Ministry of Investment,
industry and trade
of the Republic of Uzbekistan

Investment proposal:
Production of vaccines and blood fractions

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Production of vaccines and blood fractions

Economic impact:

- Job Creation: 600+ new jobs (engineers, technicians, operators, lab technicians, managers, logistics, and security personnel).
- The project will contribute to the local budget through taxes and the development of related infrastructure.
- The project will significantly reduce the import of essential.
- Potential to export high-quality products to Central Asian and other neighboring markets.

Social impact:

- Production of Production of vaccines and blood fractions will help high-quality and cheap vaccination of the local population, ensuring national health security through donor plasma.
- Training and upskilling of local personnel in advanced pharmaceutical manufacturing processes and technologies..

Location of the project

Andijan region	
Size	4 300 km²
Population	3,5 million

Project description:

1. Ensuring health security - reducing imports by sustainably providing the population with vaccines and blood fractions.

2. Creating a local production base - introducing advanced biotechnologies in Uzbekistan and developing the pharmaceutical industry.

3. Increasing export potential - supplying high-value-added biomedical products to the markets of Central Asia, the CIS, and the Middle East.

Economic indicators:

Financing: 130 mln USD

Area: 6 hectares

Revenue: $182 million/year

ROI: 58%

NPV: ~ $408 million

IRR: ~62,9%

Production indicators:

Production capacity:
Vaccines (mRNA/recombinant, fill-finish line) - 50 million doses;

Blood fractions (200,000 liters of plasma/year) - immunoglobulin 800 kg/year, albumin: 4,000 kg/year.

Technology: modern, energy-efficient, environmentally friendly technologies compliant with international GMP standards.

Export share: planned at 20-25% of total production capacity.

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Vitamin production process & product yield

Key production stages

1. Raw material preparation
- Separation of plasma from donor blood (through blood centers)
- Obtaining biotechnological components (API, lipids, enzymes, etc.) necessary for the vaccine
- Preparation of excipients (stabilizer, buffer, excipient).

2. Fermentation and biosynthesis
- Augmentation of vaccine strains or recombinant proteins in bioreactors
- Separation of plasma for blood fractions by cryoprecipitation, ethanol fractionation or chromatography.

3. Purification
- Purification of proteins by filtration, ultrafiltration and chromatography processes
- Virus inactivation and sterilization processes.

4. Formulation
- Mixing purified API or fractions with stabilizers and excipients
- Determination of the dose amount for the vaccine.

5. Quality testing & packaging
- Automatic filling into sterile ampoules, vials or syringesLabelding and packaging.
- Product testing for biological activity, sterility and safety
- Certification according to WHO GMP and ISO standards

Product yield breakdown

(output from 1 year full production capacity)

Product	Yield	Purity	Final product form	Next process
Vaccines	50 mln doses	>99.5% (sterile)	Liquid vials, prefilled syringes	National immunization, export
Immunoglobulin (IVIG)	~800 kg	>99.0%	Liquid / lyophilized vials	Hospitals, therapeutic use
Albumin	~4,000 kg	>98.5%	Solution (5%, 20%) in bottles	Clinics, emergency medicine
Fibrinogen & others	~200–300 kg	>98.0%	Powder / solution	Hemophilia, coagulation therapy
By-products	Plasma proteins, solvents	-	Biomass, ethanol, buffers	Recycled or sold to third parties
Process losses	~1–2%	-	-	-

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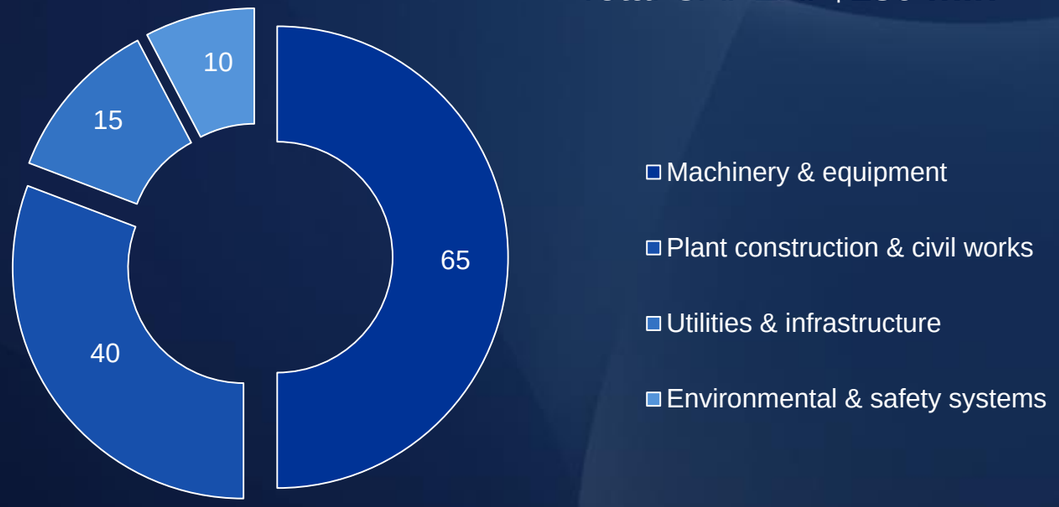
Project expenses

