are valid as of the date hereof. The Contractor is not responsible for changes in economic, political, social, or other conditions that may affect the validity of these judgments.

The Contractor shall not be liable for any loss or damage incurred by a third party as a result of the use of the information in this business plan.

1. Summary of the investment project

Project name: Organization of an enterprise for processing secondary polymers into granulate.

Project initiator: Limited Liability Company "Global Innovation Trade"

The aim of the project: justification of investment efficiency in the organization of the enterprise for processing of secondary polymers into granulate with production capacity of 2,957 tons of granulate per year. Selection of the most efficient option for processing of 4 types of polymers.

Project Location: Kamashi River, Kashkadarya Region.

Mode of work: working day - two shifts of 8 hours, an average of 22 working days per month.

Personnel: 32 full-time employees, including 26 full-time core production personnel.

The essence of the project: the project involves investment in the construction of a production building, supplying it with electricity, drilling a well to organize the production process, as well as the purchase of equipment for processing recycled polymers into pellets.

The project implementation schedule is shown in Table 1.

Table 1: Stages and timing of the project

Project Stage	Beginning of work	Duration, days	End of job
Preliminary research, concept formation, design, business planning	15.11.2023	25	10.12.2023
Development of design and estimate documentation	01.12.2023	30	31.12.2023
Approval of the project by the investor (bank)	01.01.2024	30	31.01.2024
Planned C&A in 2025	01.02.2024	181	01.08.2024
Recruitment	01.02.2024	28	01.03.2024
Equipment delivery and installation	01.08.2024	60	30.09.2024
Pre-commissioning and commissioning of the plant	01.10.2024	45	15.11.2024
Start of production	01.01.2025	2 556	31.12.2031
Start of product sales	15.01.2025	2 542	31.12.2031

Source: In project initiator

Project funding:

The project provides for the use of borrowed and own funds. The sources and amounts of project financing are given in the table below.

Table 2. Sources of project financing, thous. dollars.

Project financing	Value
The total amount of project financing	2091
Borrowed funds, total	1715
including investment credit	1573
working capital	143
Own funds, total	376
including co-financing of investments	369
day-to-day operations	7

Source: information of the project initiator, Global Innovation Trade calculations

The project provides a preferential investment loan for a period of 7 years. The loan is calculated for the period from April 2024 to March 2031 (84 months). The terms and conditions of the loan are shown in the table below.

Table 3: Terms of investment lending

Terms of the investment loan	The Year	Month
Interest rate on the loan	6,5%	0,53%
Loan term	7	84
Loan vacations (debt body)	1	12

Source: information of the project initiator, Global Innovation Trade calculations

The investment loan is planned to be received in two tranches:

1. For the manufacturing building, $422,000 in April 2024.
2. To purchase equipment, $1,150,000 in July 2024.

Investment of own funds in the project in the amount of 376 thousand dollars is planned on the following items of expenditure:

1. On summing up the communications and drilling a water well - 100 thousand dollars.
2. For the construction of the production building - 202 thousand dollars.
3. For the purchase of equipment - $67,000.

The distribution of investments into own and loan funds is shown in the table below.

Table 4: Breakdown of funding sources by cost item

Expense item	Amount of investment		
	total	including but not limited to	
		credit	own funds
Building construction	624	422	202
Connecting utilities, drilling a water well	100	0	100
Equipment for production activities	1218	1150	67
TOTAL	1941	1573	369

Source: information of the project initiator, Global Innovation Trade calculations

In addition to investment credit at the initial stage of the project is planned to invest their own funds to ensure the current activity in the amount of 7 thousand dollars in February 2024, and also to replenish working capital will take a preferential working capital loan in September 2024 in the amount of **143 thousand dollars** for 3 years (according to the small business credit programs to replenish working capital).

The table below shows the terms and conditions of revolving credit.

Table 5. Terms of revolving credit

Terms of the revolving credit	The Year	Month
Interest rate on the loan	10,5%	0,88%
Loan term	3	36
Loan vacations (debt body)	1	12

Source: credit institution data, Global Innovation Trade analysis and calculations

Variants of financial efficiency of the project Table 6.

Financial efficiency of the project

Investment performance indicators	Values			
	polyethylene terephthalate	high-pressure polyethylene	low-pressure polyethylene	polypropylene
Net profit, thousand dollars.	858	1322	-2267	5428
Net cash flow NPV	507	952	-2380	4893
Internal rate of return IRR (months), %	12,9%	18,7%	-	62,0%
Profitability index PI, units.	1,3	1,5	-0,2	3,5
Payback period PB, years.	5,2	4,6	8,0	2,5
Discounted payback period DPB, years	5,9	5,1	8,0	2,7

Investment performance indicators	Values			
	polyethylene terephthalat e	high-pressure polyethylene	low-pressure polyethylene	polypropylene
Investment in the project, thousand dollars.	1941	1941	1941	1941
Average return on sales for the project, %	4,9%	7,2%	-13,4%	23,9%
Discount rate, %	6,2%	6,2%	6,2%	6,2%

Source: Global Innovation Trade calculations

According to the calculated data presented in the table it is clear that the most profitable project is in the production of polypropylene. Let's consider indicators of project efficiency on condition of polypropylene processing into secondary pellets.

The net profit of the project at the end of the forecast period will be **$5,428 thousand.**

Net cash flow NPV is **4 893 thousand dollars**, which indicates the payback period of the project**.**

The internal rate of return (IRR) was **62%**, which is higher than the discount rate (6.2%) - an excellent indicator for such projects.

In this project, a PI of **3.5** means that at the end of the implementation period (December 2032), for every dollar invested, the Investor will receive **$3.5** (discounted).

The project will pay for itself in **2 years and 6 months**.

The payback period, taking into account the discounting will be **2 years and 8 months**.

The discount rate of this project is **6.2%**.

2. ESSENCE OF THE PROPOSED PROJECT

2.1. Description of the general concept of the project

The project determines the most effective option of organizing an enterprise to process recycled polymers into pellets when receiving a soft investment loan on a land plot of 1.5 hectares in the town of Kamashi, Kashkadarya region.

As part of this project, the following implementation phases are planned:

- construction of a production building;
- bringing electricity to the production building;
- drilling a water well to support the production process;
- purchase of equipment for processing secondary polymers into pellets;
- launch of equipment for processing secondary polymers into pellets.

As a result of the implementation of the above-mentioned stages, an enterprise for processing secondary polymers into granulate with a production capacity of 2,957 tons of granulate per year will be established.

The technological process of recycled polymers processing into pellets depends on the characteristics of the purchased equipment.

After collection and primary sorting, the recycling of polymer waste is schematically carried out as follows:

1. Grinding raw materials.
2. Division of polymers by type.
3. Wash.
4. Drying.
5. Pelletizing.

The production line includes:

- section for manual sorting of raw materials by color, at least 4 types;
- possibility of feeding previously sorted raw materials into the line for further processing;
- crushing area of raw materials to the specified fraction;
- washing area, including highly contaminated raw materials (containing fats, etc.);
- drying section and packaging of finished products in big bags.

The pellets, which are ready for recycling, are then packaged and delivered to the consumer.

2.2. Product description

The product of the project is granulate, which is suitable for the production of any type of polymer products.

Figure 1: Polymer pellets

Source : https://google.com

Secondary pellet is an intermediate result of processing various types of polymers. The raw materials

for its production are:

- household and industrial polymer waste;
- production waste and unmarketable items;
- used containers and packaging.

As the use of polymers in everyday life and in production is increasing, the source material for the production of recycled granules is also becoming more and more abundant. Even specialists are not always able to determine from the appearance what kind of plastic a particular product is made of.

Secondary granulate is used for the production of new plastic products. Rarely - in pure form, often - as an additive to the primary raw material for cheaper products where it is expedient.

Polyethylene terephthalate (PET) is a thermoplastic polymer derived from the polycondensation of terephthalic acid (TPA) and ethylene glycol (EG). It is produced in granules. The main applications of PET are in the production of bottles, films and fibers.

The main technical characteristic - viscosity, due to this property, it has found a wide application, primarily as a universal container for beverages. The main areas of PET application in Uzbekistan is the production of blanks (preforms), from which plastic containers of different kinds and purposes (mainly plastic bottles) are made (blown). To a lesser extent in Uzbekistan, PET is used for the production of films and fibers. The situation in the world is the opposite.

Also, this polymer is used in such areas as:

1. Recycled PET is the product of recycling waste PET - preforms, sprues, bottles.
2. Blow molding of PET - container capacity.
3. Injection molding PET - preform capacity.
4. Film extrusion.
5. Polyester cord fabric.
6. Polyester textile thread.
7. Polyester fiber.
8. Polyester spunbond.
9. Autochemicals.
10. Household chemicals/cosmetics/pharmaceuticals.

Thanks to the peculiarities of production, **HDPE (low-pressure polyethylene)** is more rigid and stronger than LDPE. The HDPE pellet, due to its increased strength, makes it possible to make thin packages, which saves significant amounts of raw materials.

The excellent durability of HDPE has made it an ideal raw material for the production of the following products:

- HDPE plastic bags, which weigh almost nothing, take up minimal volume, but have excellent strength characteristics;
- food and technical packaging, packaging for medical, and disposable products;
- bins, trash bags, film, auto hoods, and more;
- battery cases;
- bottles;
- barrier layer for multilayer packaging materials;
- The main components of gas supply systems, cold water supply systems, sewerage systems, protective for power grids, casing in wells;
- waterproofing sheets;
- details of products for the machine-building industry;
- membranes for waterproofing works;

- furniture fittings;
- much more.

Secondary pellet LDPE (high-pressure polyethylene) is used in many industries due to such properties as moisture resistance, resistance to chemical attack, gas- and vapor permeability.

Secondary LDPE is most commonly used in the packaging industry. This is due to the fact that LDPE pellet is versatile. It can be used to produce almost any packaging that is airtight and durable.

Due to easy application of any images on this film, it is most often used as a raw material for producing bags with a logo. LDPE pellets are divided into three grades according to their performance properties:

1. First grade - these pellets have the highest degree of transparency, are used as an additive in the manufacture of films, bags.
2. Second grade - pellets have a light gray hue. Used for the production of technical, construction film, garbage bags.
3. The third grade - darker pellets, used for the production of black film.

Secondary high-pressure polyethylene became popular due to its cheapness, non-toxicity, resistance to chemicals and aggressive environmental factors. As a result, it has become in demand in many industries. The use of this material in the manufacture of various polymer products reduces financial costs many times over.

The calculations have shown that the most efficient way of **processing** secondary polymers into pellets **would be to** obtain an investment loan and start production of **recycled polypropylene.**

Secondary PP pellet (secondary polypropylene) has a number of quite significant advantages. First of all, secondary polypropylene is less dense. In general, polypropylene granulated secondary has the lowest density value among all types of plastics. Softening of this polymer begins only at 140ºC, and its melting temperature is 175ºC. Meanwhile, it is more wear-resistant and less prone to abrasion. It is also not afraid of corrosion cracking. However, it has weaknesses. Secondary PP pellet is very sensitive to light and oxygen, but this problem can be solved by introducing special stabilizers.

Secondary PP pellet (secondary polypropylene) is actively used in the production of polypropylene (PP) and polyester (PET) tapes. Such tapes are ideal for both manual and automatic packaging of goods.

Although the manufacturing techniques of both tapes are quite similar, their properties differ to a great extent, so you should choose the one that best meets the requirements from the two options.

Polypropylene strapping is primarily used for securing (tying, strapping, securing) loads ranging from household appliances to building materials. This tape is very resistant to tensile stress, which allows using it for securing loads up to 5 tons.

Polyester tapes are also resistant to stress and are not much inferior to polypropylene tapes, while having a lower cost.

Recycled polypropylene pellets are gradually replacing such a polymer as polystyrene from the market. This is due to its many advantages: many modifications with different properties, environmental friendliness, proven recycling and disposal processes.

PP is less dense, has the lowest density of all plastics, is more resistant to wear and tear, and is not as prone to abrasion. It is also not affected by corrosion cracking.

Raw materials are scrap plastic containers, furniture, waste from the polymer industry .

Polyethylene (PE) is the polymerization product of colorless ethylene gas, white waxy solid product, strong, elastic, good dielectric, resistant to many chemicals. Depending on the method of production, polyethylene of low (HDPE or HDPE) and high (LDPE or LLDPE) pressure are distinguished. And the first one is a stronger material. Both are used for making films and bottles.

The group of these compounds is also called polyolefins. They are widely used in all kinds of industry, medicine, agricultural sector. PE are thermoplastics - materials suitable for melting. This characteristic is successfully used by industry in recycling their own process waste in order to reduce operating costs.

2.3. Project Location

The production site is located in Kashkadarya region, Kamashi district at the address: Chim village.

The district occupies an area of more than 2.66 thousand square kilometers. It is located 60 kilometers from Karshi city and 485 kilometers from Tashkent.

The district is connected to Karshi city by a road.

The population of the Kashkadarya region as of 2029 is 3.5 million people, with the population of the Kamashi region itself being 286,000.

Figure 2: Location of Kamashi City in Kashkadarya Region

Figure 3: Project Location Area

Figure 4: Project Location Area

3. MARKETING PLAN

3.1. Polymer processing and recycling

Almost 180 million tons of plastic are produced around the world each year. A huge number of products are made of it - from toothbrushes to television sets. The amount of plastic waste is growing accordingly. This state of affairs could be disastrous were it not for one excellent quality of thermoplastic polymers: they are easily recyclable. Recycled plastics are of inferior quality to virgin plastics, but if they are mixed in reasonable proportions, this does not affect the technical characteristics of plastic products. Of course, like any recyclable material, it has to be shredded before processing. A shredder or so-called plastic crusher successfully copes with this task. Plastic crushers are mainly used in two areas: - in factories that produce plastic products; - in companies that collect and recycle recyclable materials.

