THE PROJECT OF INNOVATION-BASED BIOPOLYMER PRODUCTION FACTORY

Project business idea is to create integral complex of biopolymer production with controlled biodegradation period based on innovative technology, with distribution of the final products in Ukraine, Europe and East states.

Annual biopolymer production capacity: up to 30 thd. tons.

Investment plan provides attraction of $17 891 908 investment capital in total amount for creation of the factory.

Forecasted project period is 6 years.

Forecasted financial parameters of investment project make it possible to expect profitability (IRR-based) on the level of at least 87,8%.

Key Investment Parameters

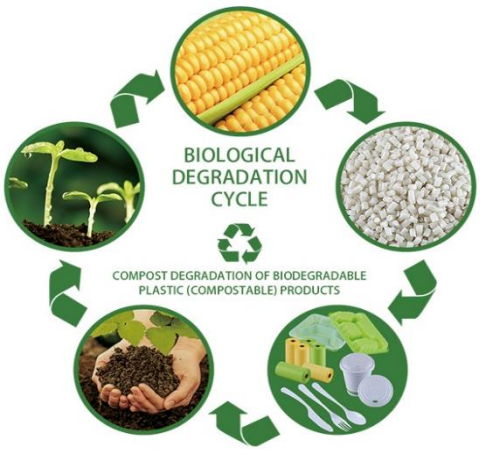
Investment period	**2021 F**
Forecasted period	**6 years**
Time required to put the factory in operation	12 months
Beginning of sales of main products	**January, 2022 F**
Amount of Investment	$17 891 908
Discount payback period (DPP)	**2 years 8 months**
Internal rate of return (IRR)	**87,8 %**

Project Essence

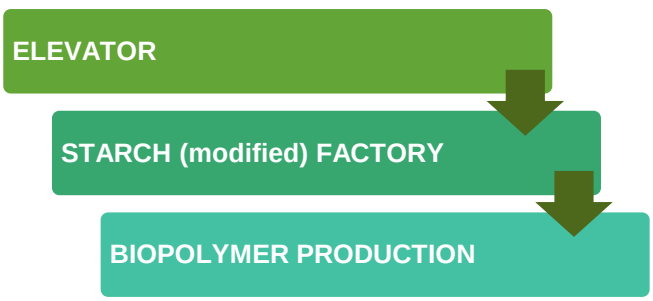
Project Objective: to produce biopolymer with controlled biodegradation period on the basis of production complex to be created according to the project; to get the product with better properties and for the lower price.

Project concept is based on industrial corn processing and production of 100% degradable biopolymer with use of unique triple nano polymerization technology enabling to receive biocompound (or bioplastic) with high physical and mechanical properties.

Biopolymer is a plastic which dissolves in natural environment, provided that biopolymer biodegradation period depends on starch copolymerization level.



Main Structural Elements

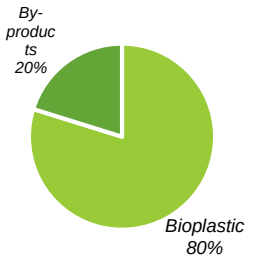


Production and Sales Parameters (for the period of forecast – 6 years)

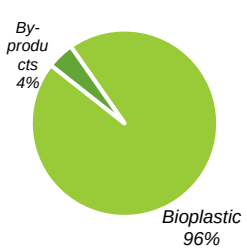
Production, tons	PRODUCTS	Total revenues, $
136 767	BIOPLASTIC	**$287 034 437**
6 221	Gluten	**$3 732 458**
2 759	Corn germ oil	**$4 138 333**
26 103	Fodder	**$3 915 500**

SALES STRUCTURE

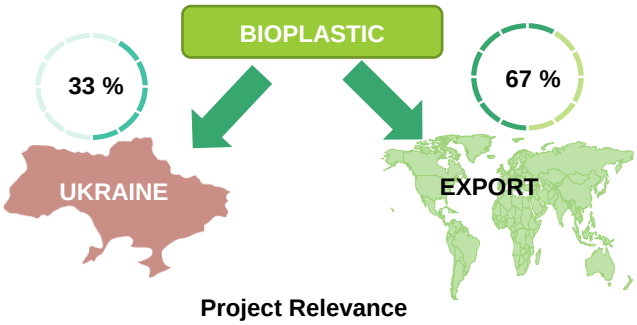
IN UNIT SALES



IN MONEY TERMS



Distribution Channels



Project Relevance

Polymer waste is one of the main problems of the XXIst century.

