



**Global**  
INNOVATION TRADE

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**BANDS - PLAN :**

**BUSINESS PLAN FOR THE OPENING OF THE  
PRODUCTION OF INJECTION KITS IN THE  
KAMASHI DISTRICT**

**CUSTOMER**

The Ministry of  
Investment and Foreign  
Trade of the Republic of  
Uzbekistan

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# Methodological comments on the study

## Introduction

This business plan is a project for the opening of the production of injection kits in the Kamashinsky district.

Planning period: 2024-2030.

## The object and subject of the project

The object of the business plan is an investment project for the opening of the production of injection kits in the Kamashinsky district.

The subject of the business plan is the economic justification of the effectiveness of investment in the opening of the production of injection kits in the Kamashinsky district.

## Project goals and objectives

**The purpose of the business plan:** to assess the feasibility of opening the production of injection kits in the Kamashinsky district, as well as to determine the cost-effectiveness 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 the amount of investment funds to implement the project;
- assessment of the economic efficiency of investments in the project.

## Sources of information

1. Industry Statistics.
2. Print Media.
3. Information resources of market participants.
4. Open information about project participants.



## 1. Summary of the investment project

**Project name:** business plan for the opening of the production of injection kits in the Kamashinsky district.

**Project initiator:** to be clarified

**Project objective:** justification of the effectiveness of investment in the opening of the production of injection kits in the Kamashi district.

**Project site:** Kamashinsky district.

**The essence of the project:** the project involves obtaining investment for the construction of production facilities and the purchase of equipment to organize the production of injection sets in the Kamashi district.

**The timeline for project implementation** is shown in the table below.

**Table 1. Project implementation schedule**

Project Stage	Beginning of work	Duration days	End of work
Preliminary studies, formation of the concept of the complex, design, business planning	01.01.2024	365	31.12.2024
Approval of the project by an investor, obtaining loan funds	15.01.2025	440	31.03.2026
Obtaining baseline data for design, design	15.01.2025	75	31.03.2025
Planned major construction and assembly works, finishing works, landscaping	01.04.2025	547	30.09.2026
Acquisition of equipment	01.02.2025	392	28.02.2026
Getting Started	01.03.2026	2131	31.12.2031

## Project financing

The project provides for the use of:

Investment credit in the form of credit line for construction-assembly works and purchase of equipment in the amount of **10386,3** thousand dollars, which is received from January 2024 to March 2025, according to the plan of investment expenditures, at 9% per annum for 84 months;

own funds for co-financing investments in the amount of **\$10,350.3** thousand;

- own funds for operating expenses in the amount of \$30.6 thousand.

The main estimated performance indicators of the project are presented in the table below.

**Table 2. Indicators of investment efficiency**

Investment performance indicators	Value, thousand dollars.
Net income	45968,7
Net cash flow NPV	12831,4
Internal rate of return IRR, %	28,3%
Profitability index PI, units.	1,6
Payback period PB, years.	4,2
Discounted payback period DPB, years	4,8
Investment in the project	20772,7
Average return on sales for the project, %	36,9%
Discount rate, %	10,4%

Source: Global Innovation Trade calculations

With an investment of **\$20,772.7** thousand in the project, the net profit at the end of the forecast period will be **\$45,968.7** thousand. Investments in the project will be recouped in 4 years and 3 months, and the discounted payback period is 4 years and 9 months.

The net discounted income (NPV) of the project is 12831.37 thousand dollars, and the internal rate of return (IRR) is 28.3 % , which is higher than the discount rate.

The value of the profitability index (PI) is 1.6. This means that for every dollar invested in the project, the investor will receive \$1.6.





## 2. The essence of the project

### 2.1. Description of the project and the products produced

The project determines the feasibility and planned effectiveness of obtaining investment for the construction and opening of the production of injection kits (syringes and needles).

The main task of the project is to organize production and bring it to full capacity:

- Injection needle - 500 million pieces per year;
- Insulin needle to a syringe pen - 200 million units per year;
- three-component disposable syringe - 500 million units per year.

**Figure 1: Project products**



*Source: Global Innovation Trade information*

## Features of syringe designs

New Zealander Colin Murdoch (born February 6, 1929 in Christchurch, New Zealand) was a pharmacist and veterinarian who received 45 patents in his lifetime. But his main invention was the disposable syringe. Murdoch came up with the idea on an airplane in 1956, at which point the inventor was 27 years old.

## Syringe Classification

### 1. By design:

- 1.1. **Two-component** - used for subcutaneous, intramuscular, intravenous injections. They have a standard volume of **2, 5, 10 and 20 ml**. They consist of two parts: a cylinder and a piston.



- 1.2. **Three-piece** - comes in a variety of sizes and needle connection types. It consists of three parts: the cylinder, the rubber piston, and the plunger (piston pusher).



Several decades ago, "medical" practitioners noticed that the degree of painfulness of an injection depends not only on the sharpness of the needle, but also on the smoothness of the syringe piston. The reason for this is that the nurse has to exert considerable force to bring the tight piston of the syringe into motion. This causes the syringe in her hands to move, and consequently the needle in the patient's tissues to move as well. It is this "picking" of the needle in the tissue that is the source of the pain. This problem has been solved constructively. A rubber seal added to the syringe piston allowed it to move in the cylinder with a lower friction coefficient, i.e. smoother and thus making the injection less painful for the patient.

Thus, the two-component syringes (cylinder + piston) have been replaced by three-component syringes (cylinder + piston + rubber seal on the piston). This seemingly insignificant design difference is actually very important for syringe performance:

- the use of a three-part syringe **ensures that the microparticles**

of the **material** from which the syringes are made **will not enter the patient's body** when injected (this risk is present when using two-part syringes, when the plastic cylinder of the syringe is ripped through the plastic piston);

- A nurse who uses such a syringe will conduct the manipulation **gently and smoothly (due to the ease of movement of the piston, there is no "poking" of the needle)**, injecting exactly the amount of the drug that the doctor prescribed;
- It will be **easy and convenient for a medical worker** (or not necessarily for him - it is no secret that injections are often given by relatives, acquaintances of patients, or even by themselves) to give an injection;
- **the patient will feel virtually no pain** from the manipulation itself.

## 2. By cylinder volume:

- 2.1. **Small volume syringes (0.3; 0.5 and 1 ml)** are used for precise administration of drugs in small volumes (0.1 ml). They are used in endocrinology (insulin syringes), phthisiology (tuberculin syringes), neonatology as well as for intradermal allergy testing.
  - 2.2. **Standard volume syringes (2, 3, 5, 10 and 20 ml)** with Luer, Luer-Lok compound are used in all fields of medicine for subcutaneous, intramuscular, intravenous and other injections. Three component syringes have a smoother and softer piston stroke than two component syringes, so they are preferred in those areas of medicine where slow intravenous drug administration is required (anesthesiology, intensive care, emergency and urgent care, disaster medicine). The Luer-Lok connection (needle screwed into the syringe) is especially valuable when drugs are injected into dense tissues (under the peri-cartilage, under the periosteum), when taking biological material as well as when drugs are injected using infusion pumps (perfusors, infusomats). Such devices are used in anesthesiology, intensive care, oncology, neonatology, when slow dosed administration of drugs in small amounts over several hours or days is required.
  - 2.3. **Large volume syringes (30, 50/60, 100 ml) with Luer, Luer-Lok connection** and catheter tip (Catheter Type) are very widely used in various fields of medicine.
- 2.3.1. **50/60 and 100 ml syringes with catheter connection type (Janet type)** are very convenient for feeding through a tube (in surgery, neurology, pediatrics) as well as for injecting drugs and solutions through catheters (urinary catheter, pleural drainage, washing out abscesses and cavities). 30 and 50 ml syringes with Luer connection are very convenient when it is necessary to administer intravenous drugs in large dilutions.

## 3. By the position of the cone tip:

- 3.1. **Concentric** is the position of the cone tip when it is in the center of the syringe barrel. The position of the cone tip is based on the ease of use of the syringe. The cone tip is typically positioned concentrically on syringes used for hypodermic and intramuscular injections, ranging in volume from 1 ml to 11 ml.

- 3.2. **EXCENTRIC** - The position of the tip cone is called eccentric when the tip cone is on the side of the syringe barrel. The displaced position of the cone tip is due to the specific application, the main use of syringes of this size is to draw blood from a vein at the elbow bend.



4. **By the type of needle attachment:**

- 4.1. **A Luer/Luer** is a type of needle attachment where the needle is "clipped" onto the protruding part of the syringe barrel. This is the most common type of needle attachment and is standard on syringes from 2 to 100 ml, but is also not uncommon on 1 ml syringes.



- 4.2. **Luer-Lock - Lock** is a type of needle attachment where the needle is screwed into the syringe. The Luer-Lock connection is used in machine-driven syringes (perfusion pumps and infusion pumps) as well as in drip infusion devices. Syringes with this type of needle attachment can also be used for simple injections when a particularly strong syringe-needle connection is required. However, in general, this type of attachment is not very convenient for ordinary injections: in particular, it is quite difficult to change the needle and to disassemble the syringe after manipulation.



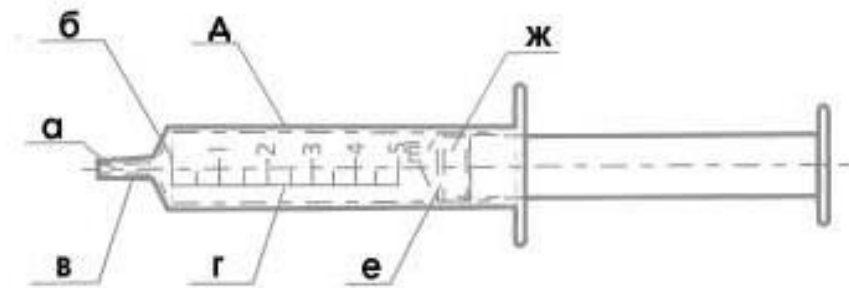
- 4.3. Non-removable, integrated needle in the cylinder housing



## Syringe design

The universal design of the conventional OP syringe is shown in the illustration below. The syringe consists of a cylinder and a piston rod (collapsible or non collapsible). The cylinder has a Luer-type cone tip (Record syringes can be produced on request, they are almost never produced), a finger stop (a) and a graduated scale (b). The rod-piston assembly consists of a rod (c) with a stop (d), a piston (e) with a seal (f) and a reference line (g).

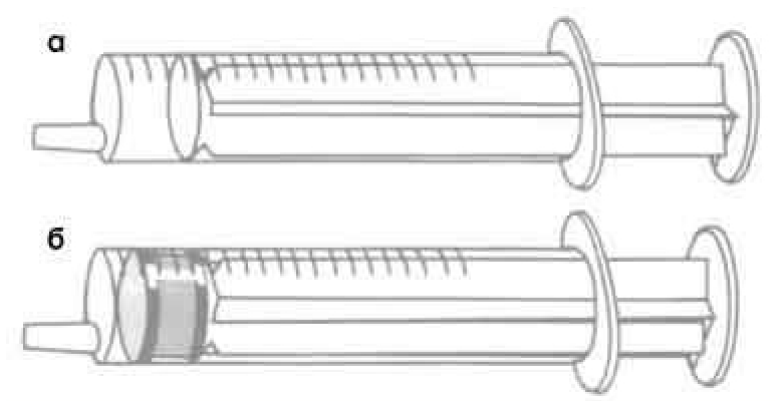
**Figure 2: Design of the OP syringe**



*Source: Global Innovation Trade information*

Depending on the piston-piston design, OP syringe designs are divided into two-component (a) and three-component (b) syringes as shown below. In two-piece syringes, the plunger and piston are one piece; in three-piece syringes, the plunger and piston are separate. The main functional difference between these designs is the lightness and smoothness of the piston.

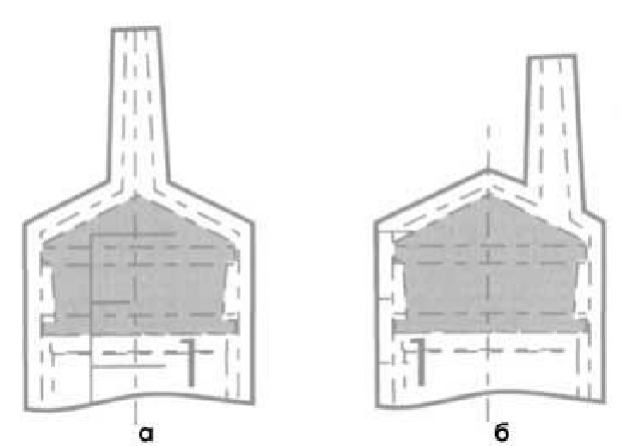
**Figure 3: The OP syringe design options: a - two-component syringe; b - three-component syringe**



*Source: Global Innovation Trade information*

OP syringes can be coaxial (a) and eccentric (b), which is determined by the position of the cone tip (Fig. 3).

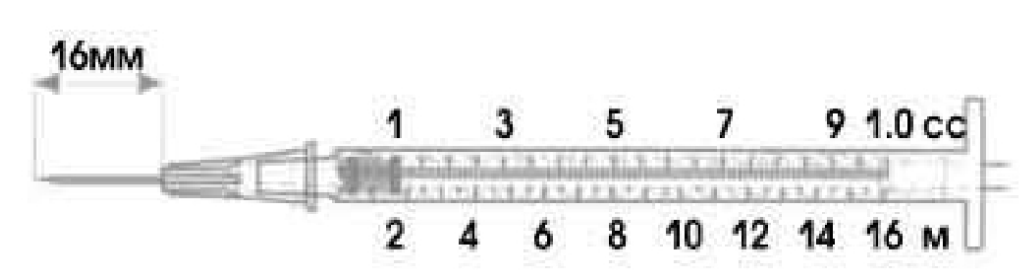
**Figure 4. Taper tip location: a - coaxial; b - eccentric**



*Source: Global Innovation Trade information*

The capacity of the syringes is determined by their intended use and varies (GOST) in the range from 1 to 50 ml (reduction and increase is allowed); ISO - < 2 - ≥ 50 ml (volume range is not set). In practice, the volume range of TSI OP ranges from 0.3 to 60 ml. Syringes of 0.3; 0.5 and 1.0 ml volumes are used for precise administration of drugs (tuberculin, insulin, standard allergen extracts) in small volumes - from 0.01 ml (figure below).

**Figure 5: Tuberculin syringe**



The materials used to make OP syringes depend on their design, purpose, and method of sterilization. The materials must be compatible with the injectable drugs. Determining compatibility with a particular drug is the task of pharmaceutical manufacturers. To this end, the materials most commonly used in the production of OP syringes are tested for compatibility. The compatibility of products with injection solutions and solvents included in the list of recommended pharmacopoeial preparations for testing is determined by health authorities. If incompatibility of syringe materials with any injectable substance is detected, the consumer packaging should include a warning to this effect, such as "Do not use with paraldehyde".

The cylinders are mainly recommended for certain grades of polypropylene, polystyrene and styrene-acrylonitrile copolymer which meet the pharmacopoeial requirements. The pistons are made of high quality natural (natural rubber) and synthetic (silicone rubber) rubber. High-density polyethylene is used for stems and seals of non-disassembled piston rods.

The rubber piston is coated with polydimethylsiloxane lubricant for better sliding. The force to move the piston of syringes  $\geq 2$  ml is, in this case, below the 10 N set by ISO. In practice, it is the venous pressure of the tourniquet that moves the stem of a quality syringe with a rubber piston. The piston of a quality syringe of three-part construction slides without jerking. These qualities are of great importance when slow trickle infusions are required, precise dosing in anesthesiology, intensive care. These advantages of three-part syringes are determined by the manufacturer.

It should be noted that quality two-component syringes nowadays, thanks to amide additives and ethylene oxide sterilization, are little better than three-component syringes in terms of smooth piston movement.

