



KAZAKİSTAN CUMHURİYETİ
ANKARA BÜYÜKELÇİLİĞİ

Agroindustrial sector



Agro-Industrial Complex

Mixed crop-livestock cattle farming complex

About the Project

Construction and establishment of a cattle breeding farming complex.

Objectives & Scope:

Creating a sustainable, developing bovine breeding and fattening enterprise, for further slaughter, processing and sale.

Grain cultivation will diversify cattle feed supply and the Project itself, resulting in a sustainable enterprise.

Project location:

Karasu village Amangeldy district Kostanay oblast

Principal products:

beef, wheat, barley, oats, hay

Project's peak capacity:

up to 100 000 heads of breeding livestock by 2030

Prerequisites for implementation of the Project

Rising global demand for beef - OECD forecasts indicate an increase in total global consumption of beef. Compound annual growth rate for 2019-2023 is projected to be at around 1.14%.

Price differential with neighboring countries -

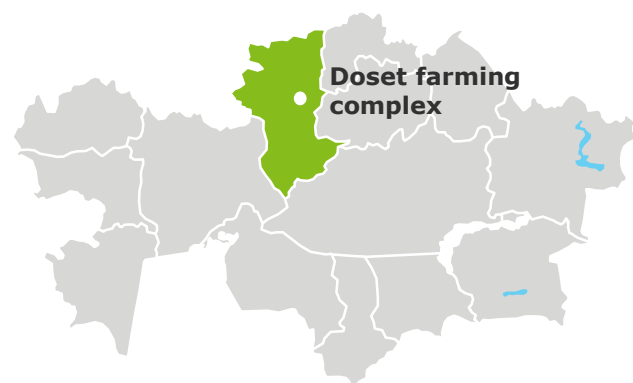
The average price of beef Russian Federation's bordering regions, are 11% higher than in Kazakhstan. The average price in Chinese markets amounted to \$ 10.56 per kg, which is more than double of average price of beef in Kazakhstan.

Increasing export volumes – Kazakhstan's beef export volumes are growing continuously in recent years. The volume of exported Kazakhstani beef increased almost 7 times compared to 2017, mostly due to the start of large shipments to Uzbekistan. More than 10% of all exports are also sent to Russia. In 2017, Kazakhstan first exported beef to the UAE.

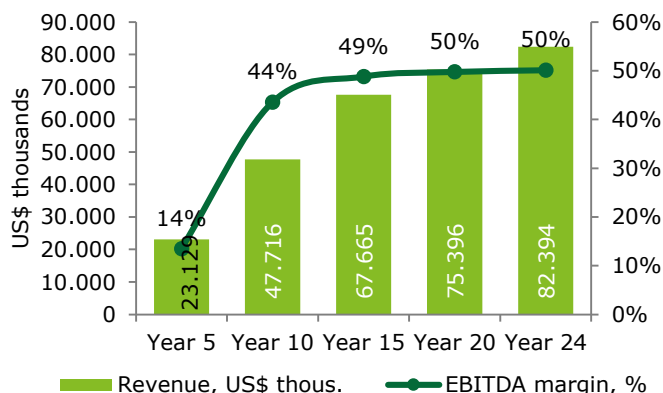
Investment attractiveness of the Project

Indicator	Results
Investment amount, US\$ thous.	22,804
Project NPV, US\$ thous.	67,542
IRR, %	19.8%
EBITDA yield, %	44%
Payback period, years	9.8
Discounted payback period, years	13.0

Project Location: Kostanay oblast



Project Profitability



Buildings and structures for the Project

Item	Quantity	Length	Width	Area, m2
Calf barn	10	130	24	~ 3,120
Cow barn	40	130	30	~ 3,900
Hangar for equipment	1	100	24	~ 2,400
Grain warehouses	1	100	24	~ 2,400
Laboratory	1	24	24	~576
Slaughterhouse use	1	100	24	~2,400
Cattle feedlot	1	-	-	~1,500
Total	55			~196,476

Organization of a comprehensive cattle breeding farm to expand the production of canned meat

Project overview:

Organization of a comprehensive cattle breeding farm (fattening and slaughter) in order to expand the existing production of canned meat.