The demand for raw polyethylene and polyethylene products has been growing steadily over the last few years in Uzbekistan. This information was announced during the 20th OGU international conference in Tashkent, dedicated to the oil and gas sector of Uzbekistan and, in particular, to the production of polyethylene raw materials.

These data are also confirmed by LLC "Shurtan GHK", which is the largest in Uzbekistan and one of the largest in the CIS for the production of primary polyethylene. Polyethylene from Shurtan GHK is certified according to GOST, DIN, ISO standards, thanks to which the plant's products are sold to all CIS countries, as well as to China and Iran.

It is noted that from 2004, when the domestic market share was only 25% of the produced products, in 2015 it increased to 83.4%. In 2016, the domestic market of Uzbekistan is expected to absorb even more polyethylene and polyethylene products. Polyethylene pellets and polyethylene pipe products are in the highest demand among the "domestic" consumers.

The company has established the collection of waste containing polymer raw materials. The main mass of the collected waste consists of PET (polyethylene terephthalate) waste, so-called plastic bottles.

All collected waste is accumulated at the production base of the subsidiary enterprise "Lancaster Technologies", where it is further processed. To recycle polymer waste, the company has launched two in-house lines, which include a pre-cleaning line with subsequent cutting to obtain a small fraction (PET flakes) and a washing line with three stages of cleaning from chemicals and various small foreign particles.

Such equipment makes it possible to obtain secondary raw materials of sufficient quality for further use from PET waste. For example, in China and Russia PET flakes are used to produce fiberglass, while in Europe the technology of reactor cleaning of the same PET flakes with subsequent pelletizing allows to achieve quality comparable to the primary raw material that can be reused for PET bottle blowing.

The volume of recycled waste reaches 200-300 tons per month - an important contribution to environmental protection, because the polymer in the landfill or buried under the ground does not decompose over 50 years, and the production and consumption of plastic packaging is growing every year.

Processed raw materials successfully pass laboratory tests abroad and are exported in full.

In the coming years, Uzbekistan plans to create six chemical-technological clusters, the first of which is being developed on the basis of Navoiyazot (Navoiyazot). The second cluster will be located in Bukhara Region, where polyethylene terephthalate (PET), polyvinyl acetate (PVA), polypropylene and other polymers will be produced from natural gas, and dozens of enterprises will be created to produce finished plastic products, the press service of Uzbekistan's president said.

As a result of implementation of these projects by 2026 the volume of chemical production in Uzbekistan will increase threefold compared to 2020 and in 2030 will amount to 7% of GDP.

The head of state stressed the need to train qualified specialists for large-scale projects in this sphere. For this purpose, a scientific and educational cluster in the field of chemistry will be created in the Ulugbek settlement of Tashkent. This cluster will include four higher educational institutions and a modern scientific center of chemistry.

3.2. Market structure by types of pellets

Polypropylene is used in all dominating industries, such as: production of electronics and electrical equipment, machine building, automotive, instrumentation, transport and construction industries. Today, the chemical industry of Uzbekistan, with its significant production, scientific and technological potential, and raw material base, is one of the leading industries of the economy. Experts forecast that the estimated annual growth rate of the global chemical industry will be 2.7%, and by 2030 the volume of the world chemical market is projected to reach 4.391 trillion dollars in value terms. In turn, the polymer market in Uzbekistan is gaining momentum. In particular, polymers and synthetic resins are widely used: linoleum is produced from vinyl chloride, insulation materials are produced from polystyrene, construction materials
- made of plastics.

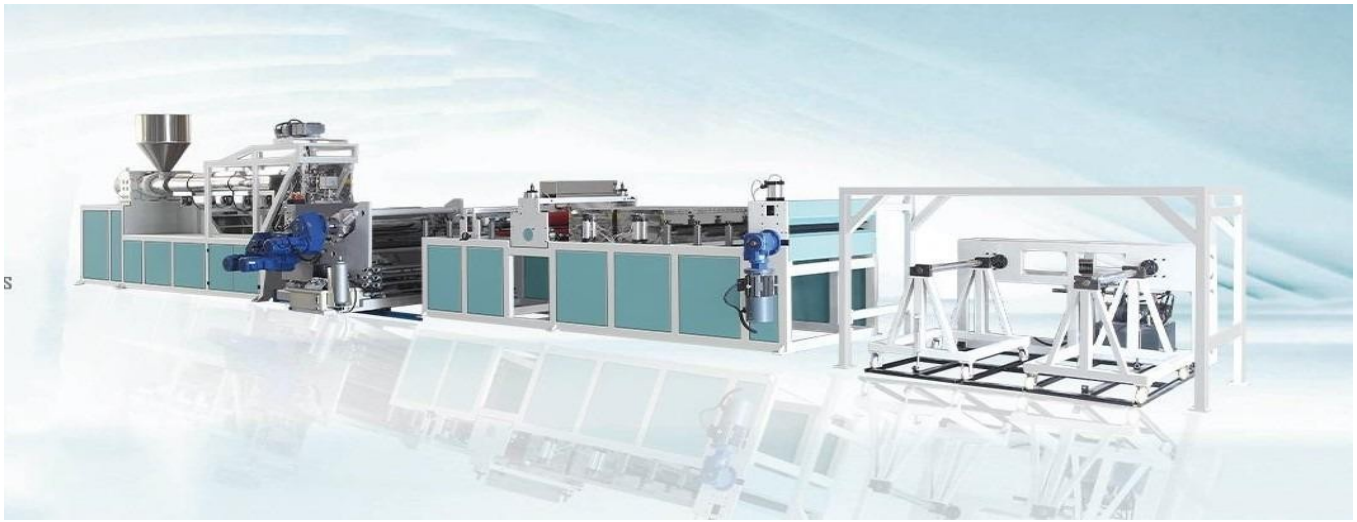
Production of recycled pellets has recently become increasingly popular, for which there are several good reasons. Firstly, the amount of polymer products in waste has recently reached catastrophic levels and is already affecting nature. Secondly, products made of this material can be recycled - it is possible to make secondary pellets from them and then produce new products from them, sometimes without loss of quality.

The main classes of polymers include: polyethylene, polypropylene, polyvinyl chloride, poly styrene (including copolymers - ABS-plastics), polyamides, polyethylene terephthalate. This paper deals with 4 of them, their description and application is given [below2].

3.2.1. PET granulate

Despite the fact that consumption of disposable containers in our country began to develop in 2010, the domestic market is occupied only by 40-50%, and most of it is imported. Besides, there is a high export potential, since the markets of neighboring republics (Kyrgyzstan, Tajikistan, Turkmenistan, Afghanistan) are practically not occupied.

Figure 5 Equipment for making disposable tableware



Ekstruder 800/110

3.2.2. Pellets from LDPE film

The growth of packaging requirements over the past decade, the emergence of large retailers, requires the production of new types of film with different compositions and characteristics. There are many types of polymer films.

The availability of multilayer film extruders at our production facility allows for endless variations in various materials, including film characteristics.

Using the raw material quantity adjustment system, it is possible to select the percentage of inclusion of the materials produced, the optimum composition of the output and the percentage of added materials. Based on this, we will always have films with the desired property. This is a cost-effective solution for customers, since our multilayer film extrusion capabilities allow the production of the main types of thin and strong films through the use of reinforced materials.

3.2.3. Polypropylene granulate

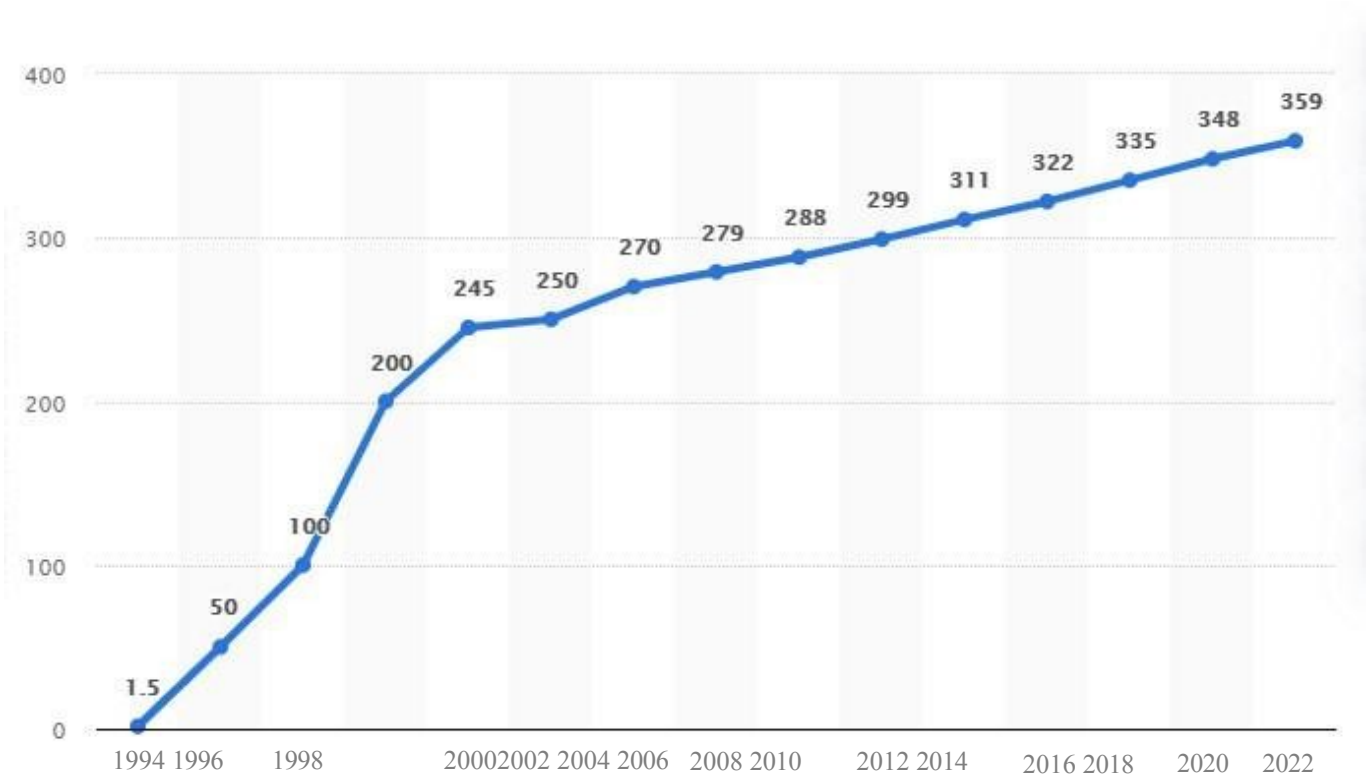
Polypropylene is a polymer derived from the chain growth of propylene. It has similar properties to polyethylene, but has a much higher melting point than polyethylene and is quite hard.

Polypropylene can be produced under controlled conditions with different molecular chain structures (stereospecific), but only "isotactic" is produced in large quantities.

Polypropylene is an important plastic and is used in many different forms and applications in various production processes.

As the demand for polymer products grew worldwide, so did the demand for polypropylene. Today polypropylene ranks second among polymers produced worldwide after polyethylene.

Figure 6. Statistics of polymer production in the world as of 2022 (per million tons)



According to the international information agency, the demand for polypropylene is the second largest in the world, and the demand for this polymer is increasing annually by 4-6%. Analysts forecast that polypropylene consumption will exceed 400 mln tons by 2023.

Production is rapidly moving to Asia and the Middle East. Most of the projects underway are aimed at meeting the needs of China.

Summarizing the above information, the following conclusions can be made.

1. There is a slight increase in the production of polypropylene.
2. There is some increase in demand for products made of PP.
3. The introduction of new capacities will probably lead to a decrease in polypropylene prices due to increasing competition between producers.

Already now we can say that PP will have a constantly growing demand, although periodic drops in consumption are not excluded. The demand for polypropylene will also grow due to the transition of producers to this raw material in connection with the toxicity, the complexity of processing other types of polymers, tightening of legislation for the production of environmentally harmful products.

3.2.4. Solid HDPE plastic granulate (crate, canister)

Polymeric materials are used to make products of any shape: threads, films, tubes. The main methods of turning polymers into products are extrusion, injection molding, conventional pressing, i.e. volumetric pressing, foaming, welding, heat treatment, grating and at the same time machining methods.

Polymer clay is widely used in handicrafts. Polymer clay is a plastic product consisting of a smelly mass similar to plasticine. All polymer clays contain polyvinyl chloride and a liquid plastic mass. Polymer clay looks like a transparent, shiny stone, colored in different colors. Polymer clay was invented by German scientist Fifi Rexbinder. Clay can be used to make objects of different shapes. For example:

- Souvenirs and jewelry.
- Quilling and flowers.
- Holiday Gifts.
- Dolls, statuettes.

3.3. Analysis of consumers by types of pellets. Consumer segmentation

Recycled plastics are actively used in the production of products ranging from soft drink bottles to car parts. The growth in the production of products based on recycled plastics is driven by the need to reduce costs, saturate the market, and meet the requirements of increasingly strict waste management legislation.

Potential markets for the use of recycled pellets are developing, albeit slowly. To previously developed areas, such as road surfaces, hardware, wood-plastic products, new areas have been added: packaging of non-food products, housings for computer equipment, photo and video cameras, batteries. The characteristics of some types of secondary granulate make it possible to produce the same products as the primary polymer.

The main growth driver of secondary polymers consumption is the segment of flexible and rigid packaging for food and non-food applications. According to experts, the share of the packaging segment in the total consumption of polypropylene was 46%, low-density polyethylene - 71%.