The smoothness and relative ease of piston movement achieved by the two-component syringes offers some advantage in that they do not contain natural rubber (usually black) containing latex, which, according to some reports, can cause allergic reactions. This last point is not without controversy with regard to standard IS. However, most reputable manufacturers have latex-free (milky-white) and sometimes silicone-free syringes.



## 2.2. Information about project participants

The initiator of the project is being specified.

## 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 road1.

The population of the Kashkadarya region as of 2023 is 3.5 million people, with the population of the Kamashin region itself being 286,000.

Figure 6: Project location



Source: Yandex.Direct







### 3. Marketing plan

#### 3.1. A brief overview of the injection kit market in Uzbekistan

Demand and supply of drugs is determined by such factors as fertility, public health of the population of the republic, demographic situation and its changes. Uzbekistan belongs to the countries with high population growth, annual population growth is 430 thousand people. Among the population of the republic such diseases as cardiovascular system, endocrine system, respiratory tract, infectious, allergic diseases, arthritis and others are most common. All the above-mentioned factors indicate that the need for medicines is not decreasing and tends to steadily increase. Currently, there are 1,328 inpatient medical facilities in Uzbekistan, of which:

- 25 are regional hospitals;
- 172 are city hospitals;
- 190 are district hospitals;
- 444 - polyclinics;
- 55 - maternity hospitals;
- 183 - dispensaries-stationaries;
- 259 are specialized hospitals and institutes.

The analysis showed that the drugs, the production of which is provided by this project, are produced by foreign companies and are supplied to the domestic market by firms that sell products at high prices that are not affordable to most of the population. For some types of drugs even at high prices there is an acute shortage, which is difficult to eliminate, since domestic production of these drugs in the country does not meet the domestic demand. Therefore, the population and medical institutions of the country are often deprived of necessary medical drugs.

In addition, 40% of the 31 million people in the country are children, 62% live in rural areas where purchasing power is very low. As a consequence, imported drugs become unaffordable for most of the population. Thus, in the domestic market the demand for quality drugs that meet the requirements of international standards at affordable prices is very high.

According to SJSC Uzfarmsanoat, the industry has set a clear course for import substitution. The goal is to reduce dependence on imports within five years, bringing the level of domestic production from the current 48.2% to 62.6% in 2022.

Due to the fact that the entire technological cycle from the preparation of production facilities to product output will be carried out in accordance with the requirements of legislation in the field of pharmaceutical production. Production, the products provided by this project will be competitive in quality, corresponding to world standards, and the price level.

Over the past few years, the volume of pharmaceutical production in the country has almost quadrupled. It is also noteworthy that with a slight increase in the total consumption and production of medicines, for example, only in 2018 and 2020, the need for domestically produced products doubled, while imports decreased by almost a third.

The industry also owes its dynamic pace of development to the localization program, thanks to which domestic products manufactured within its framework are exempted from almost all taxes and payments to target budgetary funds. This encourages manufacturers to produce and sell large volumes of products, thereby reducing the cost of goods, creating production capacity and jobs.

The volume of production of medicines in the first half of 2022 amounted to 1,528.8 billion soums, which is 22.6% higher than in the same period of 2021. This, in turn, led to the creation of 1,184 new jobs in the industry and ahead of the forecast indicator in this direction by 15%.

As a result of the measures taken, the share of domestic pharmaceutical products in the domestic pharmaceutical market has increased significantly, namely up to 35 percent. In addition, with the organization of new enterprises, it became possible to create thousands of new jobs. According to the State Statistics Committee, the share of pharmaceuticals in 2021 increased to 0.9% in the industrial production of Uzbekistan.

Last year drugs and medical products worth 3,674.6 billion soums were produced with an increase of 28.9% compared to the previous year.

Large enterprises of the industry increased the production of glass ampoules in 2.8 times compared with the previous year, provitamins, vitamins and their derivatives - 2.3 times, drugs that do not contain hormones or antibiotics - 1.3 times, noted in the information.

Industrial enterprises of the industry are initiators of promising projects.

As a result of the effective implementation of the localization program in the field of pharmaceuticals, the process of manufacturing new types of products to replace imported ones is being mastered. To date, 207 types of products that were previously imported for foreign currency have been established. These include, for example, 158 new drugs, 15 types of substances, 14 types of medical products and 20 types of components.

#### **1.1 Factors determining the growth of the pharmaceutical market in Uzbekistan**

- Continued upward trend of indicators of well-being - per capita income, expenditures on consumer goods, etc:
- a shift in consumption toward more expensive drugs for almost all categories of the population and a high need for modern drugs;
- the social policy of the state - the introduction of new approaches to the financing of drug provision;
- increased morbidity in a wide range of nosologies;
- growth of investment attractiveness of the pharmaceutical market.

Today syringes are an indispensable attribute of modern medicine. At present, no better way has yet been invented

The "delivery" of the drug to the "suffering" organ or tissue is more effective than an injection. In fact, there is no alternative to it yet. That is why syringes are included in the legally approved compulsory assortment list of goods in the pharmacy. Accordingly, the syringe market is developing quite dynamically, because a place on the retail counter for this product category is guaranteed. It is true that it is for the category, not for a particular product. In order to get to this or that pharmacy and then to the end consumer, syringe suppliers fight fiercely.

However, experts do not yet dare to call this market mature. A large number of small players, non-transparent supply chains, legislative distortions, the presence of products with dubious

The "pedigree", the consumers' lack of understanding of the differences between different types of products - these are the signs that confuse the experts.

Due to the sufficiently developed network of commercial organizations in Uzbekistan engaged in active trade in medical products, as well as the existing constantly growing need of medical institutions for disposable syringes and gloves, these products are in steady demand.

At present, the basic idea, concept and strategy of the complex project developed by our enterprise will allow to establish a stable sales and stable economic relations with consumers of these types of products.

There are two types of disposable syringes on the market in Uzbekistan:



two-component syringe (cylinder + piston)

## 1.2 *Two-part syringes*

The two-component syringes are designed to

"congenital defects," which for patients become a source of various unpleasant feelings.

In order to achieve sufficient tightness of such syringes, their piston is made slightly larger in diameter than the inner diameter of the cylinder it slides over.

Tightness is achieved, but at a high cost: due to the friction of the plastic piston against the plastic syringe cylinder, the movement of the piston can "peel off" microparticles of polypropylene from the cylinder, which can then enter tissue or blood.

These particles may not be visible to the naked eye, but there is a risk.

In addition, because of the larger diameter of the piston, the force required to move the piston through the cylinder increases significantly.

What's bad for the nurse if the piston moves hard?

When injecting with such a syringe, it is impossible to control the course of the injection, the drug is injected jerkily, after several injections your hand simply gets tired.

What's wrong for the patient in injecting with a two-part syringe?

When the nurse tries to move the tight plunger of the syringe, she exerts considerable force. This makes the syringe in her hands move, and consequently the needle moves in the patient's tissues. It is this "picking" of the needle in the tissues that is the source of pain, and often painful seals after injections.

Precisely because of the presentation to patients of unnecessary pain, as well as because of the risk of ingestion of plastic particles, two-part syringes have not been used in medicine in developed countries for more than a decade.



### 1.3 Three-component syringe (cylinder + piston (rod) + rubber seal on the piston).



Two-piece and three-piece syringes belong to different product categories - like corded and cordless telephones, for example.

This is mainly due to their design differences - the presence of a rubber seal on the piston increases the cost of a three-component syringe by about 40%.

The presence of a rubber seal distinguishes such syringes fundamentally and in terms of functionality (with a two-component syringe you cannot smoothly, accurately dispense

The needle is not only a product, but also of a quality (it is well known that this design difference is so significant that in some countries two-component syringes are forbidden for use in medical practice altogether).

Therefore, we can say that two-piece and three-piece syringes are different products (like a black-and-white TV and a color TV).

According to the World Health Organization, at least 16 billion injections are given annually in developing and transitional countries alone.

In Uzbekistan, about 9 injections per person per year (two injections per person are counted), and three-part syringes).

There is a consistent pattern: the more economically developed a country is, the larger the market share of three-component syringes.

The main buyer is the direct consumers who buy syringes in pharmacies. Therefore, pharmacies become the main "battleground" for different syringe brands. more than half of customers buy three-part syringes.

In addition, most companies are starting to focus specifically on three-component products. First, due to the higher price, they give a higher margin. Secondly, the success of a pharmacy directly depends on whether the customer finds the right product, so having a wide selection of modern and effective products is a mandatory attribute of a modern pharmacy. Currently, more and more end users come to the pharmacy just for the three-component syringe. Therefore, its presence in the assortment can be a decisive factor for the purchase / loss of customer loyalty.



#### 4.1.1 Market structure and characteristics. Characteristics of products

##### 1.4 Market overview

In all CIS pharmaceutical markets the role of the state is increasing: various national programs are being implemented, the state policy of supporting domestic manufacturers is being implemented. Many CIS countries are reforming their healthcare systems in accordance with the strategic objectives: improving the demographic situation, improving the quality of life and real income of the population, ensuring the relative independence of the country from import of essential drugs. At the same time there is an improvement of the pharmaceutical market in all directions.

The situation in the pharmaceutical markets in general lends itself to economic laws, but in practice the uniqueness of the state of the pharmaceutical market in each country is determined by the influence of a set of factors. The main indicators of the state of the CIS pharmaceutical markets are presented in the table.

CIS country	Market volume in consumer prices (mln. dollars)	Per capita drug consumption (million dollars).	Growth of the pharmaceutical market in 2022 by comparison from 2021. %	Population at the beginning of 2022. man
RF	10 700	75	27,4%	143,4
Ukraine	1 800	38	19,4%	41,6
Kazakhstan	780	51	20,0%	19,5
Uzbekistan	520	20	22,4%	36
Belarus	452	46	11,9%	9,2
Azerbaijan	201	24	14,9%	10,4
Georgia	111	40	23,3%	3,7
Moldova	107	27	3,8%	4
Armenia	89	28	18,7%	2,9

Significant volumes of pharmaceutical markets in Russia, Ukraine, Kazakhstan and Uzbekistan are associated with both health care reforms aimed at improving the quality of life and health of the population and with the largest population size among the CIS countries.

Most CIS countries demonstrate high growth rates of the pharmaceutical market, which indicates a great potential for its development.

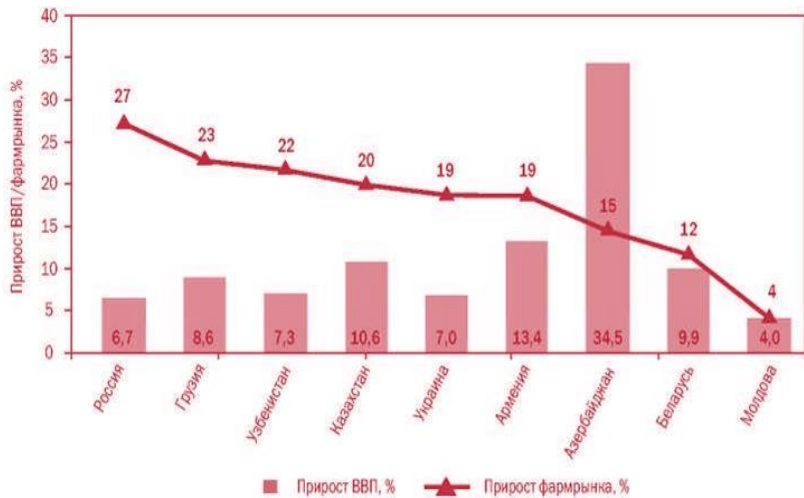
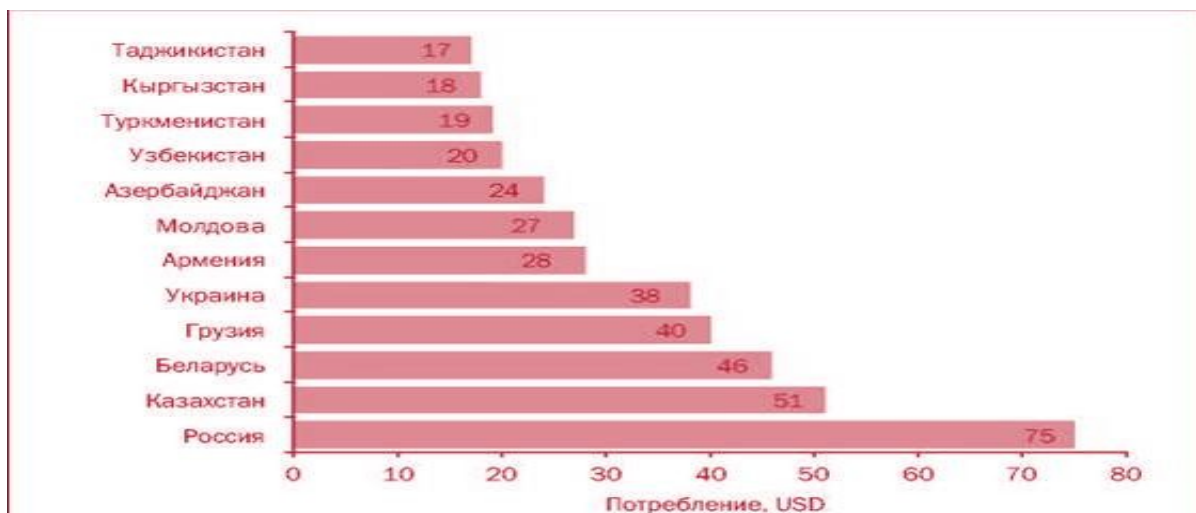


Figure 1. Growth of GDP and pharmaceuticals in CIS markets in 2022.

Источник: Межгосударственный статистический комитет стран СНГ  
 Расчеты: ЦМИ «Фармэксперт»

The highest growth rates are in Russia and Georgia. Azerbaijan shows the highest GDP growth, but the volume of the pharmaceutical market in this country is small, despite the favorable economic conditions. Apparently, social factors and the mentality of the population determine the low level of drug consumption in this country. The smallest market growth is noted in Belarus and Moldova. The slowdown in the growth rate of the Belarusian pharmaceutical market is due to the state policy aimed at increasing the share of domestic producers in this country's market.

The highest per capita drug consumption rates are in Russia and Kazakhstan; the lowest are in Tajikistan, Kyrgyzstan, and Turkmenistan. In these countries, the level of funds allocated for health care is low; the political situation, the level of income of the population, and the high proportion of "gray" sales of drugs also have an impact.

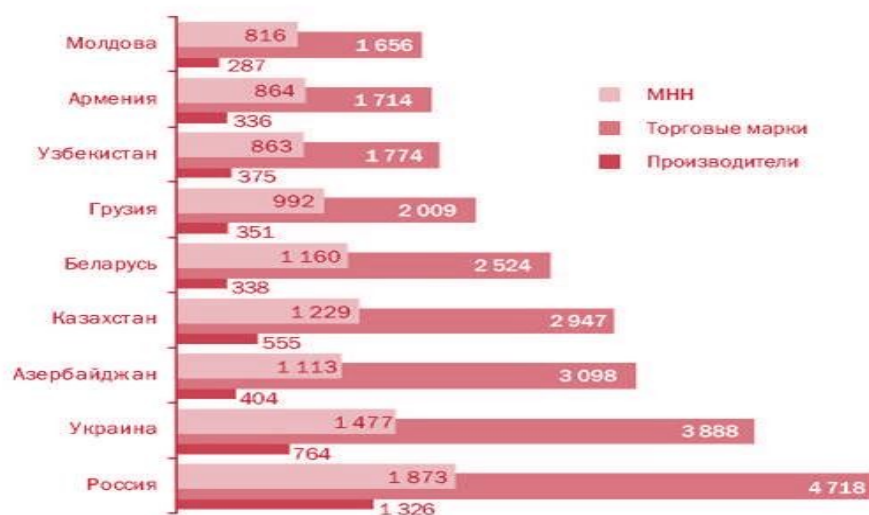


Источник: ЦМИ «Фармэксперт» — Мониторинг розничных продаж ЛС в странах СНГ  
 Расчеты: ЦМИ «Фармэксперт»

Рис. 2. Потребление ЛС на душу населения в странах СНГ

The volume of drugs consumed per capita is also influenced by such factors as the development and attractiveness of the country's pharmaceutical market for manufacturers, RR - and advertising activity of manufacturers in the market.