Project goals:

- Increased workload of the meat processing complex Kublei LLP;
- Creation of a full-cycle production of meat products: from fattening and slaughter of cattle to the production of freshly frozen and chilled meat, canned food and products derived from offal.

Project Initiator: Kublei LLP is one of the largest processing enterprises in Kazakhstan, engaged in the production of freshly chilled meat: horse meat, beef, lamb, as well as the production of canned products.

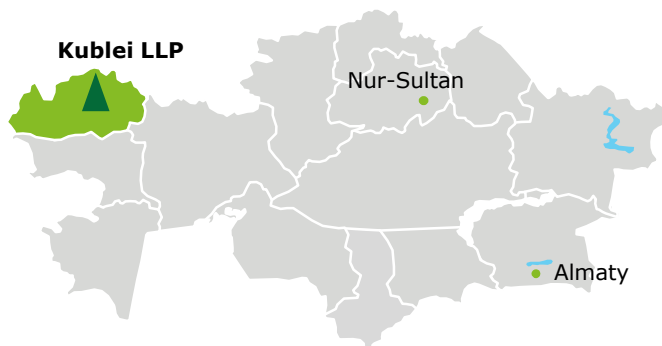
Commercial products: Beef and offal sent for further processing to the meat processing complex of Kublei LLP.

Key investment indicators

Indicator	Results
Investment, USD thousands	7,474
Project NPV, USD thousands	15,731
IRR, %	35.6%
EBITDA returns, %	40%
Payback period	4.9
Discounted payback period	5.7

Project location:

Uralsk, West Kazakhstan Oblast, Kazakhstan



Project market assumptions:

Growing demand for canned meat in Kazakhstan. According to the statistics committee of the Republic of Kazakhstan, the consumption of finished and canned meat products in 2018 amounted to 112.3 thousand tonnes in Kazakhstan.

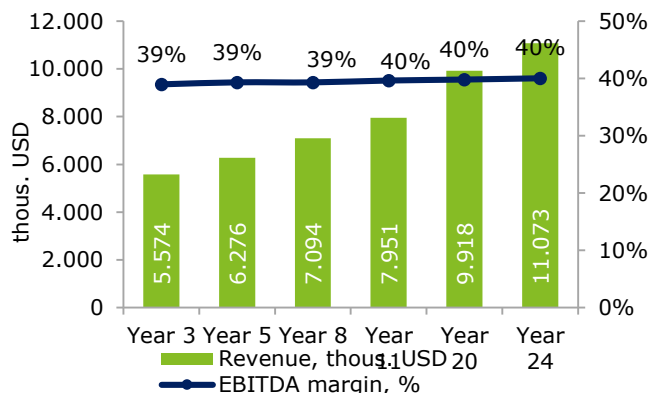
Growth of demand for beef. According to forecasts by the OECD and UN FAO, there will be an increase in the overall level of beef consumption in the world.

Import substitution. The volume of imports of canned meat from lamb and horse meat in 2018 amounted to 636 tonnes, which is higher by 148% compared to the previous year, which may indicate an increasing import dependence of the country.

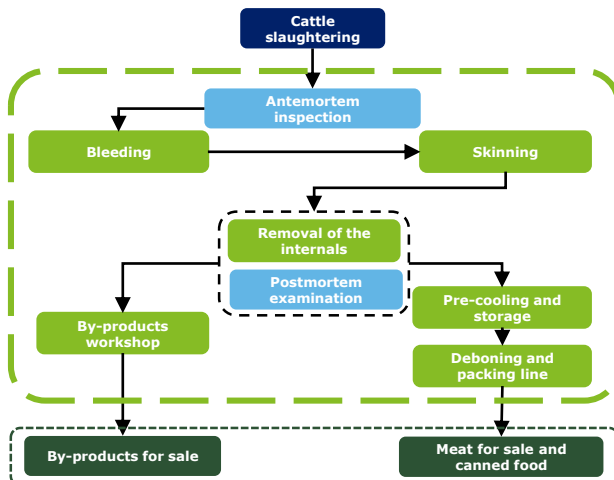
Export development. The volume of canned meat export from lamb and horse meat in 2018 amounted to 212 tonnes, which is 135.5% higher than the previous year.