Each Ukrainian uses about 500 plastic packs annually.

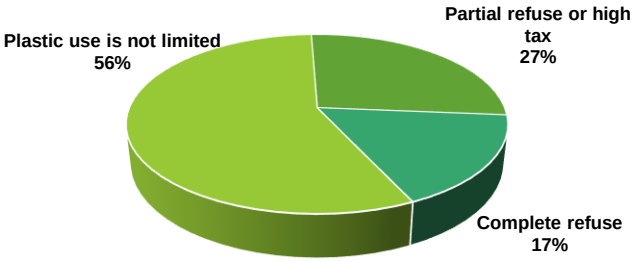
Plastic pack…

IS USED	DEGRADES
12 minutes	Up to 200 years or… **105 120 000 minutes**

Up to 11 mln. tons of household wastes are created in the country each year, and 30% of them are different polymers. In line with that, only slightly more than 1% of plastic is ever recycled.

At the end of 2019 the Law on limitation of plastic pack circulation on the territory of Ukraine No. 2051-1 dd. 18.09.2019 was adopted in the first reading in Ukraine – it is the first step to limit the scope of oil-based plastic utilization on the territory of our country.

Nevertheless, in actual situation complete refuse from plastic is not possible in practice. Only about 44% of 197 states of the world adopted limitations for plastic use:



The only alternative for oil-derived plastic is to use biopolymers enabling manufacture of products with similar physical and chemical properties which decompose in natural environment into carbon dioxide, water, and mineralized salt, within much shorter period.

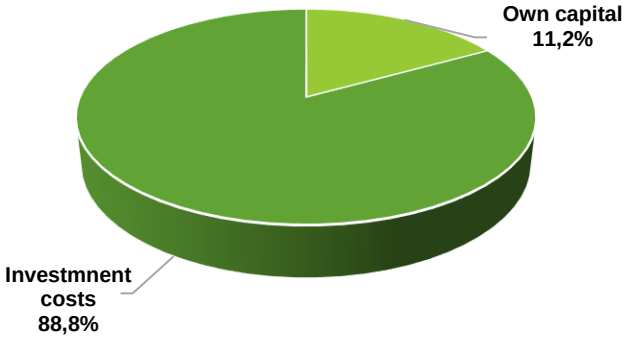
So, project implementation forms the new plastic handling concept in Ukraine: **INSTEAD OF PROHIBITION** of use of plastic which became a part of everyday life, its replacement with ***BIOPLASTIC***, the innovative, environmentally friendly type of material for production of main part of "plastic" products.

Project Investment Directions

Investment Directions	Amount
Land lot, premises and facilities (taking in consideration repairs and design works)	***$2 648 148***
Equipment for starch production	***$7 612 967****
Equipment for starch modification	***$756 480***
Equipment for polymerization	***$757 000***
Elevator equipment	***$1 569 574***
Know-how (polymerization technology)	***$2 000 000***
Other equipment	***$384 830***
Other investment costs	***$575 900***
Replenishment of capital in circulation	***$1 587 010***
TOTAL	**$17 891 908**

Project Financing Structure**

Total amount of necessary investment costs is $17,9 mln. (11,2% of own capital (in form of know-how) and 88,8% of investment costs); it will be used for land lot purchase, construction and repairs of necessary facilities, equipment purchase and installation, replenishment of capital in circulation and implementation of know-how in area of production of bioplastic, environmentally safe product.