Quantitative characteristics of the CIS pharmaceutical markets, which can be used to indirectly judge the activity of manufacturers, are shown in the figure.



*Источник: ЦМИ «Фармэксперт» — Мониторинг розничных продаж ЛС в странах СНГ*

**Рис. 3. Количественные характеристики фармацевтических рынков стран СНГ**

The global market for medical devices is estimated differently by different companies, but, in general, it could be estimated at \$250-270 billion in 2022, depending on the reporting of companies. The global market for medical devices varies from company to company, but in general it could be estimated at \$250-270 billion in 2022, depending on the reporting of the companies. Thus, most of the large companies represented in the sector operate not only in medical devices, but also in pharmaceuticals and healthcare services, and often the size of sales cannot be separated by segment. A significant portion of the medical devices produced globally is consumed by the United States, Japan and Western European countries - the distribution of profits by geography is shown in Figure 1

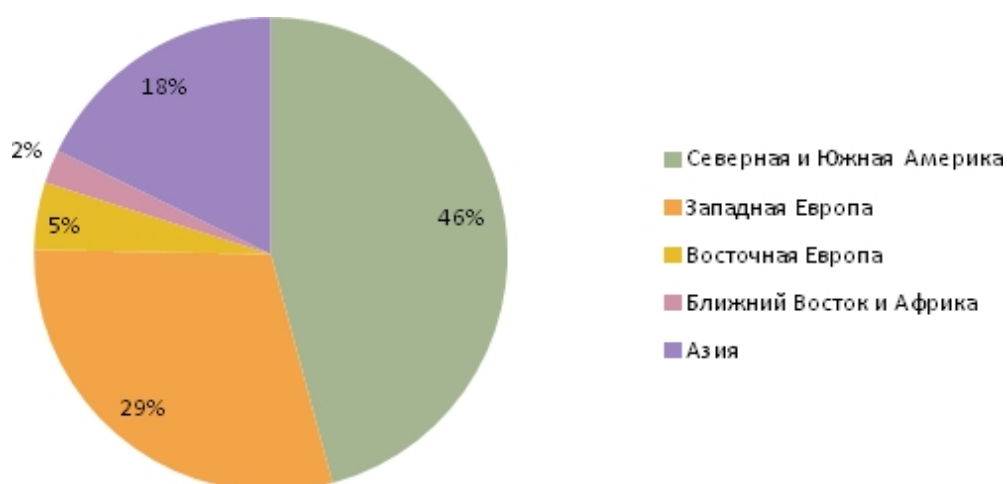
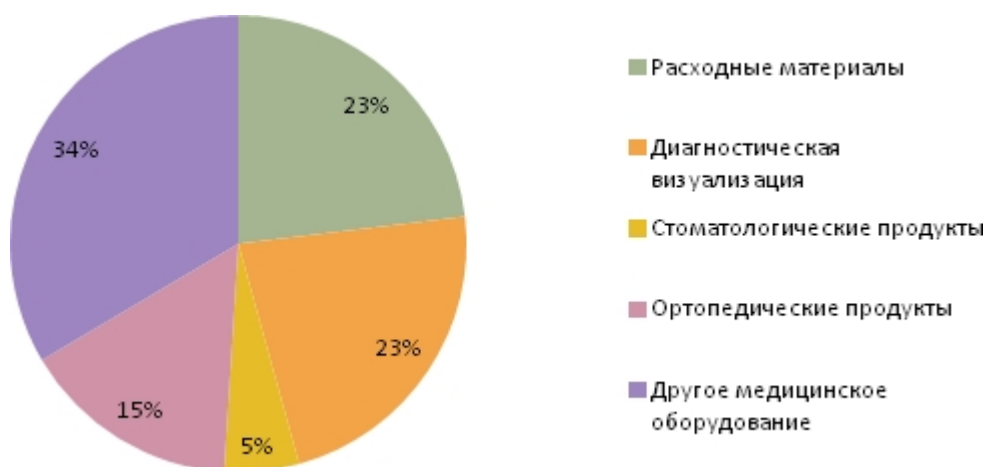




Figure 2 shows the segmentation of the medical devices market according to the World Health Organization.



Uzbekistan medical devices market is one of the least developed among the CIS countries - development of the market is hampered by general economic closedness, backwardness of medicine, high cost of medical devices and other factors. In general, the market for medical devices of Uzbekistan is not less than **USD 102 mln. In 2021**, with a population of over 30 million people, it is certainly not enough. Calculations of the market size were made based on the data of the State Joint Stock Company "UZFARMSANOAT" and the Main Department for Quality Control of Medicines and Medical Equipment. The dynamics of Uzbekistan's medical devices market is positive (up to 20% growth per year), but the economic slowdown in neighboring countries will undoubtedly have a negative impact on the state of Uzbekistan's medical devices market as well.

The largest share in the structure of the market (in value terms) came from reagents and test systems for in vitro diagnostics - 40.4% (Table 1). The second most important segment was disposable medical products for surgery (disposable medical clothing, instruments, suture material) - 19.7%.

Structure of the market for disposable medical devices and consumables materials	
Segment	%
Reagents, test systems	40,4
MI for surgery	19,7
MI for injections, infusions	9,0



## Business plan for the opening of the production of injection kits in the Kamashi district

MI for wound care	7,9
MI for blood service, blood purification	6,8
Laboratory plastic	6,3
Catheters	6,1
MI for resuscitation	2,0
Other MI	1,8
<b>Total</b>	<b>100,0</b>

The segment of disposable medical products for injections and infusions (syringes, needles, devices for infusion of blood substitutes and infusion solutions) took the third place in terms of market share - 9%.

At the same time, the share of dressings and wound care products in the total consumption structure was at the level of 7.9%. Disposable medical products for the blood service (devices for blood collection, transfusion and transportation, filters and materials for dialysis, plasmapheresis, consumables) accounted for 6.8% of the market.

The share of domestic products in the market of disposable medical products is about 15%, which corresponds to the similar indicator for the market as a whole. The segments in which the share of domestic manufacturers is maximal are medical disposables for surgery (20% of total consumption) and medical disposables for infusion (18%).

In the sphere of "Uzfarmsanoat" - 23 pharmaceutical companies-exporters. Drugs are produced in more than 15 dosage forms distributed in 70 pharmacotherapeutic groups. Uzbek producers registered 244 names of medicines in 13 foreign countries and CIS. These are Russia, Azerbaijan, Armenia, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine, Moldova, Mongolia, Iraq and Afghanistan.

Uzbekistan's own pharmaceutical production is growing explosively. The facilities that I was able to visit are impressive in at least two respects: area and technical armament. There is a feeling that the production potential of the local pharmaceutical industry will far exceed the solvent demand of the country in the next three years. And this means some problems for importers and prospects for exporters from Uzbekistan.

At the moment the Republic of Uzbekistan produces syringes of twotypes: two-component and three-component syringes, 1, 2, 5, 10 and 20 ml.



Companies in recent years are working quite steadily, almost no one intends to launch new or expand old production.

The demand for this type of products in recent years exceeds the supply. At the same time, representatives of all manufacturing companies refer to the problem of competing with imported products from China as one of the problems of the current market. According to current estimates, the share of Chinese-made disposable syringes in the local market is about 75%. The reason is extremely simple: in China the raw materials for the production of disposable syringes (polypropylene, polyethylene) are now two times cheaper than in the country. The cost of the product imported from China is thus significantly lower, and there are currently no customs duties on the importation of disposable syringes into the territory of the republic.

The obvious solution to the problem experts from manufacturing companies consider the introduction of these very customs duties and import quotas on Chinese products. Here, however, it is worth taking a closer look at the situation. Having additional capacities, local enterprises will still not be able to fully cover this market. In total, all companies producing disposable syringes are only able to cover about 50% of the demand for this type of product (in perspective and taking into account migration processes (entry)). The introduction of a customs duty on disposable syringes will only lead to a subsequent increase in product prices.

It is possible to solve the problem. In order for domestic producers to feel free in the disposable syringe market in their country, it is necessary to open new production facilities. And only when local producers will be able to fully cover the domestic market with their facilities, we can talk about the introduction of customs duties and import quotas on imported products.



## **4. Organizational Plan**

### **4.1. Personnel plan**

The following structural subdivisions were formed in the staff schedule of the production enterprise:

1. Supervisors.
2. Administrative staff.
3. Operations personnel.

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

The project provides for the creation of at least 97 new jobs with a stable income and all social guarantees.

Since the beginning of 2024, it is planned that some of the managers and administrative staff will leave in order to ensure the preparatory organizational issues of the project.

After the arrangement of the site, delivery and installation of equipment, finishing of premises, production will start in March 2025 and the rest of the planned personnel will be employed.

The average wage per employee of the company will be \$550 per month. The personnel plan and payroll are shown in the table below.

**Table 3: Personnel plan and payroll for the injection kit production facility for the period 2024-2030.**

Position	Monthly salary, thousand dollars.	2025			2026 and beyond		
		Number of staff units	Number of months worked per year	Wages and salaries for the whole year, thousand dollars.	Number of staff units	Number of months worked in year	Wages and salaries for the whole year, thousand dollars.
<b>Executives</b>		<b>5</b>		<b>123,8</b>	<b>6</b>		<b>141,1</b>
Director	2,40	1	12	28,8	1	12	28,8
The deputy director of the tor	2,16	2	12	51,84	2	12	51,8
Chief Accountant	2,16	1	12	25,92	1	12	25,9
Chief Engineer	1,44	1	12	17,28	1	12	17,3
Chief Technology Officer	1,44		12	0	1	12	17,3
<b>Admin-dedicated personnel</b>		<b>1</b>		<b>4</b>	<b>36</b>		<b>217,4</b>
PP Master	0,72		12	0	2	12	17,3
Master M	0,72		12	0	2	12	17,3
Master C	0,72		12	0	2	12	17,3
Head of Laboratory	0,72		12	0	1	12	8,6
Head of Commercial of the department	0,72		12	0	1	12	8,6
Technical Department controls	0,48		12	0	4	12	23,0
Laboratory Technician	0,42		12	0	2	12	10,1
Occupational health and safety and technical security feature	0,42		12	0	2	12	10,1
Lawyer	0,48		12	0	2	12	11,5
Technologist	0,42		12	0	2	12	10,1
The Economist	0,42		12	0	2	12	10,1
Accountant	0,42		12	0	5	12	25,2
Logistician	0,42		12	0	2	12	10,1
Manager	0,48		12	0	6	12	34,6
Chancery and Case-Maker	0,30	1	12	3,6	1	12	3,6
<b>Operational staff</b>				<b>-</b>	<b>55</b>		<b>313,9</b>
Engineer PP	0,60		12	0	10	12	72,0
Engineer M	0,60		12	0	10	12	72,0
Assembly Engineer	0,60		12	0	3	12	21,6
Sterilization Engineer equipment	0,60		12	0	4	12	28,8
Locksmith	0,42		12	0	4	12	20,2
Warehouse Clerk	0,48		12	0	6	12	34,6
Driver	0,36		12	0	6	12	25,9
Cleaning	0,24		12	0	6	12	17,3



**Business plan for the opening of the production of injection kits in the Kamashi district**

Internal control	0,30		12	0	6	12	21,6
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**Business plan for the opening of the production of injection kits in the Kamashi district**

<b>Total number of and wages:</b>		<b>6</b>		<b>127,4</b>	<b>97,0</b>		<b>672,5</b>
<b>Social taxes on payroll, thousand dollars.</b>				<b>38,5</b>			<b>203,1</b>
<b>TOTAL annual payroll of labor, thousands of dollars.</b>				<b>165,9</b>			<b>875,6</b>

*Source: Global Innovation Trade data, Global Innovation Trade calculations*

When the total number of staff 97 people and the established mode of operation annual payroll with accruals is equal to 875.6 thousand dollars.



## 4.2. Sources, forms and conditions of financing

The project provides for the use of:

- the funds of the investment loan in the form of a credit line for construction and installation works and purchase of equipment in the amount of 20,772 thousand dollars;
- own funds for co-financing investments in the amount of \$10,386 thousand;
- own funds to cover current expenses in the amount of \$30.6 thousand.

**Table 4. Sources and forms of project financing, thous. dollars.**

Project financing	Unit.	Value
Project Investments	thousand dollars.	20 772,69
Amount of borrowed funds, total	thousand dollars.	10 386,34
Own funds, total	thousand dollars.	10 386,34
Including own funds for co-financing investments	thousand dollars.	10 355,74
own funds to cover the current expenses of the dov	thousand dollars.	30,60

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

The investment loan in the form of a credit line with a credit limit of \$10,386.3 thousand is planned to be obtained from January 2024 to March 2025 under the conditions presented in Table 5 below.

**Table 5. Conditions of investment credit**

Indicators	Unit.	Value
The term of the investment loan	months.	84
Rate on investment credit, annual	%	9,00
Rate on investment loan, per month	%	0,7
Deferral of principal payments	months.	14

Source: Global Innovation Trade data





### **4.3. Project funding schedule**

An investment loan in the form of a credit line for construction and installation work and the purchase of necessary production equipment with a credit limit of 10,386.3 thousand dollars is planned to be obtained from January 2024.

Borrowed funds are expected to be invested, according to the investment spending plan, from January 2024 to April 2025. In March 2025, the balance of the credit limit will be received. From the same period it is planned to start payments on the loan principal.

Investment of own funds in the amount of 10,386.3 thousand dollars is planned during the investment phase of the project: from January 2024 to October 2025.

The funding schedule for the project is shown in the table below.



Table 6. Schedule of project financing, thousand dollars.