Own raw material base. According to the statistics committee of the Republic of Kazakhstan, in 2017, the share of livestock in the West Kazakhstan Oblast of the republican indicator was equal to 6.35%.

Project profitability



Cattle slaughtering process



Organization of an integrated farm for the breeding of small cattle (sheep)

Project description:

Organization of an integrated farm for the breeding of small cattle: fattening and slaughter of small cattle with the subsequent sale of sheep carcasses. The parallel cultivation of grain will ensure the diversification of the business and the feed base of the farm, which in general will enhance the sustainability of the enterprise.

Project implementation location:

Karasu village, Amangeldy district of Kostanay region of Kazakhstan

Project initiator:

Dosset Farm LLP

Maximum project capacity:

Livestock keeping of 400,000 heads of small cattle

Commercial products:

Lamb carcass weighing up to 36 kg

Production process:

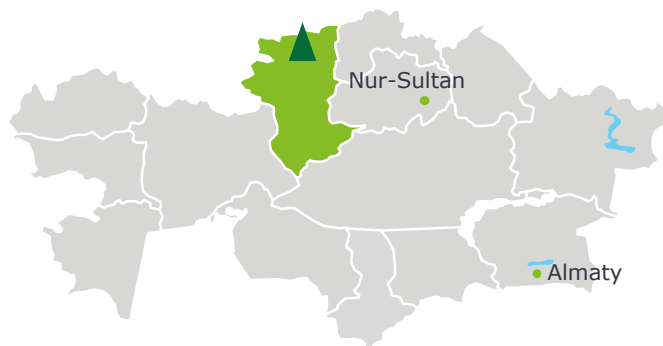
- Fattening of small cattle ~300,000 heads per year
- Meat production ~11,000 tonnes per year

Investment attractiveness of the Project

Indicator	Results
Investment amount, US\$000	20,000
Project NPV, US\$ thousands	86,575
IRR, %	25.0%
EBITDA yield, %	40%
Payback period, years	7.8
Discounted payback period, years	9.4

Project Location:

Kostanay Oblast



Prerequisites for implementation of the Project:

Rising global demand for lamb. According to forecasts, the world will see an increase in the overall level of mutton consumption. The average annual growth rate (CAGR) during 2019-2023 will be 2.12%.

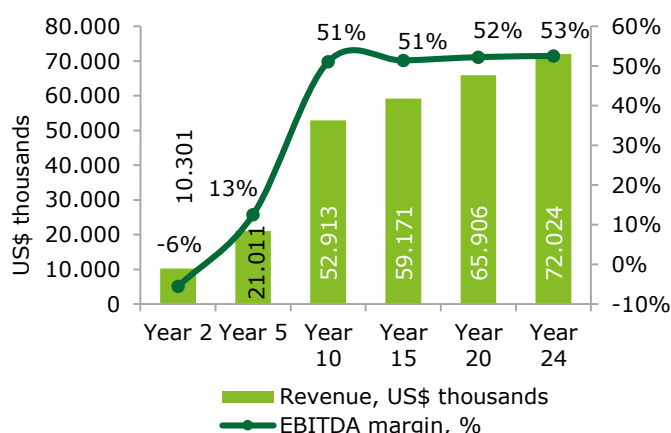
Price differential with neighboring countries.

The average price for lamb in the regions of Russia bordering Kazakhstan is higher than Central Kazakhstan by 21%. The average price in the Chinese market (US \$ 8.5/kg) is more than 2 times higher than the average price for mutton in the RK.

Development of export supplies to foreign countries.

The volume of mutton exports from Kazakhstan are growing at a fast pace in recent years. The volume of exported lamb increased by almost seven times compared to 2017. This growth is due to the start of large deliveries to Iran, which has become the main buyer of Kazakhstan lamb. More than 10% of the total volume of exports are also sent to the Russian Federation. In 2018, lamb producers made the first shipment of lamb to China

Project Profitability



Land plots

Soil Type / Purpose	Area, ha		
	Current	Drawn up for rent	Total
Arable land	4,000		4,000
Pastures	40,000	150,000	190,000
Hayfields	2,000	50,000	52,000
Construction bases	178		178
Total	46,178	200,000	246,178

Small cattle mixed farming in Aktobe region

Description of the project:

Organization of a cattle breeding farm: fattening and slaughtering of small cattle with subsequent sale of sheep products.