3.4. Overview of potential competitors by type of pellet

Polymer reproduction requires less organizational effort compared to their synthesis: logistics do not require the construction of thousands of kilometers of oil and gas pipelines; construction of many types of production facilities is available to medium and small businesses; technological processes are generally not associated with the use of highly reactive chemical compounds, provoking man-made accidents and disasters. Investments in recycling stimulate the development of related industries: engineering, transport, haberdashery, household goods, and others. Polymers are high-molecular-weight organic compounds. They have a long lifespan because they are related to proteins and amino acids. Their half-life is beyond competition. When burned, macromolecular chains turn into phosgens, cyanides and di-oxides whose persistence and harmfulness is comparable to that of heavy radiation. For decades, these substances, dissolved in air and water, found in flora and fauna, have been suppressing the mechanisms of normal cell division in all organisms without exception. According to ecologists, the forms of existence of synthetic materials that result from industrial reproduction of plastics, less aggressive and more functional. Secondary monomers from pyrolysis: ethylene, propylene, butadiene - are components of paints and adhesives. Other heavyweight plastics, with their high environmental friendliness, form the basis for sewage, water pipes, and many other useful products.

PRODUCERS OF SECONDARY POLYMER PELLETS IN UZBEKISTAN

1 **BVB-ALYANS LTD.**

Phone number: 71 2073707

Country code: +998

E-mail: zakaz@bvbalyans.uz

Website: bvbalyans.uz

Legal name: BVB-ALYANS Ltd.

Brand name: BVB-ALYANS Ltd.

Address: Tashkent, 100084, Tashkent, Yunusabadsky district, 107 B, block C, floor 2, office № C-8№ C-9**Location:** metro station "BODOMZOR".

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2 **DAE MYEONG ENTERPRISE FE LLC**

Phone number: 88 1881025

Country code: +998

E-mail: bakhrom@dm-enterprise.co.kr

Website: dm-enterprise.uz

Legal name: DAE MYEONG ENTERPRISE FE LLC

Brand Name: DAE MYEONG ENTERPRISE FE Ltd.

Address: Uzbekistan, 100015, Tashkent, Mirabad district, 7 FIDOKOR str.

Landmarks: Oybek metro station

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3 **GRANULE GROUP LTD.**

Phone number: 71 2539460, 71 2539845, 90 9532010

Country code: +998

E-mail: granulegroup@gmail.com

Website: granulegroup.com

Legal name: GRANULE GROUP Ltd.

Brand name: GRANULE GROUP Ltd.

Address: Uzbekistan, Tashkent, Yakkasarai district, 59, Shota Rustaveli Street, office 26

Landmarks: "ASKIA" bazaar

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4 **IMKON PLAST LTD.**

Phone number: 95 1111111

Country code: +998

E-mail: imkonplast@bk.ru

Website: **i p l a s t** .uz

Legal name: IMKON PLAST Ltd.

Brand name: IMKON PLAST Ltd.

Address: Uzbekistan, Tashkent region, Tashkent district, Khasanbai district, 14 Shifokhon str.

5 **ORD PLAST PE**

Phone number: 99 8250505

Country code: +998

E-mail: ordplast05@gmail.com **Legal name:**

ORD PLAST PE **Brand name:** ORD PLAST PE

Address: Uzbekistan, 100124, Tashkent, Mirzo-Ulugbek district, 60 Khirot Street

Landmarks: the Institute of ACUSHERY and GYNECLOGY

6 **POLYMER GAS LTD.**

Phone number: 71 2009080, 94 6777779

Country code: +998

E-mail: polymergastrade@gmail.com

Website: polymergas.uz

Legal name: POLYMER GAS Ltd.

Brand name: POLYMER GAS Ltd.

Address: Uzbekistan, Tashkent region, 111800, Zangiata district, Eshonguzar village, 1 A, Khozhiboyev street, office 1

7 **POLYMER PIGMENTS LTD.**

Phone number: 55 5029191, 55 5026777, 55 5026777

Country code: +998

E-mail: export@mep.uz, info@mep.uz

Website: mep.uz

Legal name: POLYMER PIGMENTS Ltd.

Brand name: POLYMER PIGMENTS Ltd.

Address: Tashkent, Tashkent, Yashnabad district, 325 B Parkentskaya str.

8 **Polytech Eco Products**

Phone number: 93 116 49 69

Country code: +998

E-mail: sales@polytecheco.com

Legal name: Polytech Eco Products

Brand Name: Polytech Eco Products

Address: Uzbekistan, Tashkent, Yangihayot district, Takhira street,

9 **SAM ECO MEDIKAL LTD.**

Phone number: 91 5570197

Country code: +998

E-mail: t.temur.sem@gmail.com

Legal name: SAM ECO MEDIKAL Ltd.

Brand name: SAM ECO MEDIKAL Ltd.

Address: Uzbekistan, Samarkand region, 140100, Samarkand, Farkhad village,

10 **TYANSHAN FLEKS LTD.**

Phone number: 71 2552275

Country code: +998

Legal name: TYANSHAN FLEKS Ltd.

Brand Name: TYANSHAN FLEKS Ltd.

Address: Uzbekistan, 100022, Tashkent, Yakkasaray district, 73 Bobura ave.

11 **UZAUTO CEPLA LLC**

Phone number 78 1487117, 90 0040611, 90 0040614

Country code: +998

E-mail: info@avtocepla.uz

Website: uzautocepla.uz

Legal name: UZAUTO CEPLA Ltd.

Brand name: UZAUTO CEPLA Ltd.

Address: Uzbekistan, 100016, Tashkent, Yashnabad district, 61 ELBEK str.

12 **UZ-KOR GAZ CHEMICAL SP OAO**

Phone number:78 1292900, 61 2267192, 98 2799119, 98 2797121

Country code: +998

Faxes: 78 1292900

E-mail: info@uz-kor.com

Website: uz-kor.com

Legal name: UZ-KOR GAZ CHEMICAL JV LLC

Brand name: UZ-KOR GAZ CHEMICAL JV LLC

Address: Uzbekistan, Tashkent, Shaykhantakhur district, 112 Zulfii Khanum str.

Landmarks: LABZAC

Figure 7. Separation drum (screen) with waste collection system

In developed economies, the share of plastics processing reaches 26% of the output - up to 90 million tons. At the same time the volume of the world market amounts to 600 billion dollars. Domestic segment of polymer recycling looks somewhat more modest: 5.5 million tons. According to specialists' assessment, demand of Uzbek industry for monomers and full-fledged modified thermoplastics considerably exceeds their supply. The presence of these two factors leads to the growth of national capacities for polymer processing.

The table below shows the largest Russian recyclers of recycled polymers.

3.5. Prices for granulate by type

The prices of the granulate in question can vary greatly depending on various reasons. For example, from:

- size and other characteristics of the pellets (grade);
- the method of purchase - directly from the manufacturer or through an intermediary;
- region, logistical accessibility;
- the degree of readiness for further production;
- purity;
- volume of batches;
- The agreements reached between the parties to the transaction and many other factors.

Below are the approximate prices of the product directly from manufacturers, as well as - for comparison - from product suppliers (intermediaries) of different manufacturers. There is a significant difference: the prices from producers are significantly lower than those of the granulate suppliers.

Table 7. Cost of pellets directly from manufacturers

Polymers	Stamps	Prices, $/kg
PP	PP 01120	27
PP	PP 02060	28
PP	PP TPP-30	39
PP	PP 01060	41
PP	PP RM	41
PP	PP T	46
PP	PP 00413	47
PP	GPP 2	47
PP	PP 01003	51
PP	PP 01030-00011	82
PP	MGS PP	81
PP	PP sabic l7231	79
PP	PP TM	79
PP	GPP-M	80
LDPE	PVD VRE	44
LDPE	LDPE 158+linear	44
LDPE	LDPE 158+273	44
LDPE	LDPE 153	47
LDPE	LDPE 158+293	48
LDPE	PVD 158-00009	48
LDPE	LDPE 108	63
LDPE	EVOH LDPE	61
LDPE	EVOH papermach LDPE	63
LDPE	PVD 115-03	48
LDPE	LDPE 158-00015	57

Polymers	Stamps	Prices, $/kg
IPA	HDPE 273	48
HDPE	HDPE 276	48
IPA	HDPE 277	48
IPA	HDPE 273-73	51
IPA	HDPE 293-285 D	53
IPA	HDPE 293	54
IPA	HDPE 276	59
IPA	HDPE 273-83	61
IPA	PND 276+273+277	68
IPA	HDPE 277	51
IPA	HDPE 80	68
PP	PP 030	55
PP	PP 030	41
PP	PP 030	55
PP	PP 030	60
PET	low viscosity	32
PET	low viscosity	51
PET	low viscosity	60
PET	high viscosity	41
PET	high viscosity	55
PET	high viscosity	64

Source:open withcompany operations

Table 8: Cost of pellets from suppliers

Polymers	Brands	Prices, $/kg
PET	PET granulate	140
PET	ROSPET A Bottle	133

Polymers	Stamps	Prices, $/kg
PET	SPET 8200 Specification	144
PP	H030GP	81
PP	balen 01030	80
PP	balen 01270	82
PP	stavrolen 1035 08	82
PP	stavrolen 1350 21	83
PP	1300R	85
PP	1500N	85
PP	1362R	85
PP	1365S	85
PP	4445S	85
PP	8300G	85
PP	8332M	85
PP	8348S	85
IPA	PE2NT 11-9	54
IPA	pe2nt22 12	57
IPA	Im 26 64	54
IPA	273-83	55
LDPE	158 03-020	64
LDPE	159 03-020	64

Source: public company information

4. ORGANIZATIONAL PLAN

4.1. Personnel plan

In order to form the staff schedule of the production enterprise the following were analyzed: the project concept, the main business processes, production technology, the volume of basic and auxiliary operations. As a result, the following structural subdivisions were formed in the staff schedule:

- administrative and management personnel;
- the main production personnel;
- auxiliary production personnel.

In the calculation part of the business plan, a plan of payroll was formed based on the conditions of the staff units of the above-mentioned structural subdivisions.

The project will create at least 32 new jobs with a stable income and all social guarantees.

Beginning in March 2024, the General Manager, Production Director, Chief Accountant and Chief Engineer are scheduled to leave in order to provide the initial organizational phase of the project.

After the arrangement of the site, construction of the production building and delivery of the equipment in October 2024, a process engineer will be hired who will master the new production at the stage of commissioning the equipment under the supervision of the chief engineer.

During the start-up phase of production facilities, 26 workers and one accountant will be employed starting in January 2025.

The average salary of one employee of the company will be more than $0.4 thousand per month.

Table 9. Formation of payroll and staff schedule of the enterprise, thousand dollars.

Position	Average salary, thousand dollars per month	Number of staff units
Administrative staff		**4**
Project General Manager	2	1
Director of Production	1	1
Chief Accountant	1	1
Accountant	0,3	1
Auxiliary production personnel		**2**
Chief Engineer	1	1
Technologist	1	1
Key production personnel		**26**
Working	0,3	26
Total:		***32***

Source: data of the Project Initiator

If the total number of staff of the company 32 people, the annual payroll, since 2025, will be equal to 53 thousand dollars.

4.2. Work schedule for the project

The stages of the project and their timelines are shown in the diagram below.

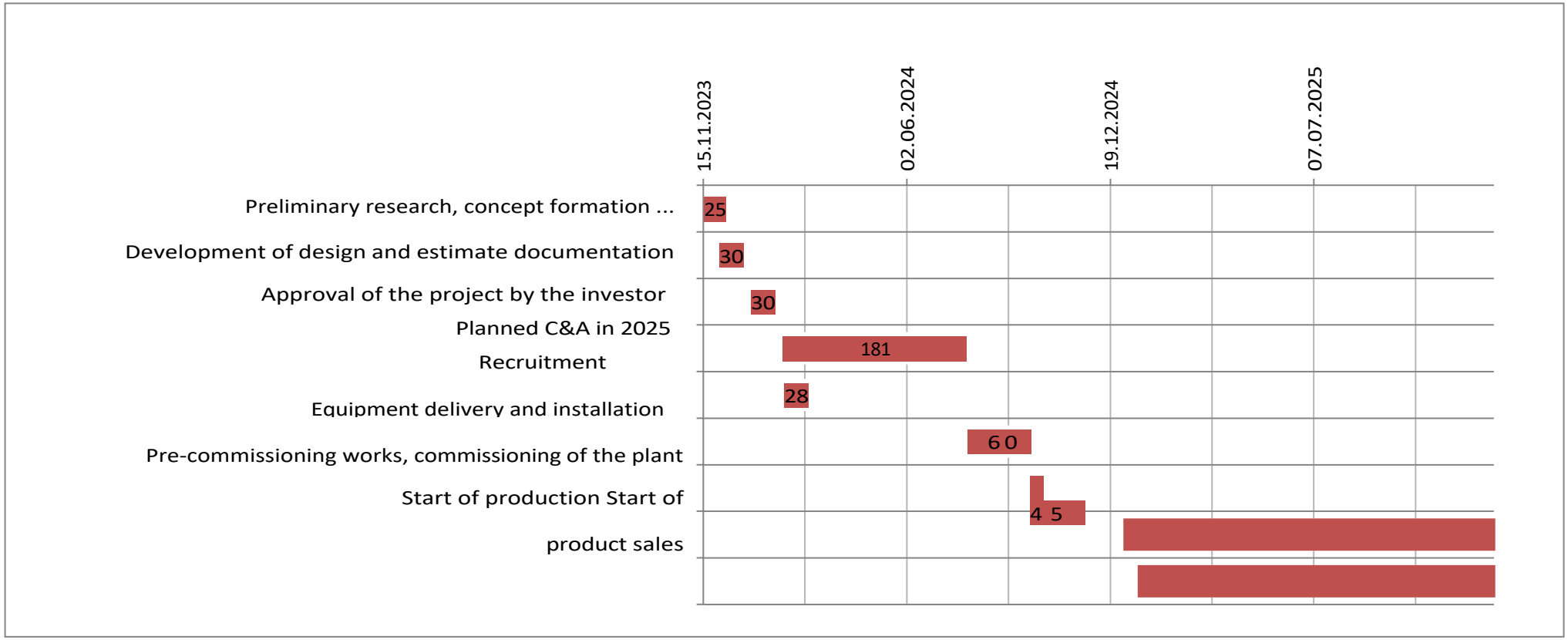
The beginning of the investment phase of the project is planned for February-August 2024. Delivery

and installation of equipment is planned for August-September 2024.