No	Cost item	Price, thou s. dollars.	Jan.24	Feb.24	mar.24	Apr.24	May.24	Jun.24	July 24	Aug. 24	sen.24	Oct. 24	Nov.24	Dec. 24
1	Buildings (structures)	630 999	4 480	5 722	840	1 546	29 846	27 816	29 723	30 971	37 600	62 313	55 193	55 220
2	Equipment	1 097 006		158 266				474 797	-	316 531			-	-
3	Other investments	502	268											
5	Current costs	2 550	1 050	-	-	1 500								
	<b>Total</b>	<b>1 731 057</b>	<b>5 798</b>	<b>163 988</b>	<b>840</b>	<b>3 046</b>	<b>29 846</b>	<b>502 612</b>	<b>29 723</b>	<b>347 502</b>	<b>37 600</b>	<b>62 313</b>	<b>55 193</b>	<b>55 220</b>
	<i>including but not limited to</i>													
	<b>own funds for co-financing investments</b>	<b>862 979</b>		83 093	420	773	14 923	251 306	14 862	173 751	18 800	31 156	27 596	27 610
	<b>own funds to cover operating expenses</b>	<b>2 550</b>	1 050			1 500								
	<b>Borrowed funds for investments in the project</b>	<b>865 529</b>	4 748	80 895	420	773	14 923	251 306	14 862	173 751	18 800	31 156	27 596	27 610



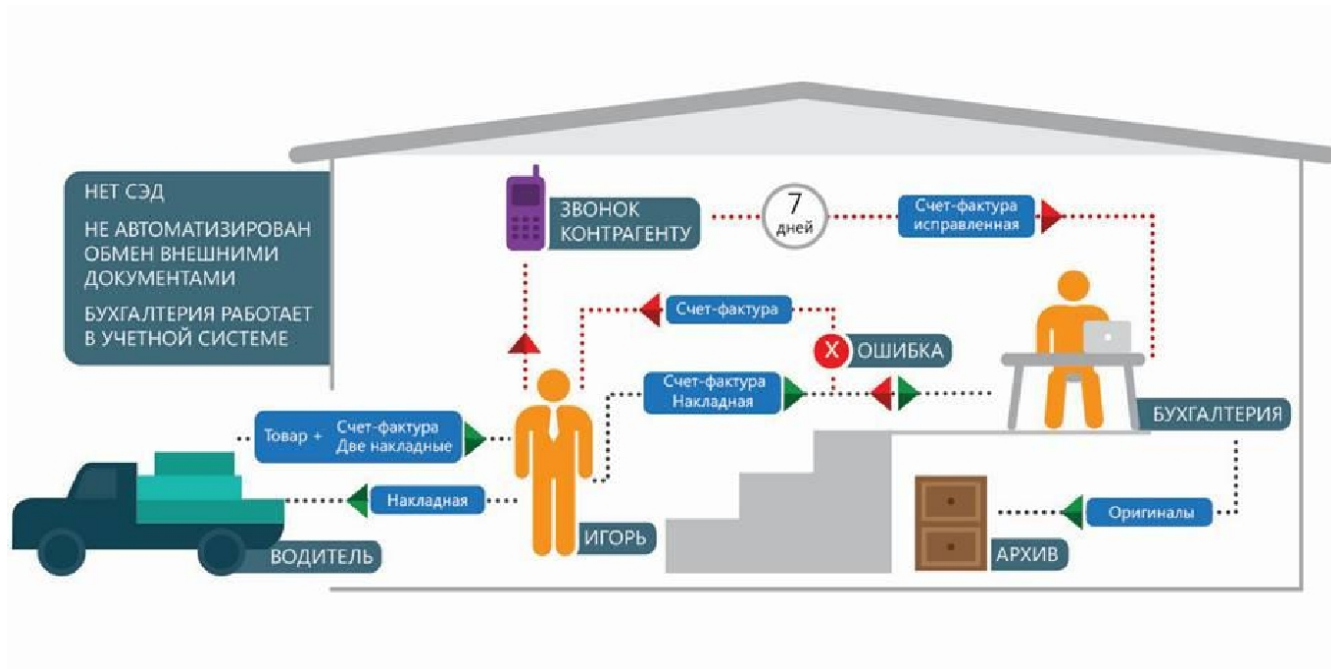
**Business plan for the opening of the production of injection kits in the Kamashi district**

<b>Cost item</b>	<b>Jan.25</b>	<b>fev.25</b>	<b>mar.25</b>	<b>Apr. 25</b>	<b>May.25</b>	<b>Jun 25</b>	<b>July 25</b>	<b>Aug. 25</b>	<b>sen.25</b>	<b>Oct. 25</b>
Buildings (structures)	635,9	401,7	388,9	376,3	376,3	376,3	412,3	418,3	83,2	7,4
Equipment	0,0	1266,1	0,0	0,0	0,0	144,0	0,0	350,4	0,0	8,4
Other investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,8	0,0	0,0
Current costs	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Total</b>	<b>635,9</b>	<b>1667,9</b>	<b>388,9</b>	<b>376,3</b>	<b>376,3</b>	<b>520,3</b>	<b>412,3</b>	<b>771,5</b>	<b>83,2</b>	<b>15,9</b>
<i>including but not limited to</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>
<i>own funds for co-financing investments</i>	<i>317,9</i>	<i>833,9</i>	<i>194,5</i>	<i>188,2</i>	<i>188,2</i>	<i>260,2</i>	<i>206,2</i>	<i>385,8</i>	<i>41,6</i>	<i>7,9</i>
<i>own funds to cover operating expenses</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>
<i>borrowed funds to invest in the project</i>	<i>317,9</i>	<i>833,9</i>	<i>194,5</i>	<i>188,2</i>	<i>188,2</i>	<i>260,2</i>	<i>206,2</i>	<i>385,8</i>	<i>41,6</i>	<i>7,9</i>

Source: Global Innovation Trade data

#### 4.4. Scheme of interaction with counterparties

Interaction with counterparties is planned on a contractual basis.





## **5. Production plan**

### **5.1. Description of buildings and premises**

The production buildings and premises used in the production of injection kits and injection needles will be fully compliant with all necessary requirements.

The project involves new construction of a production complex with a total area of 5,000 square meters, including a 1,000-square-meter basement, the main production facility 1,000 square meters, a storage facility and ancillary facilities 3,000 square meters on a land plot of 10,000 square meters.

The cost of design and construction and installation work, including landscaping, is \$7,571,900.



## 5.2. Equipment description

The complex will be equipped with imported technological equipment with automated control and monitoring systems.

The main equipment of the project:

- microdroll production line (11 subaggregates);
- needle production line (23 sub-units);
- casting line (42 sub-units);
- sterilization and packaging (8 sub-units).

**Figure 7: Production equipment**



*Source: Global Innovation Trade data*

### 1. Warehouse (height 9 m):

- diesel forklift for the street - 4 pcs;
- Ritchtrack (up to 10 m) - 4 pcs;
- self-propelled loader (up to 5.5 m) - 5 pcs;
- hydraulic cart (for simple operations) - 10 pcs;
- racking - about 6,000 pallet spaces.

### 2. Garage complex:

- equipment for battery charging and equipment maintenance.

### 3. Compressor shop with a boiler room:

- compressors;



## **Business plan for the opening of the production of injection kits in the Kamashi district**

- tdol pipelines;
- boiler equipment.

### **4. Microtolling shop:**

- strip unwinder;
- microtdoll forming and welding machine;
- pulling and drawing station tdoll;
- receiving device;
- production line management;
- auxiliary devices for a continuous production process.

### **5. Cutting strips:**

- V-shaped coil block (one block for loading and one block for unloading);
- hydraulic uncoiler caliper;
- loading cart;
- twin hydraulic unwinder;
- loading device;
- guides and limiters;
- hydraulic shears;
- sheet clamping and alignment device;
- slitting device;
- independent waste winder (on both sides);
- hinge maker;
- tension station;
- separation device;
- ejection device;
- unloading transport cart;
- hydraulic system;
- pneumatic system;
- electronic control unit.

5.1. Strip calibration - drawing station.

5.2. Annealing - furnace, cooling chamber.

5.3. Wash.



5.4. Cleaning.

**6. Needle production shop:**

6.1. Cutting tdolka.

6.2. Grinding tdolka.

6.3. Sharpening.

6.4. Needle cleaning.

6.5. Needle polishing.

6.6. Wash.

6.7. Needle assembly room: assembly machine - 4 pcs.

6.8. Packaging: packaging machine - 4 pcs.

**7. The plastic molding shop:**

- 25 injection molding machines (180t force);
- molds (hot runners) - 25 pcs;
- raw material dryers - 25 pcs., dispensers - 25 pcs;
- chillers - 25 pcs;
- dye mixers - 25 pcs;
- thermostats - 25 pcs;
- vacuum loaders;
- crane (up to 10 tons) for clean rooms - 5 pcs.

7.1. Crushing and packaging waste:

- crushers - 5 pcs;
- loaders - 5 pcs;
- packaging machine;
- transporter.

**8. Assembly and painting line.**

**9. Packaging line.**

**10. Preparation and filtration shop - filtration complex.**

**11. Water treatment and purification.**

**12. Sterilizer - 3 pieces (total working volume of chambers not less than 100 m<sup>3</sup>).**

**13. Preparation and neutralization.**

**14. Ethylene oxide storage (for 2 tons of reduced gas).**





## **Business plan for the opening of the production of injection kits in the Kamashi district**

- 15. Server Room.**
- 16. Laboratory equipment and reagents.**
- 17. Cargo and transport equipment.**
- 18. Office equipment, furniture, according to a complete set of jobs.**
- 19. Transport - car, truck, bus.**

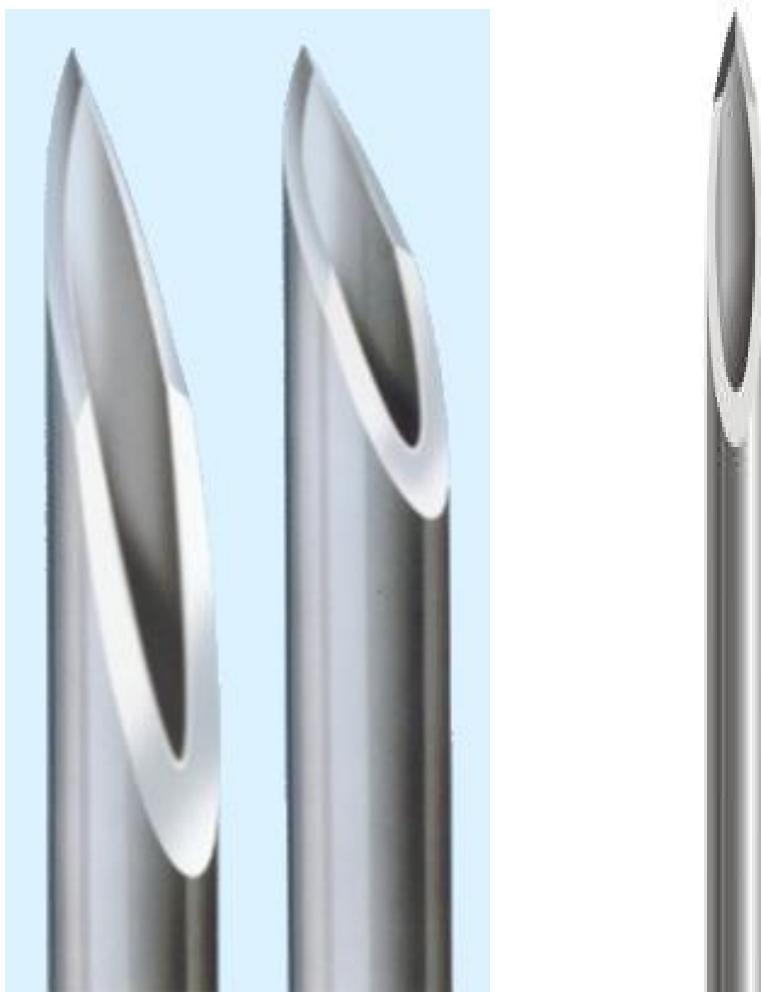


### 5.3. General description of production technology

#### Needle technology

Small plates are made from sheets of steel, which are twisted into a longitudinal shape. The length of the future needle and the thickness of the hole are taken into account. Naturally, the steel is additionally subjected to a special treatment that makes the metal stronger. The needle must be very smooth and sharp. Grinding and sharpening machines are used for this purpose. There must not be a single burr on the surface of the element. To cut a long needle into elements, special cutters are used. They also shape the tip of the needle. The element is sharpened several times. Next, all products must be checked for compliance with the mandatory requirements and standards.

**Figure 8: Laser triangular needle sharpening**



*Source: Global Innovation Trade data*



### **Technology of making disposable syringes.**

First of all, the raw material is poured into a special hopper. Then the machine melts the mass and forms the desired parts of the product. After cooling, the cylinders are marked with a measuring scale using the silkscreen or offset printing method. In the next step, tips are put on the pistons and connected to the cylinders. The syringe is sterilized and packaged in blister packs.

### **Sterilization with ethylene oxide**

Sterilization in ethylene oxide (EO) sterilizers is based on the unique technology of ethylene oxide (EO) gas diffusion, which makes it possible to sterilize a wide range of "delicate" materials, sensitive to the above mentioned influences, in a quality and without using harsh conditions (pressure, high temperature, humidity).

The ethylene oxide (EO) sterilization process consists of three steps:

- 1. Pretreatment.**
- 2. Sterilization.**
- 3. Degassing (Aeration).**

### **Benefits:**

- 1.** Sterilization with 100% ethylene oxide, with no environmental contaminants (CFCs).
- 2.** One cartridge per sterilization cycle.
- 3.** Sterilize in the volume of the sterilization bag, not the entire volume of the chamber.
- 4.** EO consumption per sterilization cycle is 5-20 times less than that of other manufacturers (less than 18 g per cycle).
- 5.** Aeration is part of the sterilization cycle.
- 6.** High penetration capacity.
- 7.** Strongest microbicidal effect at room temperature.
- 8.** Suitable for sterilization of the vast majority of medical devices.
- 9.** Easy to use, quick installation (does not require a water line or vacuum system).
- 10.** Quick sterilization (3.5 hours, including 30 minutes of aeration).
- 11.** Sterilization temperature 50 ° C (standard) or 30 ° C.
- 12.** Keeps the material to be sterilized in working condition.



**13.** Without creating high pressure and deep vacuum.

The following technological operations are performed during the production of injection kits:

- preparation of strips to the required uniform width and thickness (strips are delivered in width of 4-5 mm);
- cutting to the desired width;
- passing through the rolling mill (rollers);
- the making of the tdolka.

Stainless steel microtodolls are used for all types of injection needles. In order to avoid costly multi-pass broaching, these cylinders should be shaped and welded to the dimensions closest to the desired final diameter and wall thickness. On the production line, a wide range of stainless steel microtundles with varying welded diameters and wall thicknesses must be fabricated in one continuous process. Quick changeover from one size to another results in reduced line downtime.

### **Strip unwinder**

The vertical strip unwinder has an expanding head on which standard strip coils with an outer diameter of up to 1200 mm and a core diameter of about 400 mm can be mounted. The diameter of the expanding head corresponds to the core diameter of the strip reel. A drive with controllable freewheel guarantees a smooth unrolling of the strip as required for the following production steps.

### **Microtodoll forming and welding machine**

The microtdoll forming and welding machine is the main equipment of the production line.

According to the process, the metal strip coming from the strip unwinder is fed into the machine, and in a single process the strip edges are deburred and formed into tdolls. The opposite edges of the strip are then butt-welded longitudinally. Two crawler drives with cutting clamp, positioned behind the welding station, pull the tdolls through the machine. Excellent coordination of forming and welding with the first slit clamp caterpillar drive is essential for a uniform weld.

For the production of injection needle material blanks, the steel strip is prepared and molded in the forming element in two main sections.



The first section of the tool prepares the edges of the strip to be welded and begins to form the strip into an open U-shape. The second section then forms the strip into a circular shape for welding.

The space between the sections can be used to apply grease for the subsequent pulling and broaching process that takes place between the first and second crawler drives with the split clamp.

The small-diameter and thin-walled microtoddolls produced on this line are welded with a solid-state laser (Nd:YAG). This line uses limited-conductivity welding technology, which is optimized for the production of these small-diameter microtoddolls with thin walls. A very narrow weld seam is achieved with this welding technology, which requires the strip edges to be precisely guided under the laser spot. The combination of a high-precision forming tool and a caterpillar drive with a cutting clamp, which keeps the seam within the required tolerances, makes the use of a seam detecting and guiding device unnecessary. The weld quality is checked by the eddy current inspection device.

### **Drawing and drawing station tdoll**

After the welded pipe is complete, it is pulled through to the appropriate diameter between the first and the second split clamp crawler drives. The speed of the two slit clamp crawler drives is controlled by the PLC which allows them to pull through the dolla reducing both the wall thickness and the diameter in a pre-determined proportion.

### **Receiving device**

The microtoddoll is reeled in through a control device with a floating roller to the receiving device. Due to the small tdoll diameter it is important to wind it with as little tension as possible. The laying process is controlled by state-of-the-art software in which different requirements can be set. The standard transportable receiving device has been further developed to meet the special requirements of this production process.

### **Production line management**

All the individual parameters of this production line, such as the speeds of the different components, the welding power as well as all the measured and adjustable parameters are controlled by the programmable logic controllers and can be adjusted, monitored and stored. The machine operator controls the line from the main control panel on the machine. The panel includes a color monitor for displaying the welding area and a thin-film screen on which all functions of the line are clearly arranged. In addition, quality related data can be monitored and stored and recipes can be called up later for the different products made on the production line.