Aims of the project:

Creation of a steadily developing enterprise for the breeding of small cattle, which, as a matter of priority, develops the production of lamb with further development and deepening of processing. Providing the farm with its own feed base will allow supporting the production process regardless of price fluctuations in the feed market and, in general, will increase the sustainability of the enterprise.

Initiator: SalurbeyGroup LLP

Maximum capacity: 90,000 heads of breeding stock

Output: lamb, milk, skin, wool. It is planned to build a cannery, a workshop for the production of meat and bone meal and fat.

Prerequisites for implementation of the Project

Growing global demand for lamb. According to forecasts by the OECD and the UN FAO, there will be an increase in the global level of consumption of mutton. The average annual growth rate in 2019-2023. will be 2.12%.

Price differential with neighboring countries.

The average price of mutton in the regions of the Russian Federation bordering with the Republic of Kazakhstan is 21% higher than the average Kazakhstan prices. The average price in the PRC market (8.5 USD / kg) exceeds the average price of mutton in the Kazakhstan by more than 2 times.

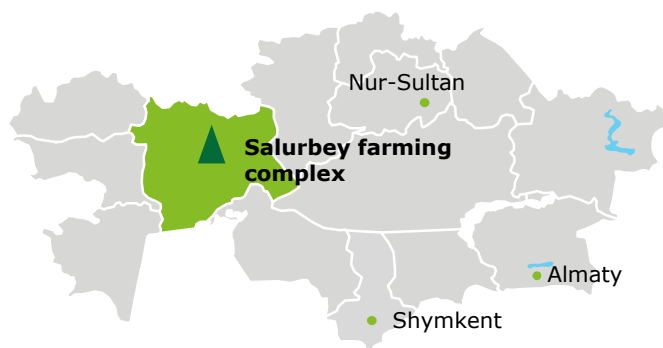
Development of export to foreign countries.

Volumes of mutton export from Kazakhstan have been growing at a dynamic pace in recent years (7 times since 2017). This is due to the beginning of large deliveries to Iran, which is the main buyer of mutton from Kazakhstan. Over 10% of all exports go to the Russian Federation. In 2018, lamb producers made their first shipment to China.

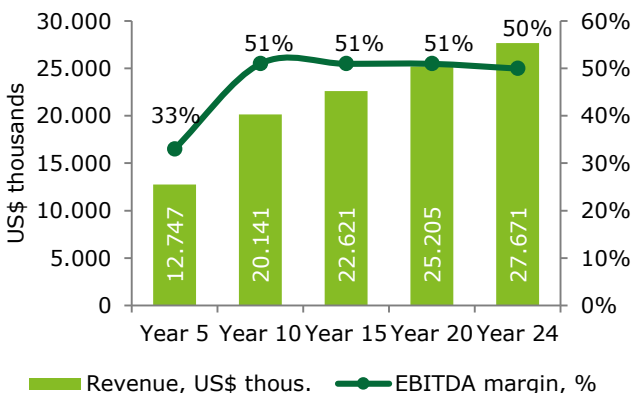
Investment attractiveness of the Project

Indicator	Results
Investment amount, US\$ thous.	33 009
Project NPV, US\$ thous.	22 161
IRR, %	14,72%
EBITDA yield, %	45,98%
Payback period, years	9,69
Discounted payback period, years	15,5

Project Location: Aktobe region



Project Profitability



Breed

- Merino breed - a breed of fine-fleece sheep that are bred to produce high-quality wool and meat.
- Romanovskaya breed - coarse breed of sheep of "fur coat" direction.

Stead

Title	Area, ha
Farming complex area	100
herbs	4 950
Cereal	4 950
Total	10 000

Project description:

Construction of an integrated agro-industrial complex consisting of a potato starch production plant and a cattle fattening site for slaughter.

Planned production capacity:

- Main: potato starch - up to 14 tonnes a year;
- Secondary: beef; potato juice, potato squash, cow subproducts.

Location:

Pavlodar oblast, Pavlodar region, Kenesskiy rural district, Novoyamishhevo village.