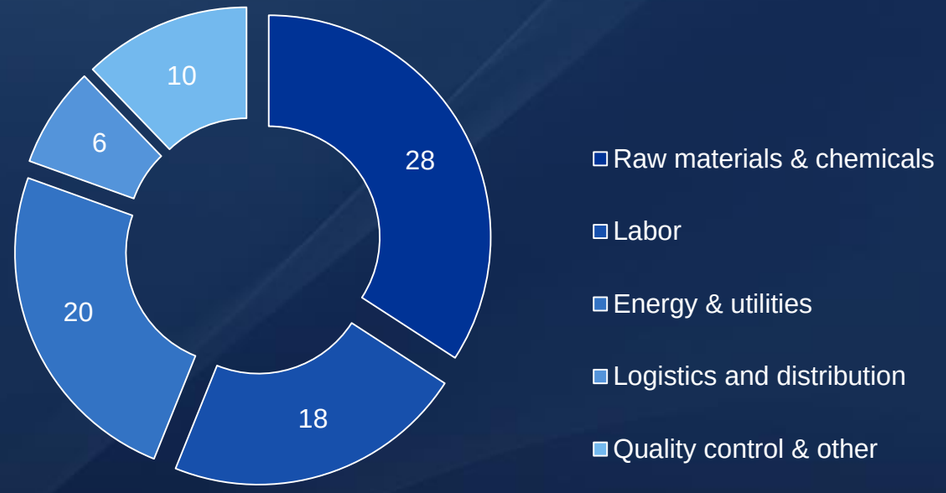
Initial Investment (CAPEX) *(mln dollar)*

Total CAPEX: **$130 mln**



Operating Costs (OPEX) *(mln dollar)*

Total OPEX: **$82 mln**



This financial overview outlines a comprehensive cost structure and strong profitability of the proposed vitamin production project.
The breakdown includes both initial capital investment (CAPEX) and annual operating costs (OPEX), alongside projected revenue and profit estimates.

Revenue stream	**Volume**	**Avg. price**	**Annual revenue** (million USD)
Vaccines	50 million doses	$2 / dose	$100
Immunoglobulin	800 kg	$50 / g	$40
Albumin	4,000 kg	$8 / g	$32
Fibrinogen & other plasma-derived products	500 kg (est.)	$20 / g	$10
TOTAL			**$182**

Annual EBITDA:
= $182 mln - $82 mln
= **$100mln**

The project demonstrates high profitability, strong market demand, and a diversified product base, positioning it as a highly attractive investment opportunity.