### **Auxiliary devices for continuous production process**

The continuous length of the microt dolly produced on a standard line is limited by the length of the strip on the reel provided by the strip supplier. For long term continuous production it is necessary to provide a continuous strip, e.g. the strip ends of several coils must be butt welded together to obtain the required length. This cross welding is accomplished on strip joining equipment which is not integrated into the main production line. This separation prevents any adverse effect of the joining process on the main continuous production process.

In strip joining equipment the unique flat strip magazine is filled with several coils, which are butt-welded to one another. For continuous production the integrated strip rewinder consists of a turntable with a drive unit on which a removable slat magazine, filled with several coils of strip, is mounted. A speed control and guiding device feeds the strip from the coil to the production line. Switching from one coil to another does not affect the production speed.

Strip joining equipment consists of a coil unwinding stand, a turntable with an interchangeable strip flatbed magazine and laser transverse welding equipment. In the coil magazine the strips are placed on top of each other and separated by spacers. After the end of the lower coil is butt-welded by laser cross-welding to the beginning of the next coil, spacers are inserted. The quality of the cross welding is as good as the longitudinal welding and does not affect the final quality of the microtubes.

The capacity of the strip joining equipment allows the preparation of interchangeable strip coil magazines for several production lines.

#### **Main technical characteristics:**

Diameter of the tdoll to be welded: 2.0-5.5 mm

Diameter of final tdoll: 1.0-5.5 mm Tdoll

wall thickness: 0.06-0.3 mm

Production line speed:

(depends on the size of the tdoll) 3-40 m/min

We need 38,800,000 m.p.h. of tdoll billets per year (at 300 days/129,600m\day 90 m\min) with a tdoll diameter of 1 mm or less.

It is possible to anneal after drawing to eliminate the hardening.

Calibration of needles to the correct size for future needles (eliminating ovality and different thicknesses) by drawing with a mandrel (15 tooling sizes, including 32G and 33G).

- cutting blanks;
- sharpening (line);
- sharpening of small caliber and ultra-thin-walled needles;
- sanding and washing(line).



### **Clean room complex "D"**

Polypropylene casting site - 23 injection molding machines (110-180 tons), p/shape tooling (25-30 pieces, depending on nesting).

Mold life - 2-3 million cycles (300 cycles per hour/12 s cycle)

Secondary shrinkage exposure - 1-3% / 90% in the first 6 hours (shrinkage depends on casting parameters: t,P,V, etc.)

### **Clean room complex "D"**

Printing (about 10 machines).

### **Assembly shop**

- needle assembly line;
- needle assembly and packaging line for the syringe pen;
- syringe assembly lines - 4 pcs. (for each type);

### **Clean room complex "C"**

Packing is an estimated 10-12 machines.

### **Clean room complex "D"**

Packaging in shipping cartons.

### **Auxiliary equipment**

Sterilization - 3 chambers of 35 m<sup>3</sup> (5cc-800 pcs. = 0.04 m<sup>3</sup> box) 1 cycle 12 hours

In the production of 2 million sets per day -2500 boxes (250 days), 2 million needles, 800 thousand needles SHR

### **Automated warehouse (the residual principle if possible) Quality control and**

### **environmental protection service**



## 5.4 Raw materials and components

Consumption of raw materials is shown in the table below.

**Table 7. Consumption of raw materials for unit production**

Indicators	Unit.	Value
<b>Injection kit (syringe, needle included)</b>	<b>pieces</b>	<b>500 000 000</b>
Polypropylene	T	3 546
Auxiliary materials (sealant)	T	375
Packaging	kt	50 000 000
Silicone	T	2
Dye	T	110
Sterilization (ethylene oxide)	T	21,6
Strips	T	50
<b>Injection needle</b>	<b>pieces</b>	<b>500 000 000</b>
Polypropylene	T	800
Strips	T	50
Dye	T	88
Sterilization (ethylene oxide)	T	38,4
Packaging	kt	10 000 000
Silicone	T	2
<b>Needle for a syringe pen</b>	<b>pieces</b>	<b>200 000 000</b>
Polypropylene	T	900
Strips	T	33
Dye	T	80
Sterilization (ethylene oxide)	T	12,0
Packaging	kt	2 000 000
Silicone	T	1

Source: Global Innovation Trade data





## 5.5 Other technological issues

Clean rooms (or so-called clean rooms) are planned to be placed inside the constructed buildings, which have become thoroughly established in the pharmaceutical industry, because no production is possible without them. It is a kind of barrier room that serves as a barrier to the entry of all kinds of contaminants. The air in such a room is maintained at a certain size per cubic metre. Such particle contaminants may be micro-organisms, chemical vapours, aerosol particles, dust or dirt particles. It should be noted that measuring the countable concentration of particles in the air in clean rooms is not sufficient, so parameters such as temperature, pressure and humidity are also subject to periodic monitoring. Clean rooms are designed and used to minimize the ingress, generation and accumulation of such particles inside the room.

Figure 9. Clean rooms



Source: Global Innovation Trade data

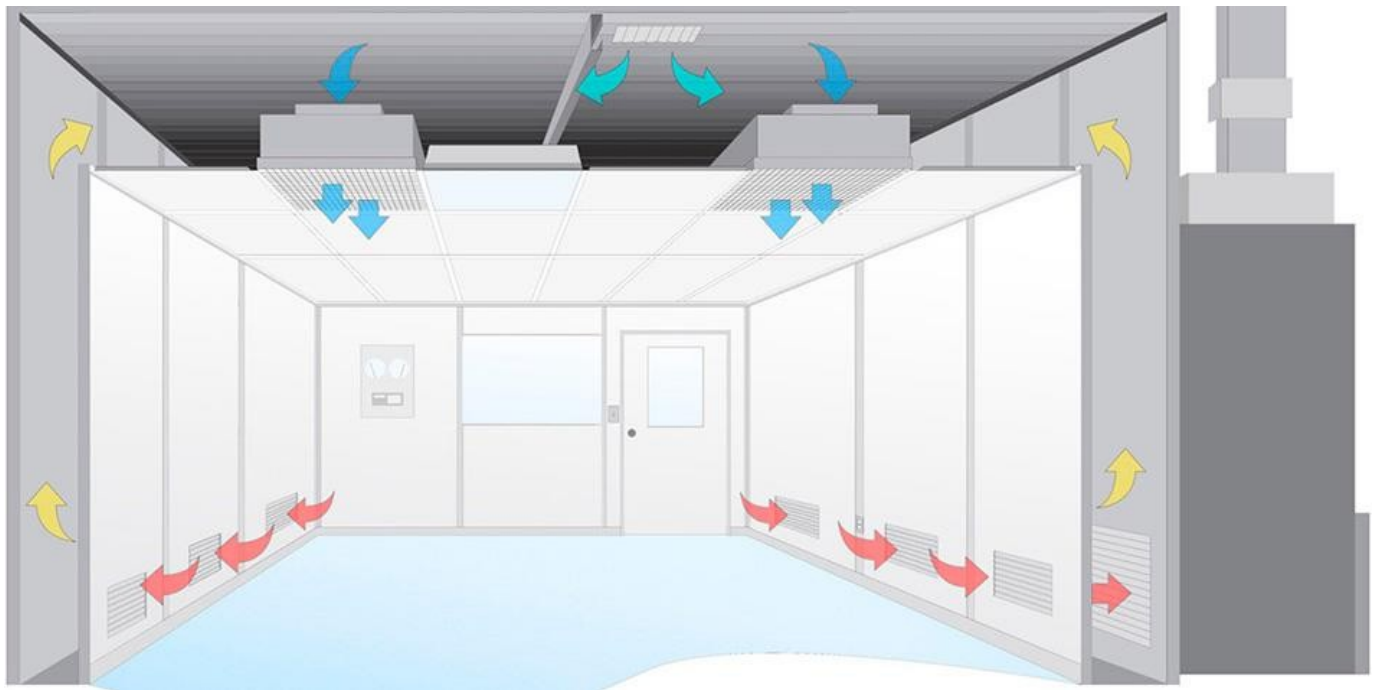
The system of preparation, disinfection and distribution of clean room complex air is provided by the following actions:

- preparing supply air preparation with required temperature and humidity parameters;
- Three-stage high-efficiency purification of the supply air;

## Business plan for the opening of the production of injection kits in the Kamashi district

- air distribution with the organization of a specified directional movement of air;
- rational organization of air flows between rooms to provide the required pressure drops;
- the required air exchange in order to remove harmful emissions (gases, vapors, dust, microorganisms, heat) from the clean room or work area;
- removal of exhaust air from the premises.

**Figure 10. System of preparation, disinfection and distribution of clean room complex air**



*Source: Global Innovation Trade data*

### Supply air conditioners

Supply air conditioners provide outdoor air intake, its cleaning from particles and, if necessary, microorganisms on the 1st stage filters (class G4/F5) and 2nd stage filters (classes F7...F9), air conditioning by temperature (heating and cooling) and humidity (drying and moistening). The supply air conditioner can be central (providing air to all rooms of the building), zonal (serving a floor, several rooms) or autonomous (for one room).

### Air distribution and finishing systems

The air prepared in the central air conditioner and autonomous systems of cleaning and disinfection of internal air is supplied to the clean rooms through the network air ducts (with flow and pressure control devices) through special air distributors with HEPA finish filters.



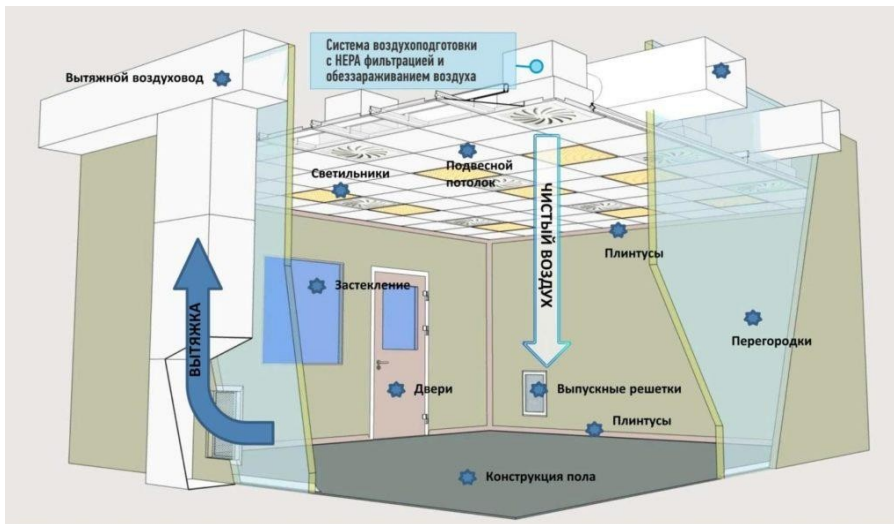
### Autonomous indoor air purification and disinfection systems

Clean air requirements can be met by the use of a self-contained indoor air purification and disinfection system. The systems take in indoor air, clean it effectively to remove micro-particles and, if necessary, micro-organisms, and return it to the clean room.

### Exhaust systems

Exhaust systems provide extraction of exhaust air from the premises of the complex, cleaning (if necessary) it from harmful substances and dust and removing it outside the building.

Figure 11. Exhaust systems



Source: Global Innovation Trade data



## 6. Financial plan

### 6.1. Initial data and assumptions

A seven-year planning horizon was adopted in the economic evaluation of the project.

#### Product Assumptions

The calculations for this project use an average monthly production figure based on Global Innovation Trade plans and equipment capacity, with the following annual production volumes planned:

- Injection needle 500 million pieces per year;
- insulin needle to a syringe pen 200 million units per year;
- 500 million disposable three-component syringes per year.

#### Assumptions about investment costs

Investment costs are divided into four categories:

1. Investments in the construction of industrial buildings, facilities.
2. Investments for the purchase of production equipment.
3. Current investment costs.
4. Other investments.

#### Assumption about the discount rate

The project adopted a discount rate of 10.4% per year. Below is the rationale for the calculation of this indicator.

**Business plan for the opening of the production of injection kits in the Kamashi district**

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 company. The calculations are made according to the formula:

$$r = r_b + \sum_{i=1}^n R_i$$

where  $r$  is the discount rate;  $r_b$  is the base (risk-free or least risky) rate;  $R_i$  is the premium for the  $i$ -type of risk;  $n$  is the number of risk premiums. Let us present below the calculation according to this methodology.

**Table 8: Determination of the cost of equity**

Constituents	%
The size of the risk-free rate*	6,52%
Amount of country risk adjustment	2,00%
Amount of industry risk adjustment	2,00%
Amount of other risk adjustment	3,00%
<b>Cost of equity</b>	

*Source: Global Innovation Trade calculations*

The discount rate is calculated taking into account the cost of equity for the project.

**Table 9: Determination of the discount rate**

Constituents	%
Equity share	50%
Share of borrowed capital	50%
Income tax	20,0%
Cost of equity	13,5%
Cost of borrowed capital	7,2%
<b>Total discount rate</b>	<b>10,4%</b>

*Source: Global Innovation Trade calculations*

Thus, the value of the discount rate in accordance with the expert calculation was 10.4% 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 plans, profit and loss projections and cash flow.

## 6.2. Nomenclature and prices

The table below shows the range of products planned for production and their prices.

**Table 10. Nomenclature and prices of products manufactured under the project, \$/pc.**

<b>Sales prices of manufactured products (including VAT)</b>	<b>Value</b>
Injection kit (syringe, needle included)	0,022
Injection needle	0,011
Needle for a syringe pen	0,048

*Source: Global Innovation Trade data*

According to the results of the market research, the range of average market prices for injection kits ranges from 0.015 USD/pc to 0.026 USD/pc. Thus, the prices for the considered types of ready-made products, included in the financial model, are sufficiently competitive in comparison with the average market prices of other producers on the market.



### 6.3. Investment costs

The total amount of investment in the project is \$1,731,057.2 thousand, including

- 865,528.6 thousand. - borrowed funds in the form of a credit line;
- 864,528.6 thousand dollars. - Global Innovation Trade's own funds.

Investment costs of the project are distributed by cost items as follows.

**Table 11. Investment costs of the project by cost items, thousand dollars.**

Cost item	Price, thousand dollars.
Buildings (structures)	7572,0
Equipment	13164,1
Other investments	6,0
Current costs	30,6

*Source: Global Innovation Trade data*

### 6.4. Initial working capital requirement

In January 2020, investment of \$1,050,000 is needed to cover operating costs, in April 2020 - \$1,500,000. In the future the need for financing will be covered from the budget funds for VAT reimbursement from investment costs, as well as at the expense of income from product sales.

### 6.5. Tax deductions

The project provides for a general system of taxation.

Tax rates, as well as parameters for calculating the amount of taxes to be paid, are shown in the table below.

**Table 12. Tax environment of the project**

The amounts of tax deductions by year of the project are shown in the table below.

**Table 13. Amounts of tax deductions for the project, thousand dollars, 2020-2026.**

Type of tax/Year	2024	2025	2026	2027	2028	2029	2030
VAT	0	0	0	0	0	0	0
Social contributions	38,5	124,1	203,1	203,1	203,1	203,1	203,1
Transport tax	1,2	1,2	1,2	1,2	1,2	1,2	1,2
Property tax	0,0	0,0	0,0	0,0	0,0	164,8	157,2
<i>Taxes other than income tax</i>	<i>39,7</i>	<i>125,3</i>	<i>204,3</i>	<i>204,3</i>	<i>204,3</i>	<i>369,1</i>	<i>361,5</i>
<i>Income tax</i>	<i>0,0</i>	<i>16,1</i>	<i>996,0</i>	<i>1949,8</i>	<i>1980,6</i>	<i>2011,2</i>	<i>2013,4</i>
<b>TOTAL taxes for the customer company</b>	<b>39,7</b>	<b>141,4</b>	<b>1200,3</b>	<b>2154,1</b>	<b>2184,9</b>	<b>2380,3</b>	<b>2374,8</b>
PIT	16,6	87,4	87,4	87,4	87,4	87,4	87,4
<b>TOTAL tax flow from the project including personal income tax</b>	<b>56,3</b>	<b>228,9</b>	<b>1287,7</b>	<b>2241,6</b>	<b>2272,4</b>	<b>2467,8</b>	<b>2462,3</b>

Source: Global Innovation Trade data, Global Innovation Trade calculations

## 6.6. Operating costs (fixed and variable)

**Fixed costs** are project costs that do not depend on changes in production volume.

The key fixed costs of the project are shown in the table below.