All construction and installation and commissioning work is planned as soon as possible.

The beginning of the production phase of the project is January 2025. From that moment the processing of secondary polymers into pellets reaches the design capacity.

Figure 8. Project implementation schedule



Source: data of the Project Initiator

4.3. Sources, forms and conditions of financing

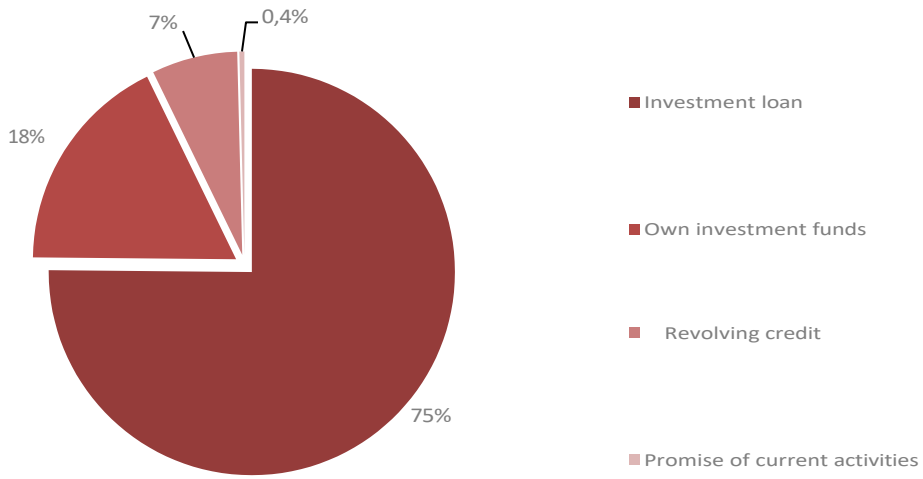
The total funding for the project will be **$2,091,000.**

The project is planned to use:

- funds of the investment loan - **$1,573 thousand**;
- own investment funds - **369 thousand dollars**;
- of working capital funds - **$143,000**;
- own funds to support current operations - **$7,000.**

The structure of funding sources for the project is shown in the diagram below.

Figure 9. Project financing structure



Source: credit institution data, Global Innovation Trade analysis and calculations

The project provides for two credit tranches under the credit line in the form of a preferential investment loan totaling **1,573 thousand dollars** for seven years at 6.5% per annum and deferred payments on principal debt for 1 year. The investment loan is to be settled from April 2024 to March 2031 (84 months).

The first credit tranche of $422,000 for general construction work is scheduled for April 2024.

The second credit tranche of $1,150,000 for the purchase of production equipment is scheduled for July 2024.

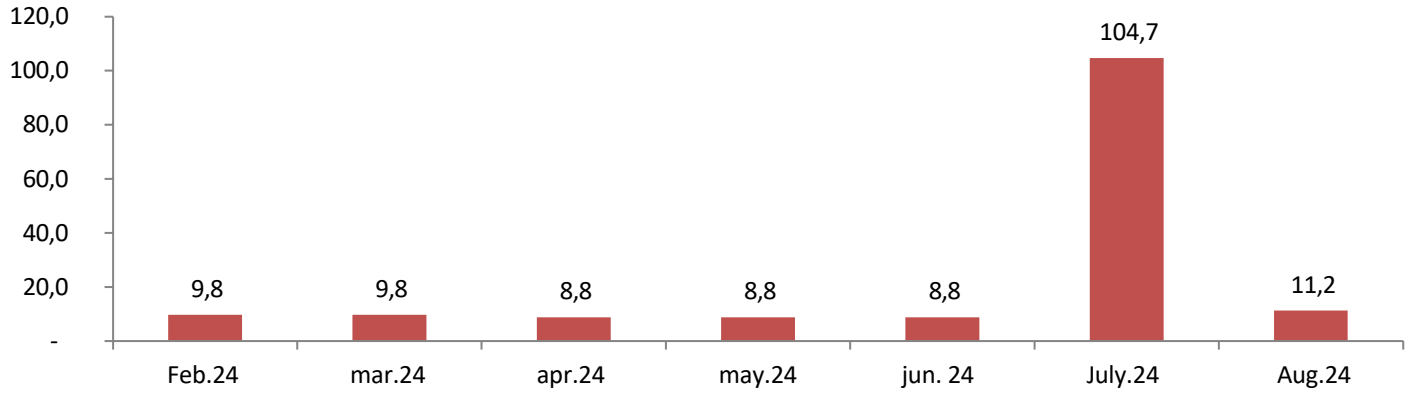
It is also planned to invest own investment funds in the amount of **369 thousand dollars**, including installation of communications and drilling of a water well - 100 thousand dollars, construction of a production building - 202 thousand dollars, purchase of production equipment - 67 thousand dollars.

At the initial stage of the organization of production activities, in February 2024, it is planned to invest own funds in the amount of 7 thousand dollars to ensure current operations. In July 2024, a working capital loan in the amount of **$143 thousand** will be taken to replenish working capital for 3 years at 10.5% per annum, with a grace period of 1 year on the principal amount.

The investment phase of the project lasts from February to August 2024. The main investments will be made in July 2024.

The investment schedule is shown in the chart below.

Figure 10. Graph of investments in the project, mln.



Source: Project Initiator data, analysis and calculations by Global Innovation Trade

5. WORK PLAN

5.1. Description of the company premises

The purpose of the industrial building under construction: closed-cycle production (recycling of plastic waste) with a volume of up to 600 tons/month.

The design of the room can be anything, including hangar-type, although it is desirable production building with glazing.

The characteristics of the premises of the enterprise are shown in the table below.

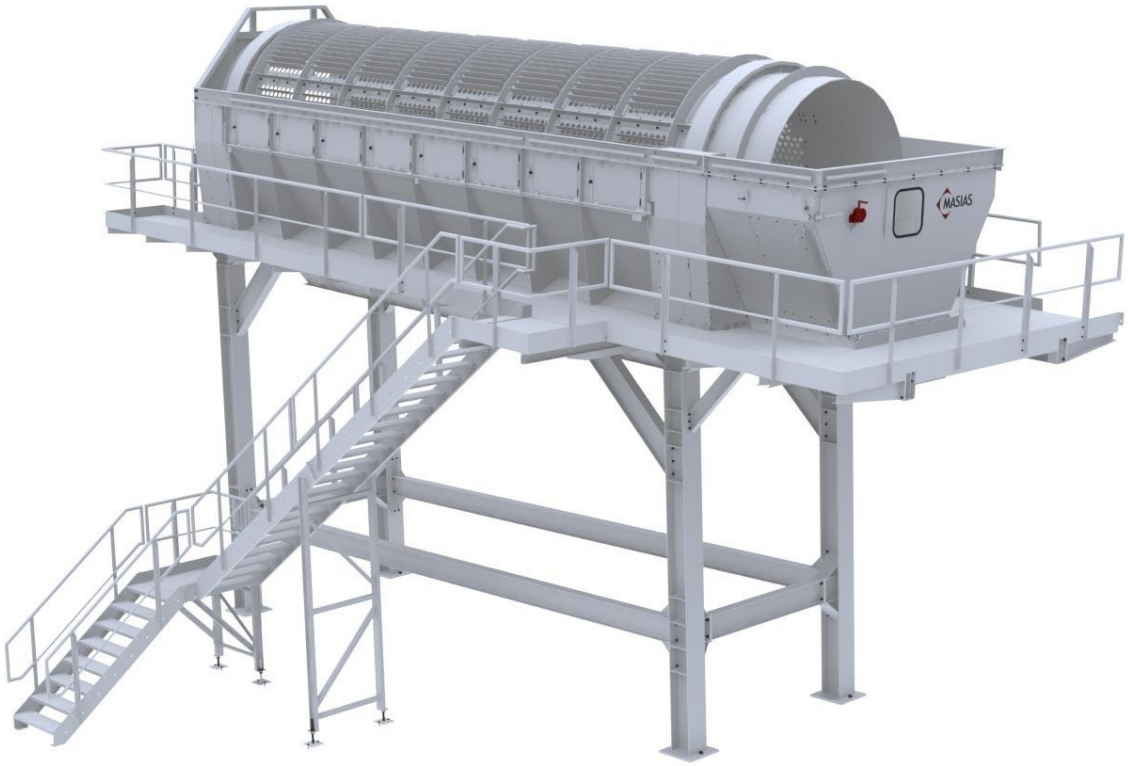
Table 10. Characteristics of the premises of the enterprise

Indicators	Values
Hazard class according to SanPin	V
Room area, m^2	1 500-2 000
Room temperature range	warm, heated, temperature inside the room - at least 10 0C
Building height	only the first floor, strictly without the need to elevator the goods
Ceiling height in the room	from 6 m due to the need for entry and unloading of trucks under the roof of the building
Entrance gate height	at least 4.5 m
The area of the main room for equipment	at least 800 m^2
Storage area	at least 400 m^2
Area of additional small rooms for offices, sanitary and other auxiliary facilities	about 100 m^2
Allocated electric power	at least 350 kW
Floors	flat, concrete, preferably with an anti-dust coating
Number of entrances to the room	2 drive-through entrances

Source: Information of the Project Initiator

It is possible to use a dedicated area for outdoor storage (under a shed) area: 300-500 m^2.

Figure 11. Separation drum (screen) with waste collection system



We plan to have an industrial sewer or own sewage treatment system due to the large volume of disposal of dirty water (dirt from bottles + caustic soda).

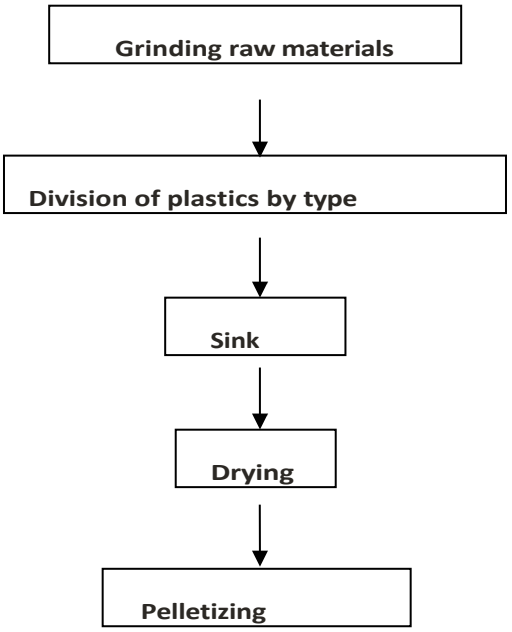
It is obligatory to have a convenient access for cars (up to the euro truck), asphalt surface on the access roads to the production building. The volume of cargo turnover is planned at a rate of up to 7 cars a day. Delivery of equipment is expected in August 2024.

Production is scheduled to start in January 2025.

5.2. Description of the technology for processing waste into pellets

The main technological stages of recycling secondary polymers into pellets are shown in the figure below.

Figure 12: Stages of the technology for processing waste into pellets



Source: Information of the Project Initiator

After collection and primary sorting, the processing of polymer waste into pellets takes place as follows:

1. Raw material shredding. It is one of the important stages of preparation of polymers for further processing. The degree of grinding of materials determines the quality characteristics of products that will be manufactured in the future.
2. Division of polymers by type.
3. Washing. The obtained raw material is washed in several stages with the use of special agents.
4. Drying. The materials are first rid of water in centrifuges. The final drying takes place in special machines. The result is a product with a moisture content of 0.2%.
5. Pelletizing. The prepared material falls into a special machine, where it is compacted as much as possible. The result is a product that is suitable for the production of all types of polymer products.

5.3. Description of equipment for processing waste into pellets

To implement the project, it is planned to purchase equipment to ensure all stages of waste processing into pellets.

For the processing of secondary raw materials, it is planned to purchase a production line with a design capacity of up to 600 tons/month and a yield of the finished product in the form of flakes (flex) of at least 500 tons/month, according to the established qualitative characteristics of the flex.

The production line will include:

- section for manual sorting of raw materials by color, at least 4 types;
- possibility of feeding previously sorted raw materials into the line for further processing;
- crushing area to the set fraction;
- washing area, including heavily contaminated raw materials (containing fats, etc.);
- drying and packaging of finished products in big bags.

The total capacity of the line - not less than 1 000 kg / hour. The line is

completed:

- bale unpacker;
- conveyor belt;
- separating drum (screen) with waste collection system;
- belt conveyor with electromagnet and/or metal detector;
- setting the label separation;
- sorting table with a belt conveyor;
- belt conveyor (feed to the crusher) - 2 pieces (with the possibility to feed the previously sorted raw material, bypassing the sorting table);
- washing crusher - 2 pcs;
- auger conveyor - 2 pcs;
- flotation bath;
- auger conveyor;
- hot wash;

6. auger conveyor;

- friction wash;
- auger conveyor;
- flotation bath;

7. auger conveyor;

- rinsing the raw material;
- centrifuge;

- drying complex;

8. packer of raw materials in big bags with a storage hopper;

- electrical control panel of the line;
- additional equipment - machine for sharpening crusher knives with a working part length of at least 700 mm, spare parts and accessories kit.

A Micromat shredder will be purchased for unpacking big-bag bales and shredding raw materials 2000 P 43 of Lindner Recyclingtech GmbH.