***final legal structure of the enterprise and distribution of profit to be discussed in future and agreed during negotiations with investor, taking in consideration participation of each party in project implementation.*

Project Financial Efficiency Parameters
(for the period of forecast – 6 years)

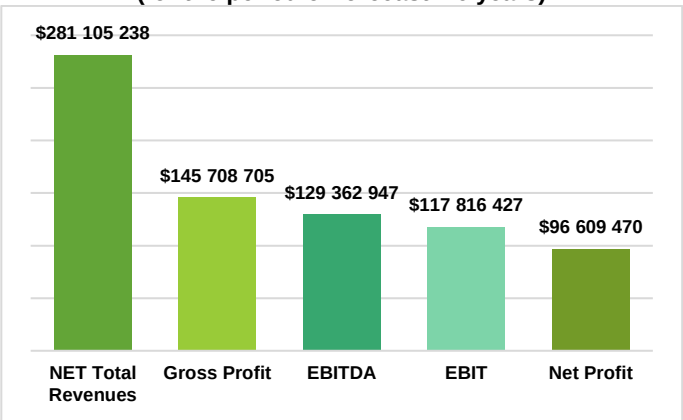
52 %	46 %	42 %	34 %
Gross Profit Margin (%)	**EBITDA Margin (%)**	**Ordinary Income Margin (%)**	**Return on Sales (%)**

Project Profitability Parameters

The project is profitable and efficient for implementation – it is evidenced not only by profitability and efficiency rates, but also by the parameters of attractiveness for investments.

Aggregate gross revenue during the period of creation and production is planned on the level of **$298 820 729,** and amount of capitalized net profit is **$96 609 470.**

Financial Results
(for the period of forecast – 6 years)



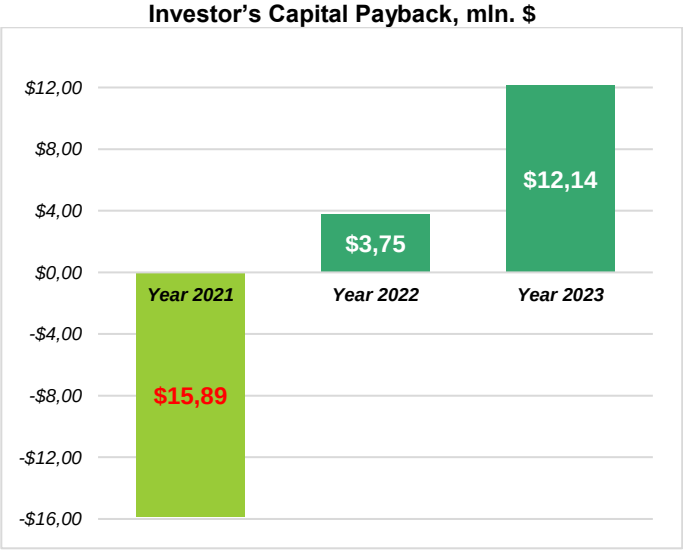
Assessment of Attractiveness for Investments

Discount rate in the project is 18%. The following parameters of project attractiveness for investments are achieved with such discount rate:

Parameter	Value
Project period, months	**72**
Payback period from the beginning of production, months	**18**
Discount payback period from the beginning of production, months	**20**
PP, Payback period, months	**30**
DPP, Discount payback period, months	**32**
NPV, Net present project value, USD	**$42 528 813**
IRR, Internal rate of return, %	**87,8%**
PI, Profitability index, points	**3,61**
ROS, Return on sales, %	**34,4%**
ROI, Return on investment, %	**540%**

Project efficiency parameters demonstrate the intrinsic "reserve of financial strength" of the project that guarantees return of investment capital in full amount, in time due, and receipt of high level of profit from implementation of this investment project.

Investor's Capital Payback, mln. $



**current calculation based on latest starch equipment proposals and could be corrected within engineering project*