**Table 14. Fixed costs of the project, thousand dollars.**

Cost item	Amount of expenses per year starting from 2023
Payroll of administrative and managerial personnel	358,6
Advertising and marketing services	240,0
Information services	60,0
Garbage removal	72,0
Communication services	36,0





Security	96,0
Rent for the land plot	38,0
Repair and maintenance of equipment and building	288,0
Maintenance of own transport, fuel and lubricants, spare parts	84,0
Maintenance of fire and security alarm systems	72,0
Maintenance of accounting programs	4,2
Training, education	36,0
Special clothing	15,3
Office expenses	3,6
Detergents	0,7
Consulting services (narrow specialists)	60,0
Banking	2,4
<b>Total fixed costs</b>	<b>1 466,8</b>

Source: Global Innovation Trade data, Global Innovation Trade calculations

The variable costs of a project are the costs of raw materials, goods and materials necessary for the production of products, as well as the wage costs of production personnel.

Table 15. Variable costs of the project, thousand dollars.

Cost item	The amount of expenses, starting from 2028, thousand dollars.
Operating personnel payroll	313,9
Raw materials costs	11 872,2
Utility costs	553,9
Special tools	20,34
Transportation costs	720
<b>TOTAL variable costs per year</b>	<b>13 480,4</b>

Source: Global Innovation Trade data, Global Innovation Trade calculations



## 6.7. Cost calculation

The cost of production is the cost estimate of natural resources used in the production process, raw materials, materials, fixed assets, labor and other costs of its production and sale.

To calculate the cost of production, we used the data provided by the Initiator of the project on the consumption of raw materials and supplies, prices for raw materials and supplies, as well as other costs associated with the production of project products.

Data on the consumption of raw materials for the production of the project are given in Section 5.4. The table below provides information about the costs of raw materials and supplies.

**Table 16. Planned costs of raw materials and supplies for production**

Expenses for raw materials and supplies	Unit.	Value	Price, dollars per unit.	Cost, thousand dollars.
<b>Injection kit (syringe, needle included)</b>	pieces	500 000 000		
Polypropylene	τ	3 546	1200	4255,2
Auxiliary materials (sealant)	τ	375	4200	1575
Packaging	kt	50 000 000	0,024	1200
Silicone	τ	2	3 000 000	72
Dye	τ	110	4800	528
Sterilization (ethylene oxide)	τ	21,6	7500	162
Strips	τ	50	3600	180
<b>TOTAL raw material costs</b>			0,01596	7972,2
<b>Injection needle</b>	pieces	500 000 000	0	0
Polypropylene	τ	800	1200	960
Strips	τ	50	3600	180
Dye	τ	88	4800	420
Sterilization (ethylene oxide)	τ	38,4	7500	288
Packaging	kt	10 000 000	0,024	240
Silicone	τ	2	3 000 000	54
<b>TOTAL raw material costs</b>			0,00432	2142
<b>Needle for a syringe pen</b>	pieces	200 000 000	0	0
Polypropylene	τ	900	1200	1080
Strips	τ	33	3600	120,024

Expenses for raw materials and supplies	Unit.	Value	Price, dollars per unit.	Cost, thousand dollars.
Dye	τ	80	4800	384
Sterilization (ethylene oxide)	τ	12,0	7500	90
Packaging	kt	2 000 000	0,024	48
Silicone	τ	1	3 000 000	36
<b>TOTAL raw material costs</b>			0,00876	1758,024

Source: Global Innovation Trade data, Global Innovation Trade calculations

## 6.8. Sales Plan

Below is the production and sales plan for the project by year. Starting from December 2022, the project will reach full production capacity.

**Table 17. Plan of production and sales, units**

Parameter/year	2020	2021	2022	2023 and beyond
Injection kit (syringe, needle included)	-	133 333 333	333 333 333	500 000 000
Injection needle	-	133 333 333	333 333 333	500 000 000
Needle for a syringe pen	-	53 333 333	133 333 333	200 000 000

Source: Global Innovation Trade data, Global Innovation Trade calculations

## 6.9. Revenue Calculation

The revenues from the sales of the project's products were calculated taking into account the prices of the range of products and the volume of their production.

Below is a forecast of revenues from the sale of products planned for production by years of the project.

**Table 18. Revenue from product sales, 2020-2026.**

Parameter/year	2024 year	2025	2026	2027	2028	2029	2030
Revenue, thousand dollars.		6 880,0	17 200,0	25 800,0	25 800,0	25 800,0	25 800,0

Source: Global Innovation Trade calculations



## 6.10. Profit and loss forecast

The table below shows the calculation of profits and losses by years of project implementation. The calculation shows that the project becomes profitable from the second year of its implementation.

**Table 19. Projected statement of financial results of the project, thousand dollars.**

Income/expense item	2020 year	2021	2022 year	2023 year	2024 year	2025 year	2026
Revenue from sales	0,0	6618,2	16545,5	24818,2	24818,2	24818,2	24818,2
Direct costs	0,0	2969,5	7576,3	11233,7	11233,7	11233,7	11233,7
Margin income	0,0	3648,7	8969,1	13584,5	13584,5	13584,5	13584,5
General business fixed costs	224,2	1222,3	1222,3	1222,3	1222,3	1222,3	1222,3
Taxes (except income tax)	39,7	125,3	204,3	204,3	204,3	369,1	361,5
EBITDA	-263,8	2301,1	7542,5	12157,9	12157,9	11993,0	12000,7
EBITDA, % (to revenue) average	0%	35%	46%	49%	49%	48%	48%
Depreciation of fixed assets	0,0	1397,5	1863,3	1863,3	1863,3	1863,3	1863,3
EBIT	-263,8	903,6	5679,3	10294,6	10294,6	10129,8	10137,4
Payment of interest on loans and credits	349,9	822,9	699,4	545,4	391,4	73,8	70,6
Profit (loss) before taxation	-613,8	80,7	4979,9	9749,2	9903,2	10056,0	10066,9
Income tax	0,0	16,1	996,0	1949,8	1980,6	2011,2	2013,4
Unallocated profit	-613,8	1462,0	5847,2	9662,7	9785,8	9908,1	9916,8
Return on sales	0%	22%	35%	39%	39%	40%	40%

Source: Global Innovation Trade calculations

## 6.11. Cash flow forecast

Cash flow projections by year are shown in the table below. Cash flow projections by month are shown in the Appendix.

The calculated debt coverage ratio for the entire period of the project is not lower than 1.15, which indicates the ability to meet the requirements of investors using the generated cash flow of the project.

Positive cash flow balance for the entire calculation period indicates the feasibility of the project.

Table 20. Projected statement of cash flows, thous.

Cash flow	2024	2025	2026	2027	2028	2029	2030
<b>INVESTMENT CASH FLOW (ICEF)</b>	<b>-15 493,6</b>	<b>-5 248,5</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>	<b>0,0</b>
<b>OPERATING CASH FLOW (OPF)</b>	<b>903,6</b>	<b>2 151,8</b>	<b>5 735,1</b>	<b>9 550,6</b>	<b>9 673,8</b>	<b>9 632,4</b>	<b>11 805,2</b>
Income total	1 562,2	8 146,3	18 193,1	27 197,3	27 197,3	27 197,3	27 197,3
Costs total	658,6	5 994,5	12 458,0	17 646,7	17 523,5	17 564,9	15 392,1
<b>FINANCIAL CASH FLOW (FDP)</b>	<b>15 524,2</b>	<b>3 764,7</b>	<b>-1 780,5</b>	<b>-1 780,5</b>	<b>-1 780,5</b>	<b>-1 780,5</b>	<b>-1 780,5</b>
Own funds	7 762,1	2 624,3	0,0	0,0	0,0	0,0	0,0
Borrowed funds	7 762,1	2 624,3	0,0	0,0	0,0	0,0	0,0
Cash-flow total	934,2	668,0	3 954,6	7 770,1	7 893,3	7 851,8	10 024,7
Cash-flow at the end of the period	934,2	1 602,2	5 556,8	13 326,8	21 220,1	29 071,9	39 096,6
<b>Net cash flow (NFC)</b>	<b>934,2</b>	<b>668,0</b>	<b>3 954,6</b>	<b>7 770,1</b>	<b>7 893,3</b>	<b>7 851,8</b>	<b>7 864,7</b>
<b>NPD cumulative total</b>	<b>934,2</b>	<b>1 602,2</b>	<b>5 556,8</b>	<b>13 326,8</b>	<b>21 220,1</b>	<b>29 071,9</b>	<b>29 914,6</b>
<b>Discounted NPD cumulative total</b>	<b>891,5</b>	<b>1 488,4</b>	<b>4 542,6</b>	<b>10 080,8</b>	<b>15 178,7</b>	<b>19 774,7</b>	<b>25 080,6</b>

Source: Global Innovation Trade calculations

## 6.12. Project efficiency analysis

### 6.12.1. Methodology for assessing the effectiveness of the project

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

1. **Net present value, NPV.**
2. Profitability index, PI.
3. Payback period, PBP.
4. Discounted Payback Period, DPBP.
5. Internal rate of return, IRR.

### 6.12.2. Project performance indicators

Performance indicators of an investment project allow you to determine the effectiveness of investment in a particular project. When analyzing the effectiveness of investment projects the following indicators are used:

- net discounted (discounted) income (cash flow);
- net present value, NPV;
- payback period (time), PBP;
- discounted payback period, DPBP;
- internal rate of return (profitability);
- investment rate of return, IRR (modified investment rate of return, MIRR);
- profitability index;
- profitability index;
- profitability index, PI.

### 6.12.3. Net present value (NPV)

Net present value (NPV) is the sum of discounted simultaneous differences between the benefits and costs of a project. - is the sum of discounted simultaneous differences between 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:

$$NPV = \sum_{t=0}^T \frac{CF_t}{(1+i)^t}$$

where  $i$  is the discount rate;

$CF_t$  - net cash flow of period  $t$ ;  $T$  - duration of the project in periods.

NPV calculation is a standard method of assessing the effectiveness of an investment project, which shows an estimate of the effect of the investment, reduced to the present time, taking into account different the time value of money. If the 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).

**Negative qualities NPV associated with the fact that this indicator does not take into account:**

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

The net discounted income of the presented project is **20,772.7 thousand dollars**.

**6.12.4. Internal rate of return (IRR)**

In the case of heterogeneous cash flows, as in this project, a corresponding analogue of IRR - the modified internal rate of return (MIRR) - can be applied.

The calculation algorithm involves several procedures. First of all, the total discounted value of all outflows and the total accrued value of all inflows are calculated, and both discounting and accrual are performed at the source price of project financing. The accrued value of inflows is called terminal value. Then the discount rate that equalizes the total present value of the outflows and the terminal value, which in this case is the MIRR, is determined. So, the general formula for calculation is as follows:

$$\sum_{t=0}^N \frac{OF_t}{(1+r)^t} = \frac{\sum_{t=0}^N IF_t(1+r)^{n-t}}{(1+MIRR)^n}$$

where  $OF_t$  - cash outflow in the N-th period (in absolute value);  $IF_t$  - cash inflow in the N-th period;

r - the cost of the source of funding for this project; n - the duration of the project.

Note that the formula makes sense if the terminal value exceeds the sum of discounted outflows.

The internal rate of return of this project is **28.3%**, which is higher than the discount rate and not bad for projects of this kind.

**6.12.5. 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:

$$PI = \frac{NPV}{Investments}$$

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

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

The project's return on investment index is **1.6**, which means that for each dollar invested, the investor will receive \$1.6.

#### **6.12.6. Payback Period (PBP)**

Payback period (PBP) - expected period of reimbursement of initial investments from net cash proceeds, i.e. the time for which income from operating activities of the enterprise exceeds costs of 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). The payback period of the project is **4 years and 3 months**.

#### **6.12.7. 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:

$$DPBP = t_- - NPV(t_-) / (NPV(t_+) - NPV(t_-)),$$

Where  $t_-$  and  $t_+$  are the periods when negative and positive NPV were observed. The discounted payback period of the project is **4 years and 9 months**.

#### **6.12.8. Other indicators**

The average return on sales for the project is 36.9%.

The project has a net cumulative income of \$3,830,729,000.



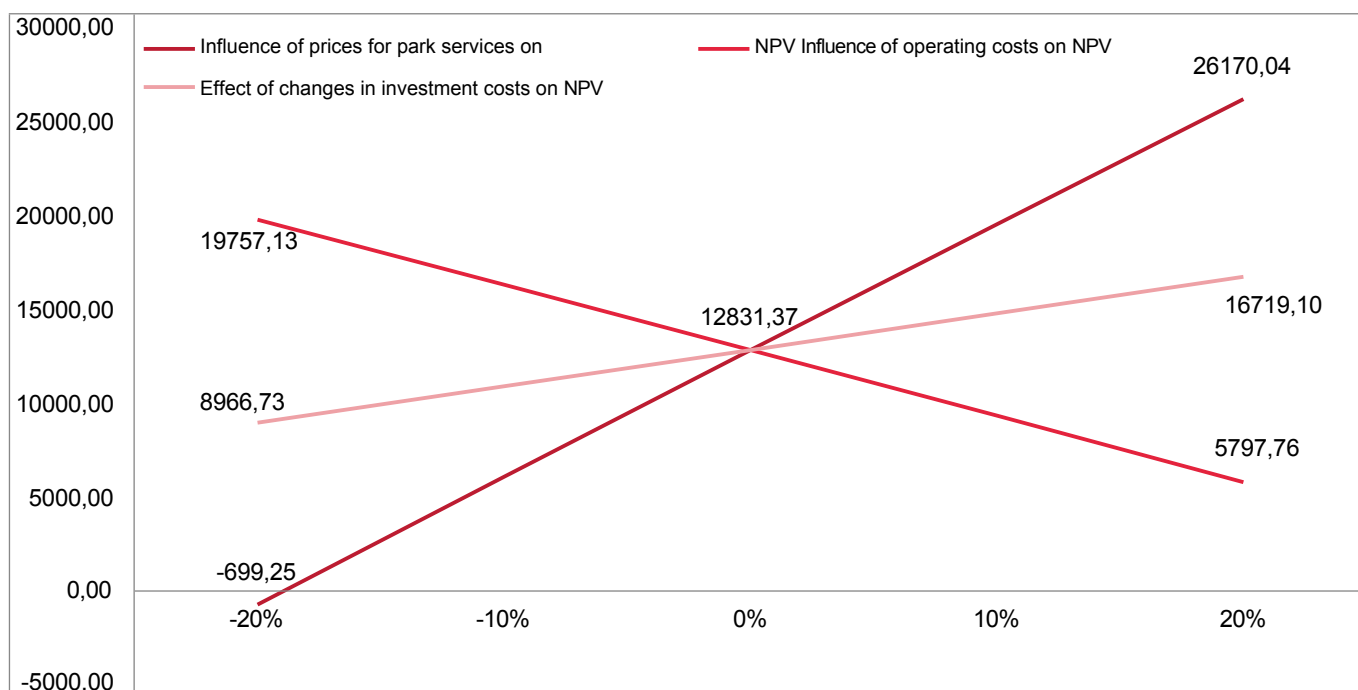


## 7. Risk analysis

### 7.1. Quantitative risk analysis

The figure below shows the sensitivity of the project to changes in the main parameters of the project.