Figure 13: Micromat 2000 shredder

Source: public information

It is a powerful, easily configurable single-shaft shredder with low energy consumption and high productivity. The Micromat's customization options allow the machine to be optimally adapted to the intended application.

Feeding the source material is made with a belt conveyor, unloading the material
- with a discharge conveyor. Rated capacity 1 500-2 000 kg/h.

Installation location - flat surface, ambient temperature - 0 to +35 °C. Power supply voltage - 400 V ± 5% / 50 Hz (TNC / TNS stable power supply).

Use of material after shredding: washing line.

Figure 14: Washing line

Source: Information of the Project Initiator

The line for secondary PET raw material purification is specially designed for the organization of the production process for the preparation of secondary PET raw materials for their further recycling. The line includes equipment for multistage washing with separation of contaminants and drying of obtained polymer flakes.

For the final stage of recycling secondary polymers into pellets it is planned to purchase a two-stage processing line for polymer waste model GD-150TS 3IN1.

To ensure an uninterrupted water supply, it is planned to purchase a chiller-heat exchanger and a set of shell-and-tube heat exchangers.

Figure 15. Chiller-heat exchanger GM-S-PM

. Source: Information from the Project Initiator

Chiller-heat exchanger GM-S-PM - scroll compressor and copper-soldered plate heat exchanger.

The GM series is versatile and can be used as a stand-alone module for recycling water supply.

5.4. Other technological issues

For the processing of recycled polymers into pellets, various types of raw materials can be used, which have certain requirements.

Bale requirements:

- the bales must be dry;
- the boiling time should not exceed 3 months;
- Bales should be strapped with metal wire or stripping tapes;
- the boiling density must not exceed 280 $^{kg/m3}$;
- no foreign objects are allowed inside the bale (garbage: rags, wood, metal, ribbons, ropes, etc.);
- bales with incoming raw materials must not contain raw materials placed in separate packing places (bags, sacks, boxes, etc. - so called multiple packing).

Bales must exclude signs of reboiling (strata that are difficult to separate by hand - "monolith") and the presence of layers (undivided when unpacking bales and easily separated by hand - "layers").

The incoming raw materials are divided into the following categories according to their degree of contamination:

- Category 1 - with insignificant contamination;
- Category 2 - with significant contamination, but the color of the raw material is distinguishable;
- Category 3 - with significant contamination, not allowing to determine the color of raw materials.

Figure 16. Belt conveyor

Flakes (flakes) made by grinding raw materials are used for recycling.

Flakes are delivered in a packed form. The average bulk density of flakes in a big bag must be at least 350 $^{kg/m3}$. Packaging must ensure the safety of flakes during transportation and storage. Each tare package must be labeled with the weight, color of flakes, tare package number, the name of the supplier.

Packaging: soft container ("big bag") of polypropylene fabric, 4 slings, top cover, bottom hatch. Packing condition: not worse than satisfactory.

Table 11. Technical requirements for washed flakes

№	Indicator name	Value of the indicator		
		Top grade	1st grade	2nd grade
1	Color	Sorting by group: - transparent, - blue, - clear blue (light mix), - browns, - green, - brown-green (dark mixture).		
2	Flake sizes (in %), incl: - fine fraction (up to 0.5 mm) - 0 to 2 mm - 2 to 12 mm - 12 to 15 mm - more than 15 mm	Not more than 0.1 No more than 3 Not less than 95 No more than 2 Not allowed	Not more than 0.1 No more than 4 No less than 94 No more than 2 Not allowed	Not more than 0.5 No more than 5 Not less than 93 No more than 2 Not allowed
3	Melting point, gr.	260-280		
4	Washing quality	Good	Good - for pro-spectacle Flakes, oodles for other colors	TDS - for transparent, TDS or non-TDS - for other
5	Alien odors not typical of polymers	Absence	Absence	lack
6	Content of impurities of other colors, %	No more than 1	No more than 3	No more than 5
7	Humidity, %	Not more than 0.7	No more than 1	No more than 2
8	Foreign impurities, %, incl: - paper - metal - wood and trash - plastic label	Not more than 0.02 Not more than 0.01 Not more than 0.01 Not allowed	Not more than 0.02 Not more than 0.02 Not more than 0.02 Not more than 0.02	Not more than 0.03 not more than 0.03 not more than 0.03 not more than 0.03
9	Adhesive content, %	Not more than 0.02	Not more than 0.03	Not more than 0.05
10	Polymer extraneous impurities, %, incl: - polyethylene - PVC - other	Not allowed Not allowed Not allowed	Not more than 0.01 Not more than 0.01 Not allowed	Not more than 0.02 Not more than 0.02 Not allowed
11	Sinter content, %	Not allowed	0,05	0,1
12	Residual alkalinity pH	6,5-7,5	6,5-7,5	6-8,5
13	Melt flow index, g/10 min	15-35	15-35	10-35
14	Bulk density, kg/m3	At least 350		
15	Package size (length, width, height), cm.	95-110 * 95-110 * 100-200		

. Source:Information from the Project Initiator

FINANCIAL PLAN

5.5. Initial data and assumptions

Input data on production capacity

Taking into account the nominal capacity of the recycling equipment of 1 000 kg per hour, assuming a 16-hour working day and 22 working days in a month, the volume of raw material processing will be 352 tons per month. Losses at processing of raw materials in the calculations are set at 30%. Thus, the planned output of pellets will be 246 tons per month.

Calculation method

The project is calculated in constant prices without regard to inflation.

Assumptions about price

Prices for pellets are set at the level of the average market. This project also takes into account the growth rate of finished product prices in 2024. It is assumed that prices for pellets will not change in the future.

Assumptions about the choice of the type of secondary polymer

In further calculations, polypropylene (PP) is considered as a raw material for the production of secondary granulate, because preliminary calculations have shown that this type of polymers is the most profitable for processing into granulate in the conditions of this project.

Assumptions about project costs

Investment costs are divided into 5 categories:

1. Preparatory work.
2. Carrying out construction work and procurement of equipment.
3. Additional costs.
4. Current assets.
5. Cache-flo deficit coverage.

Assumptions about the initial working capital requirements

As calculations have shown, polypropylene (PP) is the most efficient for processing out of 4 types of polymers (PET, HDPE, LDPE, PP). The projected scenario assumes that if the polypropylene processing line is set up, in February-March 2024 it will require investment of own funds in the amount of **USD 7 thousand** to cover operating costs. Subsequently, in July 2024, to cover the working capital deficit it is planned to take a working loan in the amount of **143 thousand dollars.**

Assumption about the discount rate

The project adopted a discount rate of 6.2% per year. Below is the justification for the calculation of this indicator.

Cumulative construction method is based on summing up risk-free income rate and risk premiums for investing into the evaluated enterprise. The method takes into consideration all kinds of investment risks related both to the factors of common industry and economy, and to the specifics of the evaluated enterprise. The calculations are made according to the formula:

$$r = {}_{rb} + \sum_{i=1}^{n} Ri$$

where r is the discount rate; ${}_{rb}$ is the base (risk-free or least risky) rate; ${}_{Ri}$ is the premium for the i-type of risk; n is the number of risk premiums.

We present below the calculation according to this methodology.

Table 12. Determination of the cost of equity

Constituents	%
The size of the risk-free rate*	8,7%
Amount of country risk adjustment	1,0%
Amount of industry risk adjustment	1,5%
Amount of other risk adjustment	1,0%
Cost of equity	**12,2%**

Source: Global Innovation Trade analysis and calculations

Then, based on this, the discount rate was determined.

Table 13. Determination of the discount rate

Constituents	%
Share of borrowed capital	81%
Equity share	19%
Tax	20,0%
Cost of equity	12,2%
Cost of borrowed capital	5,3%
Total discount rate	6,2%

Source: Global Innovation Trade analysis and calculations

Thus, the expert calculation of the discount rate was 6.2% per annum.

Assumptions about revenue, profit and loss projections (P&L) and cash flow (CFP)

All of the above indicators were used to build revenue, P&L, and DDS plans using all of the necessary accounting principles.

5.6. Nomenclature and prices

The company is capable of producing several types of products:

1. PET (polyethylene phthalan).
2. HDPE (or HDPE, low-pressure polyethylene).
3. LDPE (or LDPE, high-pressure polyethylene).
4. PP (Polypropylene).

The table below provides information on the planned prices of the listed polymers.

Table 14. Forecast cost of secondary polymers for 2024, $/kg

Polymer groups	2024
LDPE	0,9
IPA	0,9
PP	1,2
PET	0,9

Source: Project Initiator data, open sources, Global Innovation Trade analysis and calculations

During the project implementation, the calculation results show that it is more efficient to process second polypropylene.

5.7. Investment costs

The amount of funding for the project is $2,091,000, of which:

- borrowed funds in the amount of $1,715 thousand, including $1,573 thousand. - investment loan, $143 th. - working capital loan;
- own funds in the amount of $376 thousand, including $369 thousand. - co-financing of investments, $7 thousand. - providing for the current activities.

The total amount of investments in the project will be **$2,091 thousand.** The structure of investment costs in the breakdown by cost categories and the schedule of investments in the project are made taking into account the terms of financing and terms of payment for the main items of costs and are presented in the table below.

Table 15. Schedule of investments in the project

№	Cost item	Amount of investments, thous.	Feb.24	mar.24	Apr.24	May.24	Jun.24	July 24.	Aug. 24
1	Building construction	624	67	67	106	106	106	105	67
2	Connecting communications, drilling a water well	100	50	50	-	-	-	-	-
3	Equipment for production activity	1218	-	-	-	-	-	1150	67
	Total	**1941**	**117**	**117**	**106**	**106**	**106**	**1256**	**135**
	among them								
	own investment funds	369	117	117	-	-	-	-	135
	investment loan funds	1573	-	-	106	106	106	1256	-

Source: Project Initiator data, analysis and calculations by Global Innovation Trade

5.8. Initial working capital requirement

To cover operating expenses in February-March 2024 will require the investment of **its own funds** in the amount of **$ 7 thousand.** Subsequently, in July 2024, to cover the working capital deficit, it is planned to take out **a working loan** in the amount of **143 thousand dollars** for 3 years at 10.5% per annum with deferred payments on the loan principal for 1 year.

5.9. Tax deductions

This project provides for the use of the common system of taxation (DST).

The general tax regime (or, as it is often called, DST) refers to the tax payment regime established for organizations with various organizational and legal forms (if they do not use special tax regimes).

Enterprises that use the DTO keep complete accounting records using all accounting accounts, as well as analytics and sub-accounts.

The main taxes of the applicable regime are shown in the table below.

The amounts of taxes to be paid during the project period are shown in the table below.

Table 16. Amount of taxes paid for the period 2024-2031.

Type of tax/Year	2024 year	2025 year	2026 year	2027 year	2028 year	2029 year	2030 year	2031 year
VAT	0	409	409	409	409	409	409	409
Social contributions	12	51	51	51	51	51	51	51
Property tax	16	30	27	24	21	18	15	12
Land tax	0,7	1	1	1	1	1	1	1
Income tax	0	191	196	202	206	210	214	217
TOTAL taxes	29,3	682	684	687	688	689	690	691
PIT	5,3	22	22	22	22	22	22	22
TOTAL tax flow from the project including personal income tax	2 884	705	707	709	710	711	712	713

Source: Global Innovation Trade analysis and calculations

5.10. Operating costs (fixed and variable)

Fixed project costs are project costs that do not depend on changes in sales volume. They include, as a rule, maintenance and management costs. The main fixed costs are shown in the table below.

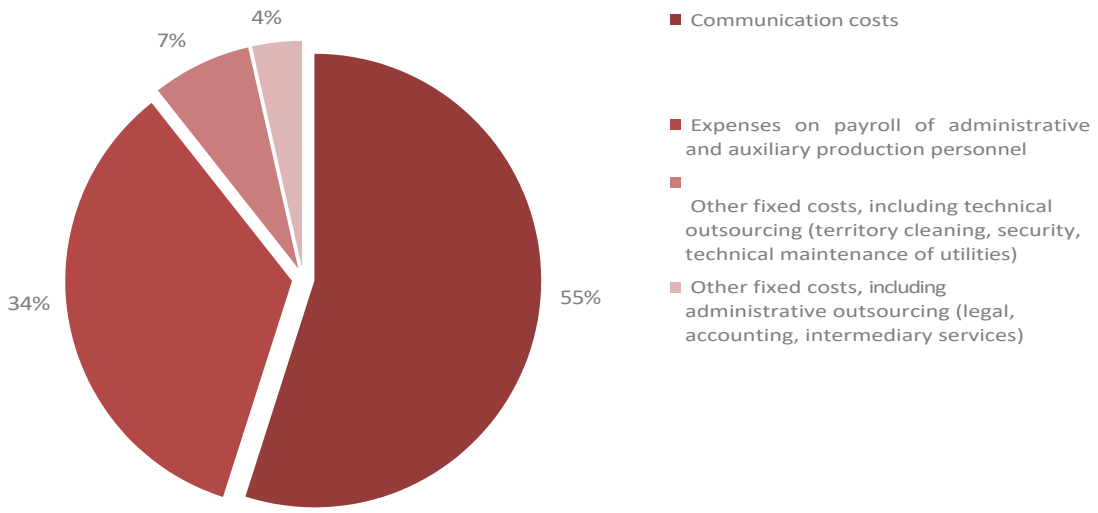
Table 17. Fixed costs of the project, thousand dollars.

Product Categories/Planning Period	The amount of expenses per year, starting from 2025 r.
Expenses on payroll of administrative and auxiliary production personnel	58
Communication costs	93
Other fixed costs, including technical outsourcing (territory cleaning, security, maintenance of utilities)	12
Other fixed costs, including administrative outsourcing (legal, accounting, intermediary services)	6
Total fixed costs	**169**

Source: Project Initiator data, analysis and calculations by Global Innovation Trade

The structure of fixed costs is shown in the diagram below,

Figure 17. Structure of fixed costs of the project



Source: Global Innovation Trade analysis and calculations

Project variable costs are costs that directly depend on the volume of services provided. The variable costs of the project when it reaches its design capacity are shown in the table below.