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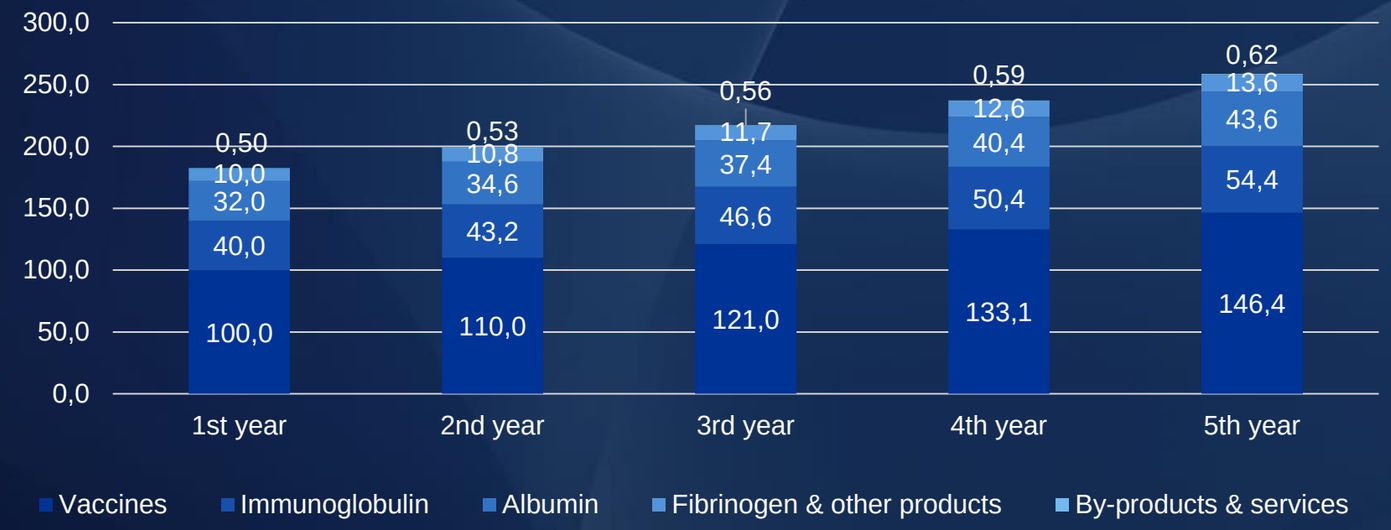
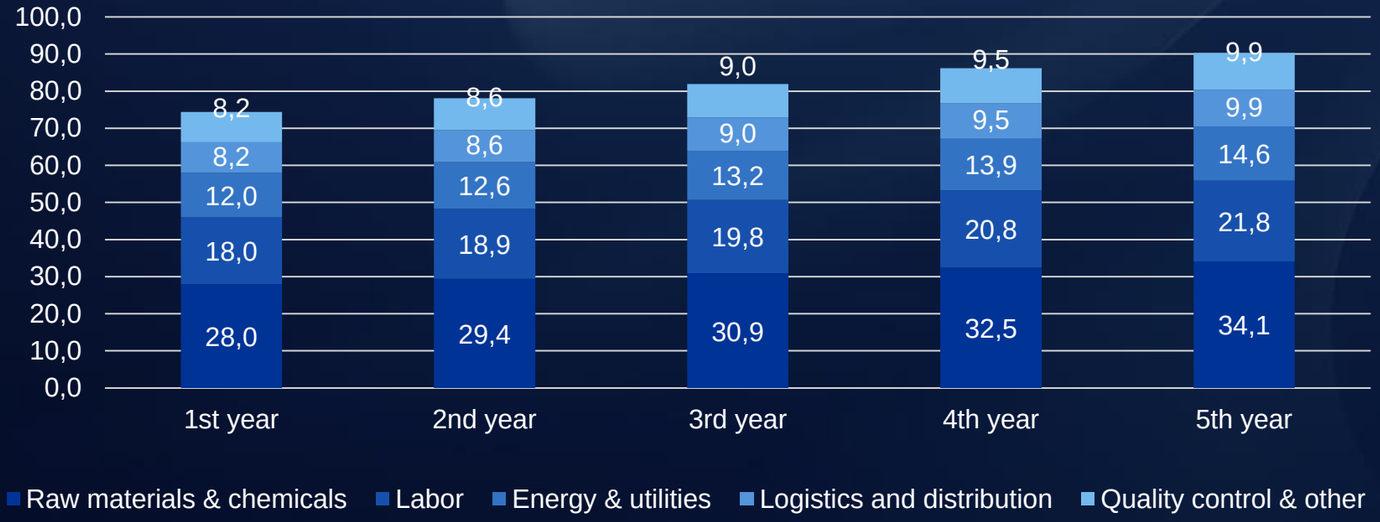
Financial indicators
(5-year projection)

Revenues *(mln dollars)*



Operating expenses *(mln dollars)*



Breakeven: achieved in year 1.

Total 5-year revenue:
$1,006M after full CAPEX recovery in 5 years.

EBITDA growth:
5,1% CAGR, reaching $122 mln by year 5.

NPV (10% discount rate):
= **$408 million** *(highly favorable!)*

IRR (Internal rate of return): **≈ 62,9%**

Payback period (PP):
= **3-4 years**

Profitability index (PI):
=(NPV+CAPEX)/CAPEX=
($408 mln+$130 mln)/$130 mln= **4,13**