Figure 12. Sensitivity of the project, thousand dollars.



Source: Global Innovation Trade calculation and analysis



According to the results of the analysis, there is the greatest dependence of the project on the selling price of the produced goods and on the value of operating costs. The impact of changes in the amount of investment costs on the efficiency of the project is insignificant.

## 7.2. Qualitative analysis of project risks

A qualitative analysis of the main risks of the project is presented in the table below

**Table 21. Qualitative analysis of project risks**

<b>Risk</b>	<b>Probability and degree of danger. Manifestations of negative impact</b>	<b>Risk leveling tools</b>
<b>Production risks</b>		
Failure of technological equipment	Probability: medium Degree of danger: high Impact: stoppage of production	Timely maintenance of enterprise equipment, availability of spare parts
Lack of qualified personnel, lack of competent technologists/engineers	Probability: medium Degree of danger: high Impact: disruption of the production cycle	Effective personnel policy, attractive motivation system
Disruption of deliveries to the consumer due to logistics problems	Probability: low Degree of danger: low Impact: decrease in sales	Optimization of the logistics chain
<b>Market risks</b>		
Dumping by competitors	Probability: low Degree of danger: high Impact: decrease in profit	Cost reduction
<b>Financial risks</b>		
Delayed payment from customers	Probability: low Degree of danger: low Impact: lack of working capital of the company	Tracking of payment schedule for delivered products, control of compliance with obligations
Shortage of working capital in the investment phase of the project	Probability: low Degree of danger: medium Impact: "freezing" the project	Planning of expenditures and cash flows in the investment phase of the project
Tougher tax and licensing laws	Probability: medium Degree of danger: medium Impact: decrease in profit	Maximum compliance with all requirements for product quality and organization of the production process
<b>Country risks</b>		
Dependence on one supplier, including a debtor, under the possible sanctions policy of Western countries	Probability: medium Degree of danger: medium Impact: disruption of the production cycle	Selecting alternative supply options

*Source: Global Innovation Trade analysis*



In general, we can say that the project does not have any critical risks.

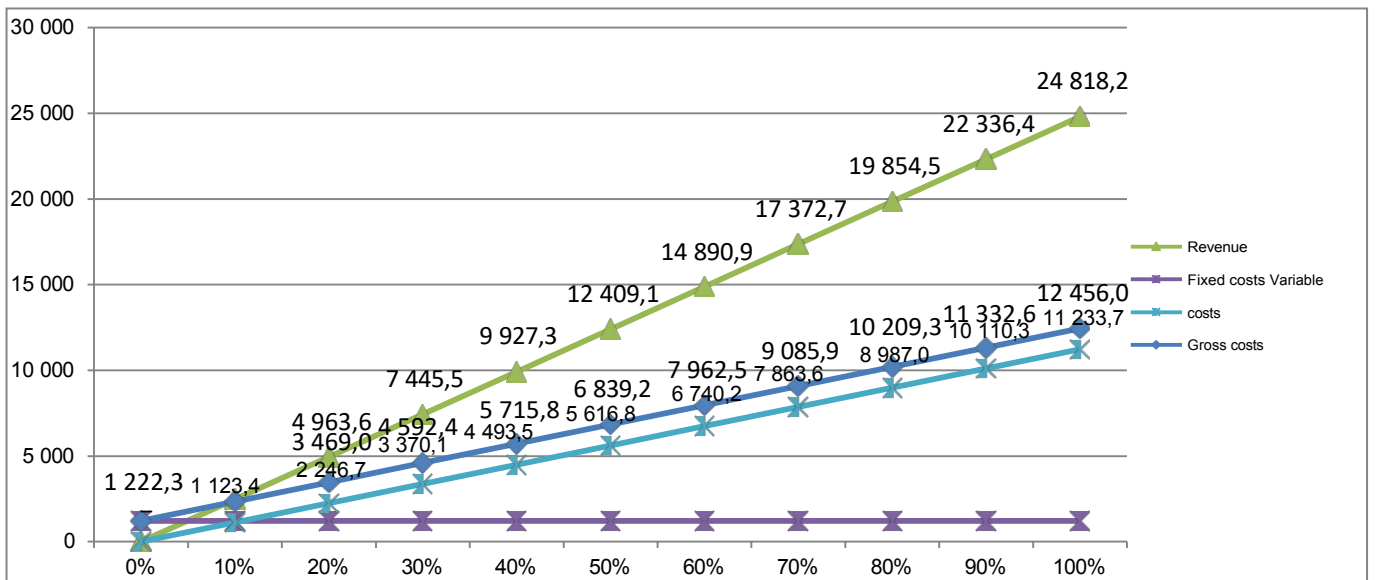
### 7.3. Breakeven point

The break-even point determines what the volume of sales should be in order for production to work break-even, to cover all its costs without making a profit. To calculate the break-even point, we have to divide the costs into two components:

1. Variable costs - increasing in proportion to the increase in production (volume of services).
2. Fixed costs - does not depend on the number of services rendered (goods sold) and whether the volume of operations is increasing or decreasing.

For this project, the break-even point graph will look as follows.

Figure 13. Break-even point chart, thousand dollars.



Source: Global Innovation Trade analysis and calculations

The break-even point is of great importance for the stability of the company and its solvency. Thus, the degree of excess of sales volumes over the break-even point determines the financial strength (margin of stability) of the company.

The formula for calculating the break-even point (BEP - cost-volume-profit / break-even point) in monetary terms:

$VER_{den} = (TR * TFC) / (TR - TVC)$ , where

TR (total revenue) - revenue (income);

TFC (total fixed cost) - fixed costs;

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TVC (total variable cost) is the variable cost.

The above chart shows that a year should produce **at least 1804.9s. dollars** to profit from sales (this is about 7% of the planned production and sales of products).

Low break-even point value indicates a significant level of solvency of the enterprise and high level of its financial reliability.





## 8. Applications

### 8.1. Cash flow statement (by month)

Cash flow	Jan.24	Feb.24	mar.24	Apr.24	May.24	Jun.24	July 24	Aug. 24	sen.24	Oct. 24	Nov.24	Dec. 24
<b>INVESTMENT CASH FLOW (ICEF)</b>	-57,0	-1 967,9	-10,1	-18,6	-358,2	-6 031,3	-356,7	-4 170,0	-451,2	-747,8	-662,3	-662,6
Buildings and structures	53,8	68,7	10,1	18,6	358,2	333,8	356,7	371,7	451,2	747,8	662,3	662,6
Machinery and equipment	0,0	1 899,2	0,0	0,0	0,0	5 697,6	0,0	3 798,4	0,0	0,0	0,0	0,0
Other investments	3,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>OPERATING CASH FLOW (UDP)</b>	-12,1	122,5	-29,0	-24,7	27,7	427,1	4,4	275,3	3,5	50,2	31,1	27,6
Income from sales of products	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Costs total	25,5	32,5	32,6	32,6	33,9	55,7	56,9	72,0	73,6	76,3	81,7	85,3
<i>Variable costs</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>
<i>Fixed costs</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>21,9</i>	<i>24,9</i>	<i>24,9</i>
Payments of interest on the loan	0,4	7,4	7,4	7,5	8,8	30,5	31,8	46,8	48,5	51,2	53,6	55,9
Accrued taxes and payments	3,2	3,2	3,2	3,2	3,2	3,2	3,2	3,2	3,2	3,2	3,2	4,4
VAT receivable (on operating per-expenses)	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,9	2,4	2,4
VAT recoverable (on investment costs)	11,6	153,2	1,7	6,1	59,7	480,8	59,4	345,4	75,2	124,6	110,4	110,4
<b>CASH FLOW (FDP)</b>	<b>69,6</b>	<b>1 967,9</b>	<b>10,1</b>	<b>36,6</b>	<b>358,2</b>	<b>6 031,3</b>	<b>356,7</b>	<b>4 170,0</b>	<b>451,2</b>	<b>747,8</b>	<b>662,3</b>	<b>662,6</b>
Payment of the body of the debt	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Own funds	12,6	997,1	5,0	27,3	179,1	3 015,7	178,3	2 085,0	225,6	373,9	331,2	331,3

**Business plan for the opening of the production of injection kits in the Kamashi district**

<i>for co-financing investments</i>	0,0	997,1	5,0	9,3	179,1	3 015,7	178,3	2 085,0	225,6	373,9	331,2	331,3
<i>to cover running costs</i>	12,6	0,0	0,0	18,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Borrowed funds</b>	57,0	970,7	5,0	9,3	179,1	3 015,7	178,3	2 085,0	225,6	373,9	331,2	331,3
<i>Investment loan</i>	57,0	970,7	5,0	9,3	179,1	3 015,7	178,3	2 085,0	225,6	373,9	331,2	331,3
<i>Revolving credit</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Net cash flow (NFC)</b>	0,5	122,5	-29,0	-6,7	27,7	427,1	4,4	275,3	3,5	50,2	31,1	27,6
<b>Cumulative NPD</b>	0,5	123,1	94,1	87,4	115,1	542,1	546,5	821,9	825,3	875,6	906,6	934,2
Cash balance at the beginning of the period	0,0	0,5	123,1	94,1	87,4	115,1	542,1	546,5	821,9	825,3	875,6	906,6
Cash balance at the end of the period	0,5	123,1	94,1	87,4	115,1	542,1	546,5	821,9	825,3	875,6	906,6	934,2
<b>Discounted NPD</b>	0,5	121,5	-28,5	-6,5	26,8	409,9	4,2	259,9	3,3	46,6	28,6	25,2
<b>Discounted NPD cumulative total</b>	0,5	122,1	93,5	87,1	113,8	523,7	527,9	787,8	791,1	837,7	866,4	891,5
<b>Debt coverage ratio (DSCR)</b>	<b>2,33</b>	<b>17,48</b>	<b>13,57</b>	<b>12,59</b>	<b>13,93</b>	<b>18,15</b>	<b>17,59</b>	<b>17,82</b>	<b>17,32</b>	<b>17,37</b>	<b>17,18</b>	<b>16,94</b>

**Business plan for the opening of the production of injection kits in the Kamashi district**

Cash flow	Jan.25	fev.25	mar.25	Apr. 25	May.25	Jun 25	July 25	Aug. 25	sen.25	Oct. 25	Nov. 25	Dec. 25
<b>INVESTMENT CASH FLOW (ICEF)</b>	-635,9	-1 667,9	-388,9	-376,3	-376,3	-520,3	-412,3	-771,5	-83,2	-15,9	0,0	0,0
Buildings and structures	635,9	401,7	388,9	376,3	376,3	376,3	412,3	418,3	83,2	7,4	0,0	0,0
Machinery and equipment	0,0	1 266,1	0,0	0,0	0,0	144,0	0,0	350,4	0,0	8,4	0,0	0,0
Other investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,8	0,0	0,0	0,0	0,0
<b>OPERATING CASH FLOW (OPF)</b>	-68,1	-18,7	158,5	161,5	220,3	241,3	228,4	289,4	229,4	223,3	245,3	241,1
Income from sales of products	0,0	0,0	537,5	537,5	645,0	645,0	645,0	645,0	752,5	752,5	860,0	860,0
Costs total	189,5	195,5	484,5	479,3	533,1	536,1	531,0	529,9	587,8	582,6	670,5	674,7
<i>Variable costs</i>	<i>0,0</i>	<i>0,0</i>	<i>274,3</i>	<i>274,3</i>	<i>329,2</i>	<i>329,2</i>	<i>329,2</i>	<i>329,2</i>	<i>384,0</i>	<i>384,0</i>	<i>465,0</i>	<i>465,0</i>
<i>Fixed costs</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>
Payments of interest on the loan	58,2	64,2	74,9	73,8	72,7	71,6	70,6	69,5	68,4	67,4	66,3	65,2
Accrued taxes and payments	9,0	9,0	13,1	9,0	9,0	13,1	9,0	9,0	13,1	9,0	16,9	22,2
VAT recoverable (on operating expenses)	15,4	15,4	40,7	40,7	45,7	45,7	45,7	45,7	50,8	50,8	55,8	55,8
VAT recoverable (on investment costs)	106,0	161,4	64,8	62,7	62,7	86,7	68,7	128,6	13,9	2,6	0,0	0,0
<b>FINANCIAL CASH FLOW (FDP)</b>	<b>635,9</b>	<b>1 667,9</b>	<b>1 518,5</b>	<b>39,8</b>	<b>39,8</b>	<b>111,8</b>	<b>57,8</b>	<b>237,4</b>	<b>-106,8</b>	<b>-140,5</b>	<b>-148,4</b>	<b>-148,4</b>
Payment of the body of the debt	0,0	0,0	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4
Own funds	317,9	833,9	194,5	188,2	188,2	260,2	206,2	385,8	41,6	7,9	0,0	0,0



**Business plan for the opening of the production of injection kits in the Kamashi district**

<i>for co-financing investments</i>	317,9	833,9	194,5	188,2	188,2	260,2	206,2	385,8	41,6	7,9	0,0	0,0
<i>to cover running costs</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Borrowed funds</b>	317,9	833,9	1 472,4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Investment loan</i>	317,9	833,9	1 472,4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Revolving credit</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Net cash flow (NFC)</b>	-68,1	-18,7	1 288,1	-175,0	-116,2	-167,2	-126,1	-244,8	39,4	66,9	96,9	92,8
<b>Cumulative NPD</b>	866,1	847,4	2 135,5	1 960,5	1 844,2	1 677,0	1 550,9	1 306,2	1 345,6	1 412,5	1 509,4	1 602,2
Cash balance at the beginning of the period	934,2	866,1	847,4	2 135,5	1 960,5	1 844,2	1 677,0	1 550,9	1 306,2	1 345,6	1 412,5	1 509,4
Cash balance at the end of the period	866,1	847,4	2 135,5	1 960,5	1 844,2	1 677,0	1 550,9	1 306,2	1 345,6	1 412,5	1 509,4	1 602,2
<b>Discounted NPD</b>	-61,7	-16,8	1 148,1	-154,7	-101,9	-145,4	-108,8	-209,4	33,4	56,3	80,9	76,8
<b>Discounted NPD cumulative total</b>	829,8	813,0	1 961,2	1 806,5	1 704,5	1 559,1	1 450,3	1 240,9	1 274,4	1 330,7	1 411,6	1 488,4
<b>Debt coverage ratio (DSCR)</b>	15,25	13,66	9,79	9,13	8,71	8,09	7,62	6,70	6,88	7,17	7,58	7,97