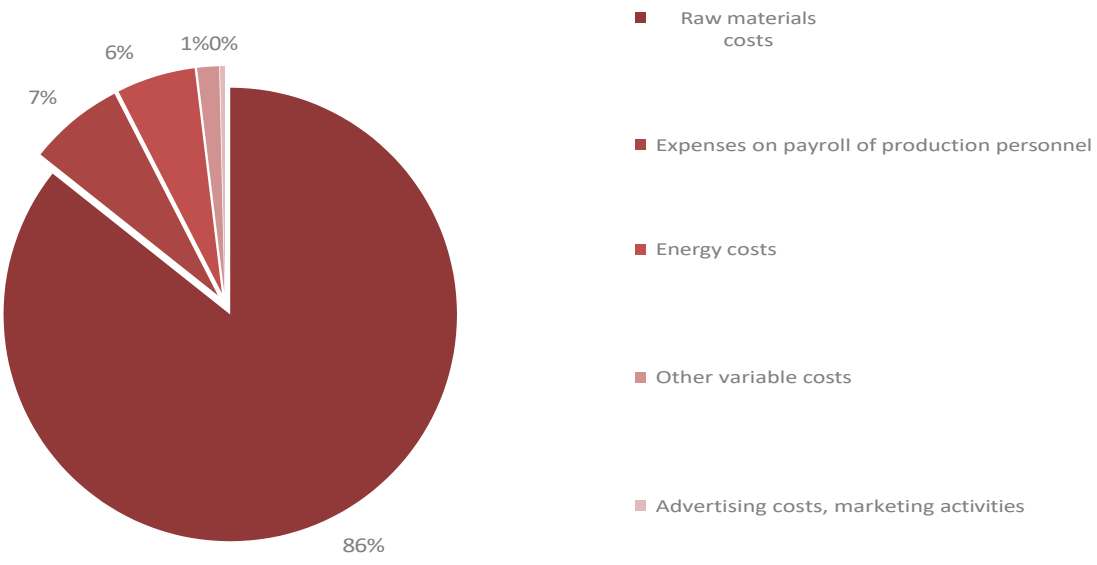
Table 18. Variable costs, thousand dollars.

Product Categories/Planning Period	The amount of expenses per year, starting from 2025 r.
Expenses on payroll of production personnel	112
Raw material costs	1419
Energy costs	93
Other variable costs	26
Advertising costs, marketing events	6
Total variable costs	**1657**

Source: Project Initiator data, analysis and calculations by Global Innovation Trade

The structure of variable costs is shown in the figure below.

Figure 18. Variable cost structure of the project



Source: Global Innovation Trade analysis and calculations

Calculation of the amount of operating costs by years of the project is presented in the table below.

Table 19. Operating costs of the project, thousand dollars.

Parameter/year	2024 year	2025 year	2026 year	2027 year	2028 year	2029 year	2030 year	2031 year
Operating costs variable, thousand dollars.	54	1657	1657	1657	1657	1657	1657	1657
Operating expenses constant, thousand dollars.	45	169	169	169	169	169	169	169
TOTAL costs	**99**	**1826**	**1826**	**1826**	**1826**	**1826**	**1826**	**1826**

Source: Global Innovation Trade analysis and calculations

Once the facility reaches design capacity, total operating costs will be $1,826,000 per year.

5.11. Sales Plan

The sales plan for the project's products directly depends on the volume of their production.

The nominal capacity of the line for processing secondary polymers into pellets is 1,000 kg per hour. Assuming one-shift operation, a 16-hour working day and 22 working days in a month, given the nominal capacity of the equipment, the amount of recycled polymers processed will be 352 tons per month. Taking into account processing losses (30%), the pellet output will be 246 tons per month.

After the plant for processing of secondary polymers into pellets reaches its designed capacity from 2025, the designed sales volume will be 2,957 tons per year.

5.12. Revenue Calculation

The revenue plan for the project period is shown in the table below.

Table 20. Planned revenues from sales for 2024-2031.

Parameter/year	2024 year	2025 year	2026 year	2027 year	2028 year	2029 year	2030 year	2031 year
PP	-	3889	3889	3889	3889	3889	3889	3889

Source: Global Innovation Trade analysis and calculations

After the plant reaches its design capacity, if sales prices remain unchanged, the annual revenue will be $3,889,000.

5.13. Profit and loss forecast

The projected income statement is shown in the table below.

Table 21. Projection of profits and losses of the project, thousand dollars.

Income / expense item	2024	2025	2026	2027	2028	2029	2030	2031
Revenue from sales without VAT	0	3 241	3 241	3 241	3 241	3 241	3 241	3 241
Direct costs without VAT	45	1 399	1 399	1 399	1 399	1 399	1 399	1 399
Gross income	-45	1 842	1 842	1 842	1 842	1 842	1 842	1 842
General business expenses excluding VAT	45	151	151	151	151	151	151	151
Taxes (except income tax)	29	491	488	485	482	479	476	474
EBITDA	-119	1 200	1 203	1 205	1 208	1 211	1 214	1 217

EBITDA, % (to revenue) average	0%	37,0%	37,1%	37,2%	37,3%	37,4%	37,5%	37,6%
Depreciation of fixed assets	132	132	132	132	132	132	132	132
EBIT	-251	1 068	1 071	1 074	1 077	1 080	1 083	1 085
Payment of interest on loans and credits	64	111	90	66	48	31	14	1
Profit (Loss) before taxation	-314	957	981	1 008	1 029	1 049	1 069	1 085
Income tax	0	191	196	202	206	210	214	217
Unallocated profit	-314	766	785	806	823	839	855	868
Return on sales	0%	24%	24%	25%	25%	26%	26%	27%

Source: Global Innovation Trade analysis and calculations

Calculations have shown that the project begins to bring profit in the second year of its implementation after the launch of production facilities.

5.14. Cash flow forecast

Cash flow projections by year are shown in the table below. Cash flow forecast by months is given in the appendix.

Table 22. Projected cash flow of the project, thousand dollars.

INVESTMENT CASH FLOW (IFF)	2024 year	2025 year	2026 year	2027 year	2028 year	2029 year	2030 year	2031 year
INVESTMENT CASH FLOW (IFF)	-1 941							
OPERATING CASH FLOW (OPF)	-149	1 355	1 357	1 359	1 362	1 415	1 583	397
Income total		3 889	3 889	3 889	3 889	3 889	3 889	972
Costs total	149	2 534	2 531	2 529	2 526	2 473	2 473	575
FINANCIAL CASH FLOW (FDP)	2 091	-53	-70	-70	-70	-70	-70	-18
Own funds	376							
Investor funds	1 715							
Net cash flow (NPC)	1	1 302	1 287	1 289	1 292	1 345	1 513	380
Discounted NPD	5	1 194	1 110	1 047	988	966	1 024	247
Discounted NPD on an accrual basis	5	1 199	2 310	3 356	4 344	5 309	6 333	6 580

Source: Global Innovation Trade analysis and calculations

As can be seen from the calculations, the balance of cash flow remains positive throughout the life of the project, indicating its feasibility.

5.15. Project efficiency analysis

5.15.1. Methodology for assessing the effectiveness of the project

Evaluation of investment projects is carried out according to the following main indicators:

- net present value NPV;
- profitability index PI;
- PBP payback period;
- the discounted payback period of the DPBP;
- internal rate of return IRR;
- return on assets (ROA) ratio;
- return on equity ratio (ROE);
- return on investment (ROI) ratio;
- interest coverage ratio (Interestcoverageratio);
- Coverage ratio of debt service payments by operating cash

flows (DebtServiceCoverageRatio, DSCR);

- LoanLifeCoverageRatio (LLCR) is the ratio of debt coverage by cash flows available for debt servicing in the period until debt repayment;
- Debt/Equity ratio (D/E);
- debt/EBITDA;
- terminal (final) cost of the project.

5.15.2. Project performance indicators

Performance indicators of an investment project allow you to determine the effectiveness of investing investor's money in it.

The main financial indicators are shown in the table below.

Table 23. Indicators of investment efficiency

Investment performance indicators	Value, thousand dollars.
Net income	5428
Net cash flow NPV	4893
Internal rate of return IRR (months), %	62,0%
Profitability index PI, units.	3,5
Payback period PB, years	2,5
Discounted payback period DPB, years	2,7
Investment in the project	1941
Average return on sales for the project, %	23,9%
Discount rate, %	6,2%

Source: Global Innovation Trade analysis and calculations

According to the study, it is clear that the project is profitable. It will pay for itself in 2 years and 6 months. Payback period, taking into account discounting will be 2 years and 8 months. The net profit of the project at the end of the forecast period will be 5 428 thousand dollars.

5.15.3. Net present value (NPV)

Net present value is the sum of discounted simultaneous differences between the benefits and costs of a project. It is the sum of cash flows (receipts and payments) associated with operational and investment activities, reduced (discounted) at the beginning of the investment.

Net discounted income NPV is calculated by the formula:

$$NPV = \sum_{t=o}^{T} \frac{CFt}{(1+i)^t}$$

Where i is the discount rate;

CFt - net cash flow of period t;

T - the duration of the project in periods.

The NPV calculation is a standard method of evaluating the effectiveness of an investment project, which shows an estimate of the effect of an investment reduced to the present time, taking into account the varying time value of money. If NPV is greater than 0, the investment is profitable, otherwise the investment is unprofitable.

With the help of NPV can also assess the relative effectiveness of alternative investments (with the same initial investment is more profitable project with the highest NPV).

Positive qualities of NPV:

- clear criteria for decision-making;
- consideration of the value of money over time (using the discount factor in the formulas).

The negative qualities of NPV is that this indicator does not take into account:

- risks;
- probability of the event outcome, since all cash flows and the discount factor are predicted values.

The table below shows the calculation of the NPV of the project.

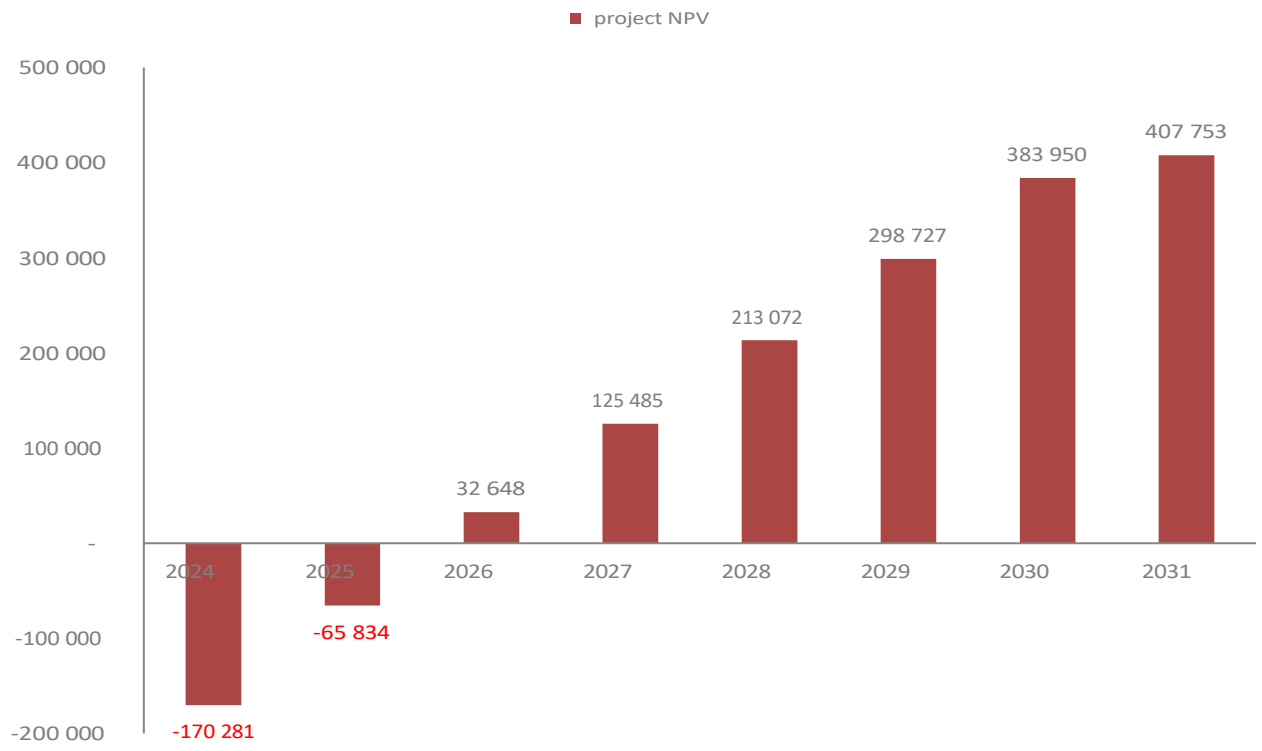
Table 24. Project NPV calculation

Indicators	2024	2025	2026	2027	2028	2029	2030	2031
INVESTMENT CASH FLOW (ICCF)	-1941	0	0	0	0	0	0	0
OPERATING CASH FLOW (OPF)	-149	1355	1357	1359	1362	1415	1415	397
Income total	0	3889	3889	3889	3889	3889	3889	972
Costs total	149	2534	2531	2529	2526	2473	2473	575
Net cash flow (NFC)	-2090	1355	1357	1359	1362	1415	1415	397
NPD on an accrual basis	-2090	-735	622	1982	3344	4759	6175	6572
Discounted NPD	-2043	1253	1182	1114	1051	1028	1023	286
project NPV	**-2043**	**-790**	**392**	**1506**	**2557**	**3585**	**4607**	**4893**

Source: analysis and Global Innovation Trade calculations

The diagram below shows the NPV of the project:

Figure 19. Project NPV dynamics, thousand dollars.