**Business plan for the opening of the production of injection kits in the Kamashi district**

	Jan.26	Feb.26	mar.26	Apr.26	May.26	Jun 26	July 26.	Aug 26	sen.26	Oct. 26	Nov. 26	Dec. 26
<b>INVESTMENT CASH FLOW (ICEF)</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Buildings and structures	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Machinery and equipment	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>OPERATING CASH FLOW (OPF)</b>	305,1	306,2	116,0	366,0	367,1	234,6	600,0	601,1	468,5	834,0	835,1	701,3
Income from sales of products	967,5	967,5	1075,0	1075,0	1075,0	1290,0	1505,0	1505,0	1720,0	1935,0	1935,0	2 150,0
Costs total	723,2	722,2	1024,9	774,9	773,8	1131,5	991,1	990,0	1347,7	1207,3	1206,3	1565,1
<i>Variable costs</i>	<i>519,9</i>	<i>519,9</i>	<i>574,8</i>	<i>574,8</i>	<i>574,8</i>	<i>684,5</i>	<i>794,2</i>	<i>794,2</i>	<i>903,9</i>	<i>1013,6</i>	<i>1013,6</i>	<i>1 123,4</i>
<i>Fixed costs</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>	<i>122,2</i>
Payments of interest on the loan	64,2	63,1	62,0	61,0	59,9	58,8	57,7	56,7	55,6	54,5	53,5	52,4
Accrued taxes and payments	16,9	16,9	265,9	16,9	16,9	265,9	16,9	16,9	265,9	16,9	16,9	267,1
VAT recoverable (on operating expenses)	60,9	60,9	65,9	65,9	65,9	76,0	86,1	86,1	96,2	106,3	106,3	116,4
VAT recoverable (on investment costs)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>FINANCIAL CASH FLOW (FDP)</b>	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4
Payment of the body of the debt	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4
Own funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>for co-financing investments</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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<i>to cover running costs</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Borrowed funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Investment loan</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Revolving credit</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Net cash flow (NFC)</b>	156,8	157,8	-32,4	217,7	218,7	86,2	451,6	452,7	320,2	685,6	686,7	552,9
<b>Cumulative NPD</b>	1759,0	1916,8	1884,4	2 102,1	2 320,8	2 407,0	2 858,6	3 311,4	3 631,5	4 317,1	5 003,8	5 556,8
Cash balance at the beginning of the period	1602,2	1759,0	1916,8	1884,4	2 102,1	2 320,8	2 407,0	2 858,6	3 311,4	3 631,5	4 317,1	5 003,8
Cash balance at the end of the period	1759,0	1916,8	1884,4	2 102,1	2 320,8	2 407,0	2 858,6	3 311,4	3 631,5	4 317,1	5 003,8	5 556,8
<b>Discounted NPD</b>	128,7	128,5	-26,2	174,4	173,8	67,9	353,0	350,9	246,2	522,8	519,3	414,8
<b>Discounted NPD cumulative total</b>	1 617,1	1 745,7	1 719,5	1 893,8	2 067,6	2 135,6	2 488,6	2 839,5	3 085,6	3 608,5	4 127,8	4 542,6
<b>Debt coverage ratio (DSCR)</b>	<b>8,61</b>	<b>9,25</b>	<b>9,17</b>	<b>10,05</b>	<b>10,93</b>	<b>11,31</b>	<b>13,07</b>	<b>14,85</b>	<b>16,13</b>	<b>18,78</b>	<b>21,45</b>	<b>23,63</b>

**Business plan for the opening of the production of injection kits in the Kamashi district**

Cash flow	Jan.27	fev.27	mar.27	Apr.27	May.27	Jun.27	July 27.	Aug. 27	sen.27	Oct. 27	Nov.27	Dec. 27
<b>INVESTMENT CASH FLOW (ICEF)</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Buildings and structures	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Machinery and equipment	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>OPERATING CASH FLOW (OPF)</b>	952,6	953,7	467,3	955,8	956,9	470,5	959,0	960,1	473,7	962,2	963,3	475,7
Income from sales of products	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0
Costs total	1 313,9	1 312,8	1 799,2	1 310,6	1 309,6	1 796,0	1 307,4	1 306,4	1 792,8	1 304,2	1 303,2	1 790,8
<i>Variable costs</i>	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4
<i>Fixed costs</i>	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2
Payments of interest on the loan	51,3	50,3	49,2	48,1	47,1	46,0	44,9	43,8	42,8	41,7	40,6	39,6
Accrued taxes and payments	16,9	16,9	504,4	16,9	16,9	504,4	16,9	16,9	504,4	16,9	16,9	505,6
VAT recoverable (on operating expenses)	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4
VAT recoverable (on investment costs)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>FINANCIAL CASH FLOW (FDP)</b>	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4
Payment of the body of the debt	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4
Own funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



**Business plan for the opening of the production of injection kits in the Kamashi district**

<i>for co-financing investments</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>to cover running costs</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Borrowed funds</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Investment loan</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Revolving credit</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Net cash flow (NFC)</b>	804,2	805,3	318,9	807,4	808,5	322,1	810,6	811,7	325,3	813,8	814,9	327,3
<b>Cumulative NPD</b>	6 361,0	7 166,3	7 485,2	8 292,6	9 101,1	9 423,2	10 233,8	11 045,5	11 370,8	12 184,6	12 999,5	13 326,8
Cash balance at the beginning of the period	5 556,8	6 361,0	7 166,3	7 485,2	8 292,6	9 101,1	9 423,2	10 233,8	11 045,5	11 370,8	12 184,6	12 999,5
Cash balance at the end of the period	6 361,0	7 166,3	7 485,2	8 292,6	9 101,1	9 423,2	10 233,8	11 045,5	11 370,8	12 184,6	12 999,5	13 326,8
<b>Discounted NPD</b>	598,3	594,2	233,4	586,1	582,1	230,0	574,1	570,1	226,6	562,3	558,5	222,5
<b>Discounted NPD cumulative total</b>	5 140,9	5 735,1	5 968,5	6 554,6	7 136,7	7 366,6	7 940,7	8 510,9	8 737,5	9 299,8	9 858,3	10 080,8
<b>Debt coverage ratio (DSCR)</b>	<b>26,74</b>	<b>29,87</b>	<b>31,21</b>	<b>34,36</b>	<b>37,52</b>	<b>38,90</b>	<b>42,08</b>	<b>45,28</b>	<b>46,71</b>	<b>49,93</b>	<b>53,16</b>	<b>54,64</b>

**Business plan for the opening of the production of injection kits in the Kamashi district**

Cash flow	Jan.28	fev.28	mar.28	Apr.28	May.28	Jun.28	July 28.	Aug.28	sen.28	Oct. 28	Nov.28	Dec. 28
<b>INVESTMENT CASH FLOW (ICEF)</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Buildings and structures	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Machinery and equipment	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>OPERATING CASH FLOW (UDP)</b>	965,4	966,5	472,4	968,6	969,7	475,6	971,8	972,9	478,8	975,0	976,1	480,8
Income from sales of products	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0
Costs total	1 301,0	1 300,0	1 794,0	1 297,8	1 296,7	1 790,8	1 294,6	1 293,5	1 787,6	1 291,4	1 290,3	1 785,6
<i>Variable costs</i>	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4
<i>Fixed costs</i>	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2
Payments of interest on the loan	38,5	37,4	36,4	35,3	34,2	33,2	32,1	31,0	29,9	28,9	27,8	26,7
Accrued taxes and payments	16,9	16,9	512,1	16,9	16,9	512,1	16,9	16,9	512,1	16,9	16,9	513,3
VAT receivable (on operating per-expenses)	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4
VAT recoverable (on investment costs)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>FINANCIAL CASH FLOW (FDP)</b>	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4
Payment of the body of the debt	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4
Own funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>for co-financing investments</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



**Business plan for the opening of the production of injection kits in the Kamashi district**

<i>to cover running costs</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Borrowed funds</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Investment loan</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Revolving credit</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Net cash flow (NFC)</b>	817,0	818,1	324,0	820,3	821,3	327,2	823,5	824,5	330,4	826,7	827,7	332,4
<b>Cumulative NPD</b>	14 143,9	14 962,0	15 286,0	16 106,3	16 927,6	17 254,8	18 078,3	18 902,8	19 233,2	20 059,9	20 887,6	21 220,1
Cash balance at the beginning of the period	13 326,8	14 143,9	14 962,0	15 286,0	16 106,3	16 927,6	17 254,8	18 078,3	18 902,8	19 233,2	20 059,9	20 887,6
Cash balance at the end of the period	14 143,9	14 962,0	15 286,0	16 106,3	16 927,6	17 254,8	18 078,3	18 902,8	19 233,2	20 059,9	20 887,6	21 220,1
<b>Discounted NPD</b>	550,8	547,0	214,9	539,5	535,8	211,7	528,4	524,8	208,6	517,6	514,0	204,8
<b>Discounted NPD cumulative total</b>	10 631,6	11 178,6	11 393,5	11 933,0	12 468,8	12 680,5	13 208,9	13 733,7	13 942,3	14 459,9	14 973,9	15 178,7
<b>Debt coverage ratio (DSCR)</b>	<b>57,89</b>	<b>61,16</b>	<b>62,67</b>	<b>65,97</b>	<b>69,29</b>	<b>70,85</b>	<b>74,20</b>	<b>77,56</b>	<b>79,19</b>	<b>82,58</b>	<b>85,99</b>	<b>87,68</b>

**Business plan for the opening of the production of injection kits in the Kamashi district**

Cash flow	Jan.29	fev.29	mar.29	Apr.29	May.29	June 29	July 29.	Aug. 29	sen.29	Oct. 29	Nov. 29	Dec. 29
<b>INVESTMENT CASH FLOW (ICEF)</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Buildings and structures	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Machinery and equipment	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>OPERATING CASH FLOW (UDP)</b>	978,3	979,3	436,4	981,5	982,5	439,6	984,7	985,7	442,8	987,9	988,9	444,8
Income from sales of products	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0
Costs total	1 288,2	1 287,1	1 830,1	1 285,0	1 283,9	1 826,9	1 281,8	1 280,7	1 823,6	1 278,6	1 277,5	1 821,6
<i>Variable costs</i>	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4
<i>Fixed costs</i>	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2
Payments of interest on the loan	25,7	24,6	23,5	22,5	21,4	20,3	19,2	18,2	17,1	16,0	15,0	13,9
Accrued taxes and payments	16,9	16,9	560,9	16,9	16,9	560,9	16,9	16,9	560,9	16,9	16,9	562,1
VAT receivable (on operating per-expenses)	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4
VAT recoverable (on investment costs)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>FINANCIAL CASH FLOW (FDP)</b>	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4
Payment of the body of the debt	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4
Own funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>for co-financing investments</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>to cover running costs</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



**Business plan for the opening of the production of injection kits in the Kamashi district**

Borrowed funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Investment loan</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>
<i>Revolving credit</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>
<b>Net cash flow (NFC)</b>	<b>829,9</b>	<b>830,9</b>	<b>288,0</b>	<b>833,1</b>	<b>834,2</b>	<b>291,2</b>	<b>836,3</b>	<b>837,4</b>	<b>294,4</b>	<b>839,5</b>	<b>840,6</b>	<b>296,4</b>
<b>Cumulative NPD</b>	<b>22 050,0</b>	<b>22 880,9</b>	<b>23 168,9</b>	<b>24 002,0</b>	<b>24 836,1</b>	<b>25 127,4</b>	<b>25 963,7</b>	<b>26 801,0</b>	<b>27 095,4</b>	<b>27 934,9</b>	<b>28 775,5</b>	<b>29 071,9</b>
Cash balance at the beginning of the period	21 220,1	22 050,0	22 880,9	23 168,9	24 002,0	24 836,1	25 127,4	25 963,7	26 801,0	27 095,4	27 934,9	28 775,5
Cash balance at the end of the period	22 050,0	22 880,9	23 168,9	24 002,0	24 836,1	25 127,4	25 963,7	26 801,0	27 095,4	27 934,9	28 775,5	29 071,9
<b>Discounted NPD</b>	<b>506,9</b>	<b>503,4</b>	<b>173,1</b>	<b>496,5</b>	<b>493,1</b>	<b>170,7</b>	<b>486,3</b>	<b>482,9</b>	<b>168,4</b>	<b>476,3</b>	<b>473,0</b>	<b>165,4</b>
<b>Discounted NPD cumulative summary</b>	<b>15 685,6</b>	<b>16 189,0</b>	<b>16 362,1</b>	<b>16 858,6</b>	<b>17 351,7</b>	<b>17 522,4</b>	<b>18 008,7</b>	<b>18 491,6</b>	<b>18 660,0</b>	<b>19 136,3</b>	<b>19 609,3</b>	<b>19 774,7</b>
<b>Debt coverage ratio (DSCR)</b>	<b>91,13</b>	<b>94,59</b>	<b>96,18</b>	<b>99,68</b>	<b>103,21</b>	<b>104,87</b>	<b>108,43</b>	<b>112,02</b>	<b>113,76</b>	<b>117,39</b>	<b>121,05</b>	<b>122,86</b>



**Business plan for the opening of the production of injection kits in the Kamashi district**

Cash flow	Jan.30	fev.30	mar.30	Apr. 30	May.30	Jun 30	July 30	Aug 30	sen.30	Oct. 30	Nov. 30	Dec. 30
<b>INVESTMENT CASH FLOW (ICEF)</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Buildings and structures	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Machinery and equipment	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other investments	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>OPERATING CASH FLOW (OPF)</b>	991,1	992,2	953,9	994,3	995,4	957,1	997,5	998,6	960,3	1 000,7	1 001,8	962,4
Income from sales of products	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0	2 150,0
Costs total	1 275,4	1 274,3	1 312,5	1 272,1	1 271,1	1 309,3	1 268,9	1 267,9	1 306,1	1 265,7	1 264,7	1 304,1
<i>Variable costs</i>	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4	1 123,4
<i>Fixed costs</i>	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2	122,2
Payments of interest on the loan	12,8	11,8	10,7	9,6	8,6	7,5	6,4	5,3	4,3	3,2	2,1	1,1
Accrued taxes and payments	16,9	16,9	56,2	16,9	16,9	56,2	16,9	16,9	56,2	16,9	16,9	57,4
VAT recoverable (on operating expenses)	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4	116,4
VAT recoverable (on investment costs)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>FINANCIAL CASH FLOW (FDP)</b>	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4	-148,4
Payment of the body of the debt	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4	148,4



**Business plan for the opening of the production of injection kits in the Kamashi district**

Own funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>for co-financing investments</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>to cover running costs</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Borrowed funds	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Investment loan</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<i>Revolving credit</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>Net cash flow (NFC)</b>	<b>842,7</b>	<b>843,8</b>	<b>805,6</b>	<b>845,9</b>	<b>847,0</b>	<b>808,8</b>	<b>849,1</b>	<b>850,2</b>	<b>812,0</b>	<b>852,3</b>	<b>853,4</b>	<b>814,0</b>
<b>Cumulative NPD</b>	<b>29 914,6</b>	<b>30 758,4</b>	<b>31 564,0</b>	<b>32 409,9</b>	<b>33 256,9</b>	<b>34 065,6</b>	<b>34 914,8</b>	<b>35 765,0</b>	<b>36 576,9</b>	<b>37 429,3</b>	<b>38 282,7</b>	<b>39 096,6</b>
Cash balance at the beginning of the period	29 071,9	29 914,6	30 758,4	31 564,0	32 409,9	33 256,9	34 065,6	34 914,8	35 765,0	36 576,9	37 429,3	38 282,7
Cash balance at the end of the period	29 914,6	30 758,4	31 564,0	32 409,9	33 256,9	34 065,6	34 914,8	35 765,0	36 576,9	37 429,3	38 282,7	39 096,6
<b>Discounted NPD</b>	<b>466,5</b>	<b>463,2</b>	<b>438,6</b>	<b>456,8</b>	<b>453,7</b>	<b>429,6</b>	<b>447,4</b>	<b>444,3</b>	<b>420,9</b>	<b>438,2</b>	<b>435,1</b>	<b>411,6</b>
<b>Discounted NPD cumulative total</b>	<b>20 241,2</b>	<b>20 704,4</b>	<b>21 143,0</b>	<b>21 599,8</b>	<b>22 053,5</b>	<b>22 483,2</b>	<b>22 930,6</b>	<b>23 374,8</b>	<b>23 795,7</b>	<b>24 233,9</b>	<b>24 669,0</b>	<b>25 080,6</b>
<b>Debt coverage ratio (DSCR)</b>	<b>126,56</b>	<b>130,29</b>	<b>133,92</b>	<b>137,71</b>	<b>141,53</b>	<b>145,25</b>	<b>149,14</b>	<b>153,06</b>	<b>156,88</b>	<b>160,87</b>	<b>164,90</b>	<b>168,82</b>



GLOBAL INNOVATION TRADE

## ABOUT THE PROJECT EXECUTOR

This project was performed by GLOBAL INNOVATION TRADE research agency. All our specialists have impressive experience in developing research and business plans, supported by deep knowledge in various spheres of economics and business, the availability of a powerful information base.

### FOR ALL QUESTIONS:

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