Source: Global Innovation Trade analysis and calculations

On the NPV graph we can see the increase of the net present value of the project by years of its implementation.

Net cash flow NPV, equal to **$4,893 thousand** at the end of the forecast period, shows the amount of cash that the investor will receive from the project after cash inflows recoup its initial investment costs and periodic cash outflows associated with the project, taking into account the time value of money and project risks**.**

5.15.4. Internal rate of return (IRR)

IRR stands for Internal Rate of Return, translated into Russian as "internal rate of return". It is the name of one of the two main methods of evaluation of investment projects. IRR, or Internal Rate of Return, is the rate at which the present value of all cash flows of an investment project (i.e. NPV) is zero. This means that at this rate the investor will be able to recover his initial investment, but no more than that.

The internal rate of return (IRR) was **62.0%**, which is higher than the discount rate (6.2%). This is a good indicator for similar projects.

5.15.5. Return on investment index (PI)

The profitability index (PI) is the discounted value of cash proceeds from the project (NPV) per unit of investment. It shows the relative profitability of the project.

The profitability index PI is calculated by the formula:

PI = NPV/Investments.

For an effective project, the PI value must be greater than 1.

Discounted cost and investment return indices are greater than 1 if the NPV is positive for that stream.

In this project, a PI of **3.5** means that at the end of the project period (December 2031) for every dollar invested, the Investor will receive $3.5 (discounted).

5.15.6. Payback Period (PBP)

Pay back period (PBP) is the expected period of time to recover the initial investment from the net cash proceeds. This is the time in which the revenues from the operating activities of the enterprise will exceed the costs of the investment.

PBP payback period is calculated using the formula:

PBP = Investments / ACF,

where Investments is the initial investment;

ACF - Annual Cash Flow (average annual amount of net cash flow). Projected payback

period of the project is 2 years and 6 months.

5.15.7. Discounted Payback Period (DPBP)

Discounted Payback Period (DPBP) - payback period (see above), but including discounting.

The discounted payback period DPBP is calculated by the formula:

$$DPBP = t_{-} - \frac{NPVt_{-}}{NPVt_{+} - NPVt_{-}},$$

where t_{-}, t_{+} are the periods when negative and positive NPV were observed. The payback

period with discounting will be 2 years and 8 months.

5.15.8. Other indicators

The discount rate is the interest rate used to convert future cash flows into a single present value. The discount rate is used to calculate the discounted value of future NPV cash flows.

The discount rate is calculated using the WACC formula:

$$WACC = R_s \frac{E}{V} + R_d (1 - t) \frac{D}{V};$$

The fractional ratios in this formula show the shares of equity (E/V) and debt (D/V) in the total (V=E+D). R_e and R_d are the investor's required returns on both types of capital. T is the rate of income tax.

This indicator determines the rate of return to be paid for the use of investment capital. The economic sense is to calculate the minimum acceptable level of return.

The discount rate is a variable that depends on a number of factors:

- factors affecting future cash flows, which are determined individually for each investment project;

- the cost of an alternative investment for a given period, whether it be the bank interest rate on deposits, the refinancing rate, the average return on an existing business, etc;
- an estimate of the inflation rate for the selected period as an estimate of the value of the risk of depreciation of funds over the period.

The discount rate of this project is **6.2 % .**

6. PROJECT RISK ANALYSIS

6.1. Qualitative risk analysis

Like any enterprise operating in the market, the projected plant will operate under the conditions of certain risks. The main possible risks, probability of their realization, degree of danger and ways of risk reduction are shown in the table below.

Table 25. Main risks of the project

Risk	Probability and degree of danger. Manifestations of negative impact	Risk leveling tools
	Political risks	
Refusal/delay in obtaining permits, subsidies, etc.	Probability: medium Degree of danger: high Impact: delays in the opening of the plant	Support for business by the city authorities/government
Financial crisis in the country	Probability: medium Degree of danger: medium Impact: reduced demand for manufactured products	Revision of pricing policy
	Production and commercial risks	
Delays in equipment delivery	Probability: medium Degree of danger: medium Impact: delaying the process of closing the company	Forming a contract with clear interaction clauses. Selection of suppliers with extensive experience
Failure to meet construction deadlines	Probability: medium Degree of danger: high Impact: disruptions in the timing of the entire project	Forming a contract with clear interaction clauses. Selection of contractors with extensive experience
	Market risks	
Rising prices for raw materials	Probability: low Degree of danger: high Impact: decrease in company profits	Concluding long-term contracts. Cost-cutting
Aggressive competition from players market	Probability: low Degree of danger: medium Impact: reduced revenue	Flexible pricing policy

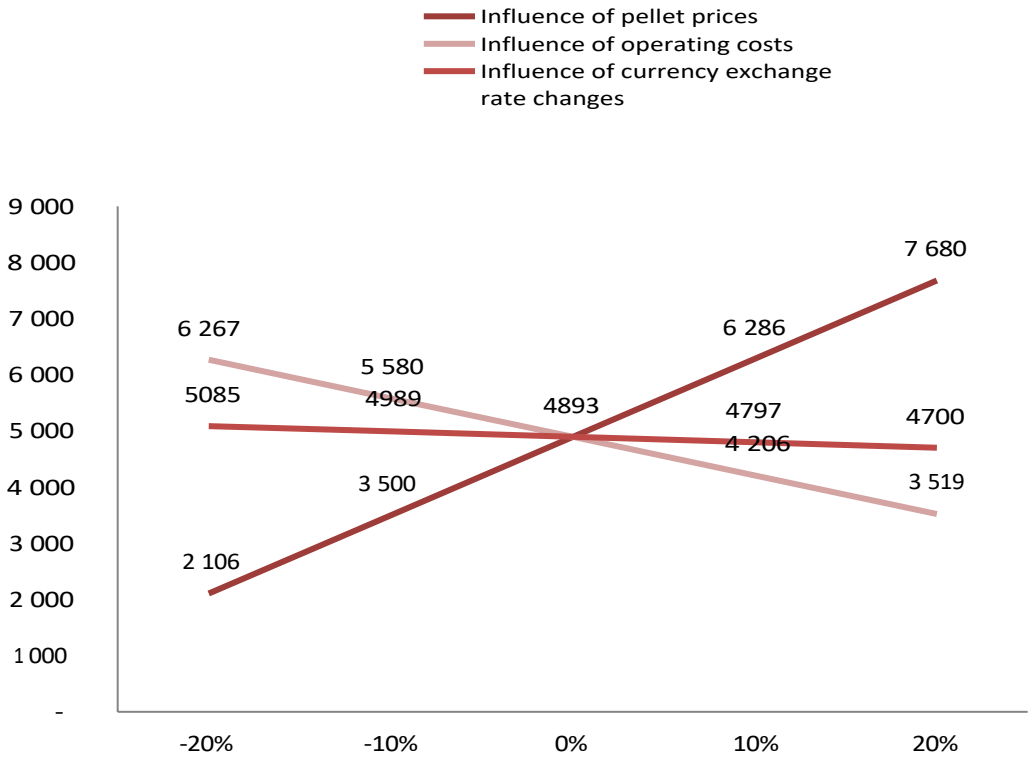
Source: Global Innovation Trade analysis

Technological and scientific risk is completely absent in the project. The project is not based on research work with an unknown result. The project is based on a standard technical solution and highly professional specialists and contractors are supposed to be involved in the construction. Errors in the technical surveying of buildings, architectural design, and cost calculations at this stage of the project development - these risks remain high but can be substantially minimized. The risk is reduced to about zero at the early stage of the project, before the beginning of the investment of fixed assets, through the full range of necessary design and analytical work.

6.2. Quantitative risk analysis

The chart below shows the sensitivity of the project to changes in external market conditions.

Figure 20. Influence of factors on the NPV of the project, thousand dollars.



Source: Global Innovation Trade analysis and calculations

According to the results of the analysis, there is a greater dependence of the project on changes in the sales price of pellets, the change in investment costs due to changes in exchange rates has less impact on the results of the project.

6.3. Project break-even point

The break-even point determines what the volume of sales should be in order for the company to work break-even, could cover all its costs without making a profit.

To calculate the breakeven point, you must divide the costs into several components:

1. Variable costs - increase in proportion to the increase in production volume.
2. Fixed costs are independent of the volume of production and whether the volume of operations increases or decreases.
3. Loan payments.
4. Tax payments.

The break-even point calculation is shown in the table below.

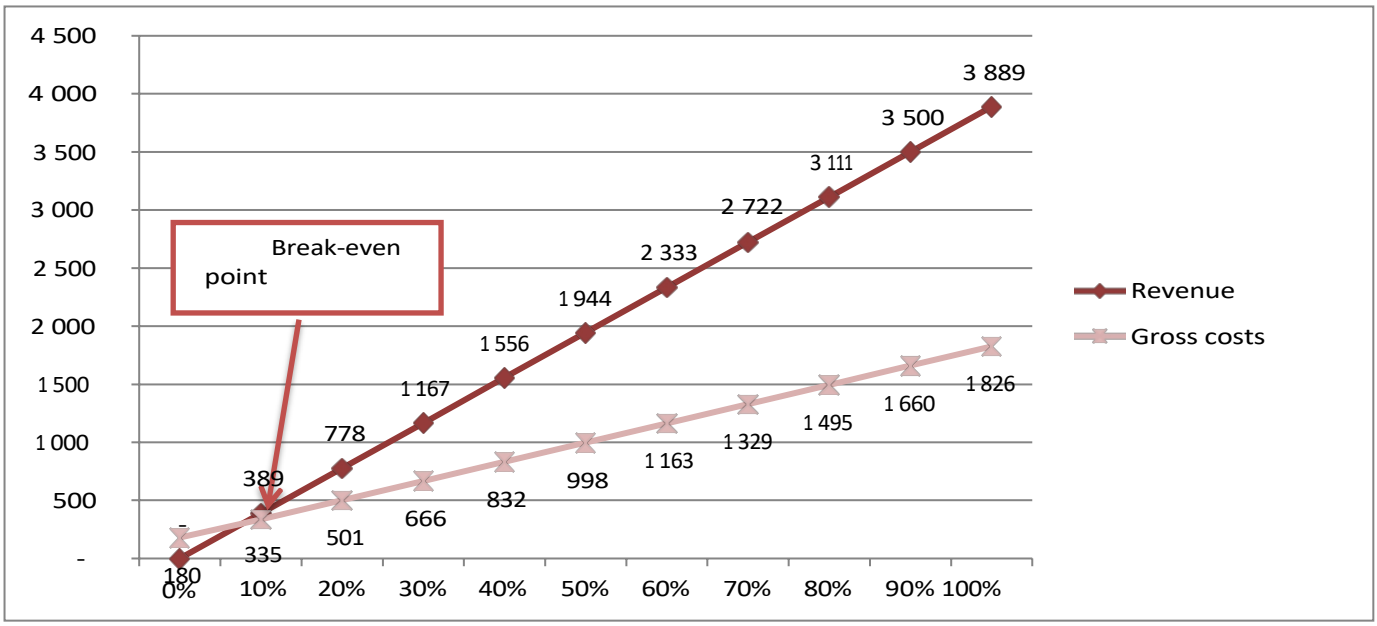
Table 26. Break-even point calculation for 2025

Input data	
Revenue (thousands of dollars)	3 889
Sales volume (t)	35
Fixed costs (thousands of dollars)	169
Variable costs (thousands of dollars)	1 657
Calculated values	
Price per unit of goods, thousand dollars/t	1,32
Average variable costs, thousand USD/t	0,56
Break-even point (thousand dollars)	**295**
Break-even point (t)	**224**

Source: Global Innovation Trade analysis and calculations

For this company, the break-even point chart in 2025 will look as follows.

Figure 21. Break-even point chart, thousand dollars.



Source: Global Innovation Trade analysis and calculations

The break-even point is of great importance for the viability of the company and its ability to pay. Thus, the degree to which the sales volume exceeds the break-even point determines the financial strength (margin of safety) of the company.

The calculations show that the company has to sell its products for at least $295 thousand in 2026, which corresponds to 8% of the nominal possible load of the company.

7. APPLICATIONS

Cash flow statement (by month)

Cash flow	2024											
	Jan.24	Feb.24	mar.24	Apr.24	May.24	Jun.24	July 24.	Aug. 24	sen.24	Oct. 24	Nov.24	Dec. 24
INVESTMENT CASH FLOW (ICEF)		-117,1	-117,1	-105,5	-105,5	-105,5	-1 256,0	-134,6	0	0	0	0
Buildings and structures		67,3	67,3	105,5	105,5	105,5	105,5	67,3				
Equipment							1 150,5	67,3				
Other investments		49,8	49,8									
OPERATING CASH FLOW (OPF)		-0,5	-6,2	-8,4	-8,4	-8,4	-9,5	-15,9	-24,0	-18,0	-20,3	-29,2
Income total												
Costs total		0,5	6,2	8,4	8,4	8,4	9,5	15,9	24,0	18,0	20,3	29,2
Variable costs		0,5	1,1	1,1	1,1	1,1	2,2	8,6	8,6	9,9	9,9	9,9
Fixed costs			3,9	3,9	3,9	3,9	3,9	3,9	3,9	4,5	6,8	6,8
Payments of interest on the main loan				2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2
Accrued taxes and payments:			1,2	1,2	1,2	1,2	1,2	1,2	9,3	1,4	1,4	10,2
FINANCIAL CASH FLOW (FDP)		117,7	123,2	422,0			1 293,3	134,6				
Payment of the body of the debt												
Own funds		117,7	123,2					134,6				
Including own funds for co-financing investments		117,1	117,1					134,6				
Own funds for operating expenses		0,6	6,1									
Credit funds				422,0			1 293,3					
including investment credit				422,0			1 150,5					
recurring loan							142,8					
Net cash flow (NFC)		0,1	0,0	308,2	-113,9	-113,9	27,9	-15,9	-24,0	-18,0	-20,3	-29,2
Cumulative NPD		0,1	0,0	308,2	194,3	80,4	108,3	92,4	68,3	50,4	30,1	0,9
Cash balance at the beginning of the period			0,1	0,0	308,2	194,3	80,4	108,3	92,4	68,3	50,4	30,1
Cash balance at the end of the period		0,1	0,0	308,2	194,3	80,4	108,3	92,4	68,3	50,4	30,1	0,9
Discounted NPD		0,1	0,0	303,5	-111,6	-111,1	27,0	-15,3	-23,1	-17,2	-19,3	-27,6
Discounted NPD on an accrual basis		0,1	0,0	303,6	191,9	80,9	107,9	92,6	69,5	52,3	33,0	5,4

Cash flow	2025											
	Jan.25	Feb.25	mar.25	apr.25	May.25	Jun.25	July 25	Aug.25	sen.25	oct. 25	Nov.25	Dec. 25
INVESTMENT CASH FLOW (ICEF)												
Buildings and structures												
Equipment												
Other investments												
OPERATING CASH FLOW (OPF)	131	131	76	131	131	76	131	131	76	132	132	76
Income total	324	324	324	324	324	324	324	324	324	324	324	324
Costs total	193	193	248	193	193	248	193	193	248	193	193	249
Variable costs	138	138	138	138	138	138	138	138	138	138	138	138
Fixed costs	14	14	14	14	14	14	14	14	14	14	14	14
Payments of interest on the main loan	2	2	2	2	2	2	2	2	2	2	2	2
Accrued taxes and payments:	38	38	94	38	38	94	38	38	94	38	38	94
FINANCIAL CASH FLOW (FDP)				-6	-6	-6	-6	-6	-6	-6	-6	-6
Payment of the body of the debt				6	6	6	6	6	6	6	6	6
Own funds												
Credit funds												
Net cash flow (NFC)	131	131	76	125	125	70	126	126	70	126	126	70
Cumulative NPD	132	263	340	465	590	661	786	912	982	1 108	1 233	1 303
Cash balance at the beginning of the period	1	132	263	340	465	590	661	786	912	982	1 108	1 233
Cash balance at the end of the period	132	263	340	465	590	661	786	912	982	1 108	1 233	1 303
Discounted NPD	124	123	71	116	116	64	115	114	64	113	112	62
Discounted NPD on an accrual basis	129	252	323	439	555	619	734	848	912	1 025	1 137	1 199

Cash flow	2026											
	Jan.26	Feb.26	mar.26	Apr.26	May.26	Jun 26	July 26.	Aug 26	sen.26	Oct. 26	Nov. 26	Dec. 26
INVESTMENT CASH FLOW (ICEF)												
Buildings and structures												
Equipment												
Other investments												
OPERATING CASH FLOW (OPF)	132	132	76	132	132	76	132	132	76	132	132	75
Income total	324	324	324	324	324	324	324	324	324	324	324	324
Costs total	192	192	248	192	192	248	192	192	248	192	192	249
Variable costs	138	138	138	138	138	138	138	138	138	138	138	138
Fixed costs	14	14	14	14	14	14	14	14	14	14	14	14
Payments of interest on the main loan	2	2	2	2	2	2	2	2	2	2	2	2
Accrued taxes and payments:	38	38	94	38	38	94	38	38	94	38	38	95
FINANCIAL CASH FLOW (FDP)	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
Payment of the body of the debt	6	6	6	6	6	6	6	6	6	6	6	6
Own funds												
Credit funds	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow (NFC)	126	126	70	126	126	70	126	126	70	126	126	70
Cumulative NPD	1 429	1 555	1 625	1 750	1 876	1 946	2 072	2 198	2 268	2 394	2 521	2 590
Cash balance at the beginning of the period	1 303	1 429	1 555	1 625	1 750	1 876	1 946	2 072	2 198	2 268	2 394	2 521
Cash balance at the end of the period	1 429	1 555	1 625	1 750	1 876	1 946	2 072	2 198	2 268	2 394	2 521	2 590
Discounted NPD	111	111	61	110	109	61	108	108	60	107	106	58
Discounted NPD on an accrual basis	1 311	1 422	1 483	1 593	1 702	1 763	1 871	1 979	2 038	2 145	2 251	2 310

Cash flow	2027											
	Jan.27	fev.27	mar.27	Apr.27	May.27	Jun.27	July 27.	Aug. 27	sen.27	Oct. 27	Nov.27	Dec. 27
INVESTMENT CASH FLOW (ICEF)												
Buildings and structures												
Equipment												
Other investments												
OPERATING CASH FLOW (OPF)	132	132	76	132	132	76	132	132	76	132	132	75
Income total	324	324	324	324	324	324	324	324	324	324	324	324
Costs total	192	192	248	192	192	248	192	192	248	192	192	249
Variable costs	138	138	138	138	138	138	138	138	138	138	138	138
Fixed costs	14	14	14	14	14	14	14	14	14	14	14	14
Payments of interest on the main loan	2	2	2	1	1	1	1	1	1	1	1	1
Accrued taxes and payments:	38	38	95	38	38	95	38	38	95	38	38	95
FINANCIAL CASH FLOW (FDP)	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
Payment of the body of the debt	6	6	6	6	6	6	6	6	6	6	6	6
Own funds												
Credit funds	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow (NFC)	126	126	70	126	126	70	126	126	70	126	126	69
Cumulative NPD	2 716	2 842	2 912	3 038	3 165	3 234	3 361	3 487	3 557	3 683	3 810	3 879
Cash balance at the beginning of the period	2 590	2 716	2 842	2 912	3 038	3 165	3 234	3 361	3 487	3 557	3 683	3 810
Cash balance at the end of the period	2 716	2 842	2 912	3 038	3 165	3 234	3 361	3 487	3 557	3 683	3 810	3 879
Discounted NPD	105	105	58	104	103	57	102	102	56	101	100	55
Discounted NPD on an accrual basis	2 415	2 519	2 577	2 681	2 784	2 841	2 943	3 045	3 101	3 201	3 302	3 356

Cash flow	2028											
	Jan.28	Feb.28	mar.28	Apr.28	May.28	Jun.28	July 28.	Aug.28	sen.28	Oct. 28	Nov.28	Dec. 28
INVESTMENT CASH FLOW (ICEF)												
Buildings and structures												
Equipment												
Other investments												
OPERATING CASH FLOW (OPF)	132	132	76	132	132	76	133	133	76	133	133	75
Income total	324	324	324	324	324	324	324	324	324	324	324	324
Costs total	192	192	248	192	192	248	192	192	248	191	191	249
Variable costs	138	138	138	138	138	138	138	138	138	138	138	138
Fixed costs	14	14	14	14	14	14	14	14	14	14	14	14
Payments of interest on the main loan	1	1	1	1	1	1	1	1	1	1	1	1
Accrued taxes and payments:	38	38	95	38	38	95	38	38	95	38	38	96
FINANCIAL CASH FLOW (FDP)	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
Payment of the body of the debt	6	6	6	6	6	6	6	6	6	6	6	6
Own funds												
Credit funds	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow (NFC)	126	127	70	127	127	70	127	127	70	127	127	69
Cumulative NPD	4 006	4 132	4 202	4 328	4 455	4 525	4 652	4 778	4 848	4 975	5 102	5 171
Cash balance at the beginning of the period	3 879	4 006	4 132	4 202	4 328	4 455	4 525	4 652	4 778	4 848	4 975	5 102
Cash balance at the end of the period	4 006	4 132	4 202	4 328	4 455	4 525	4 652	4 778	4 848	4 975	5 102	5 171
Discounted NPD	99	99	54	98	97	54	96	96	53	95	95	52
Discounted NPD on an accrual basis	3 456	3 554	3 609	3 706	3 804	3 857	3 954	4 050	4 103	4 198	4 292	4 344

Cash flow	2029											
	Jan.29	fev.29	mar.29	Apr.29	May.29	June 29	July 29.	Aug. 29	sen.29	Oct. 29	Nov. 29	Dec. 29
INVESTMENT CASH FLOW (ICEF)												
Buildings and structures												
Equipment												
Other investments												
OPERATING CASH FLOW (OPF)	133	133	76	79	79	128	133	133	128	133	133	128
Income total	324	324	324	324	324	324	324	324	324	324	324	324
Costs total	191	191	248	245	245	196	191	191	196	191	191	196
Variable costs	138	138	138	138	138	138	138	138	138	138	138	138
Fixed costs	14	14	14	14	14	14	14	14	14	14	14	14
Payments of interest on the main loan	1	1	1	1	1	1	1	1	1	1	1	0
Accrued taxes and payments:	38	38	95	92	93	43	38	38	43	38	38	44
FINANCIAL CASH FLOW (FDP)	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
Payment of the body of the debt	6	6	6	6	6	6	6	6	6	6	6	6
Own funds												
Credit funds	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow (NFC)	127	127	70	73	73	122	127	127	123	127	127	122
Cumulative NPD	5 298	5 425	5 495	5 568	5 641	5 763	5 890	6 018	6 140	6 267	6 394	6 516
Cash balance at the beginning of the period	5 171	5 298	5 425	5 495	5 568	5 641	5 763	5 890	6 018	6 140	6 267	6 394
Cash balance at the end of the period	5 298	5 425	5 495	5 568	5 641	5 763	5 890	6 018	6 140	6 267	6 394	6 516
Discounted NPD	94	93	51	53	53	88	91	91	87	90	89	85
Discounted NPD on an accrual basis	4 438	4 531	4 582	4 636	4 688	4 776	4 868	4 958	5 045	5 135	5 224	5 309

Cash flow	2030											
	Jan.30	fev.30	mar.30	Apr. 30	May.30	Jun 30	July 30	Aug 30	sen.30	Oct. 30	Nov. 30	Dec. 30
INVESTMENT CASH FLOW (ICEF)												
Buildings and structures												
Equipment												
Other investments												
OPERATING CASH FLOW (OPF)	133	133	129	133	133	129	133	133	129	133	133	129
Income total	324	324	324	324	324	324	324	324	324	324	324	324
Costs total	191	191	195	191	191	195	191	191	195	191	191	195
Variable costs	138	138	138	138	138	138	138	138	138	138	138	138
Fixed costs	14	14	14	14	14	14	14	14	14	14	14	14
Payments of interest on the main loan	0	0	0	0	0	0	0	0	0	0	0	0
Accrued taxes and payments:	38	38	42	38	38	42	38	38	42	38	38	43
FINANCIAL CASH FLOW (FDP)	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
Payment of the body of the debt	6	6	6	6	6	6	6	6	6	6	6	6
Own funds												
Credit funds	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow (NFC)	127	127	123	127	127	124	127	127	124	127	128	123
Cumulative NPD	6 643	6 771	6 894	7 021	7 149	7 272	7 400	7 527	7 651	7 778	7 906	8 029
Cash balance at the beginning of the period	6 516	6 643	6 771	6 894	7 021	7 149	7 272	7 400	7 527	7 651	7 778	7 906
Cash balance at the end of the period	6 643	6 771	6 894	7 021	7 149	7 272	7 400	7 527	7 651	7 778	7 906	8 029
Discounted NPD	88	88	85	87	87	84	86	86	83	85	84	81
Discounted NPD on an accrual basis	5 398	5 486	5 571	5 658	5 745	5 829	5 915	6 000	6 083	6 168	6 252	6 333

Cash flow	2031											
	Jan.31	Feb.31	mar.31	Apr.31	May.31	Jun.31	July 31	Aug. 31	sen.31	Oct.31	Nov.31	Dec. 31
INVESTMENT CASH FLOW (ICEF)												
Buildings and structures												
Equipment												
Other investments												
OPERATING CASH FLOW (OPF)	133	133	130	26	134	130	134	134	130	134	134	130
Income total	324	324	324	324	324	324	324	324	324	324	324	324
Costs total	191	191	194	298	191	194	191	191	194	191	191	194
Variable costs	138	138	138	138	138	138	138	138	138	138	138	138
Fixed costs	14	14	14	14	14	14	14	14	14	14	14	14
Payments of interest on the main loan	0	0	0	108								
Accrued taxes and payments:	38	38	41	38	38	41	38	38	41	38	38	42
FINANCIAL CASH FLOW (FDP)	-6	-6	-6	-422								
Payment of the body of the debt	6	6	6	422								
Own funds												
Credit funds	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow (NFC)	128	128	125	-396	134	130	134	134	130	134	134	130
Cumulative NPD	8 156	8 284	8 409	8 012	8 146	8 276	8 410	8 543	8 674	8 807	8 941	9 071
Cash balance at the beginning of the period	8 029	8 156	8 284	8 409	8 012	8 146	8 276	8 410	8 543	8 674	8 807	8 941
Cash balance at the end of the period	8 156	8 284	8 409	8 012	8 146	8 276	8 410	8 543	8 674	8 807	8 941	9 071
Discounted NPD	84	83	81	-256	86	83	85	84	82	84	83	80
Discounted NPD on an accrual basis	6 417	6 500	6 580	6 325	6 411	6 494	6 579	6 663	6 745	6 829	6 912	6 992

Global Innovation Trade

ABOUT THE PROJECT EXECUTOR

Business plan "Organization of the enterprise for processing of secondary polymers into granulate" was made by a research agency "**Global Innovation Trade**". All our specialists have impressive experience in developing business plans, supported by deep knowledge in various spheres of economy and business, availability of powerful information base, knowledge of the most advanced approaches to business organization, knowledge of the latest calculation methods and their competent adaptation to the specifics of the region or a particular industry.

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