Project initiator:

«Kereku Agro» LLP

Key investment indicators

Indicator	Results
Investment amount, US\$ thous.	44,948
Project NPV, US\$ thous.	30,760
IRR, %	28.7
EBITDA margin, %	30-38%
Payback period, years	5.1
Discounted payback period, years	7.1

Key facilities of the Complex:

Irrigation system

Creating an irrigation array with an area of 6000 hectares for growing additional raw materials and fodder crops (cultivation and processing - through the Initiator)

Starch plant

Production of potato starch with a capacity of 15,000 potatoes per hour and more than 2,000 starch per hour.

Cattle fattening site

The one-time capacity of the site is designed for 5000 heads. The number of cycles per year is two. Mainly breeding of Kazakh white-headed and Hereford breeds.

Market prerequisites

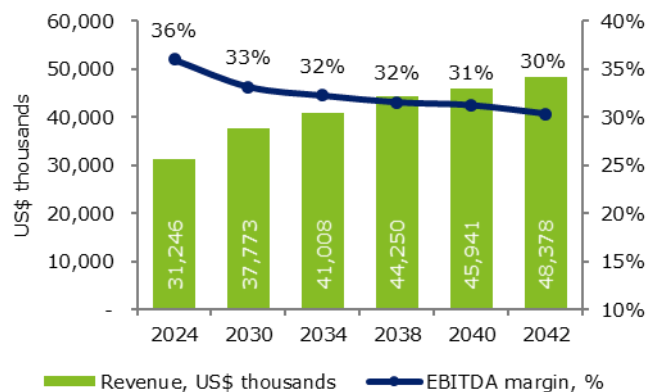
Export potential

Growing imports of potato starch by neighboring countries offers an opportunity to occupy a niche in the China, Russia and Uzbekistan markets. The total potato starch imported by these countries in 2018 amounted to about 74 thousand tonnes and has a tendency to increase. For example, the average annual growth rate of imports of potato starch by China over the past 5 years was 12.7% in physical terms.

No local production and high level of import dependency

There is no production of potato starch in the country, despite the fact that in the food, textile, paper industries potato starch is superior to corn starch in terms of quality. The average annual volume of imports of potato starch in Kazakhstan is relatively stable and in recent years has amounted to about 4.2 thousand tons for an amount of about US\$ 2.5-3 million.

Project profitability:



Location of the Project: Pavlodar oblast



Organization and development of the production of vegetable oils

Description of the Project:

Organization and development of the production of vegetable oils. Sales of finished products will be realized on the markets of CIS countries, China, Turkey, India and Iran.

Project goals:

Completion of the plant construction in the industrial zone of Taldykorgan and further development of modern production of high-quality vegetable oils.

Release and effective promotion of finished products on the market, profit making.

Products and production capacity:

- Hydrated vegetable oil (sunflower and rapeseed) – 26.8 thousand tonnes;
- Oilcake (sunflower and rapeseed) – 35.8 thousand tonnes.

Initiator:

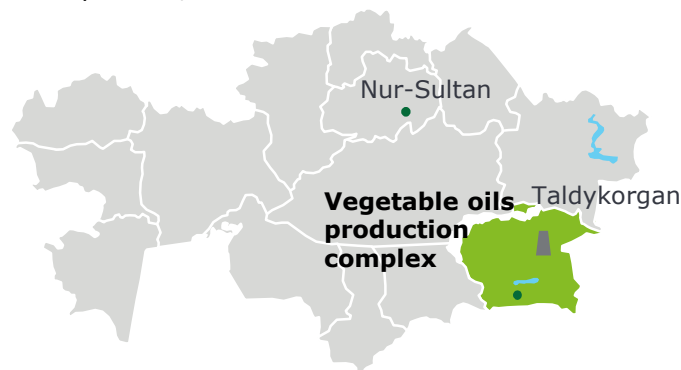
«ZhetysuMazhiko» agricultural complex - project company specializing in the production of vegetable oils

Key investment indicators

Indicator	Results
Investment, USD thousands	12,304
Project NPV, USD thousands	10,268
IRR, %	22.0%
EBITDA returns, %	12%
Payback period, number of years from the start of production	5.8
Discounted payback period, number of years from the start of production	8.2

Location of the Project:

20B, Shevchenko St., Industrial zone, Taldykorgan, Almaty Oblast, Kazakhstan.

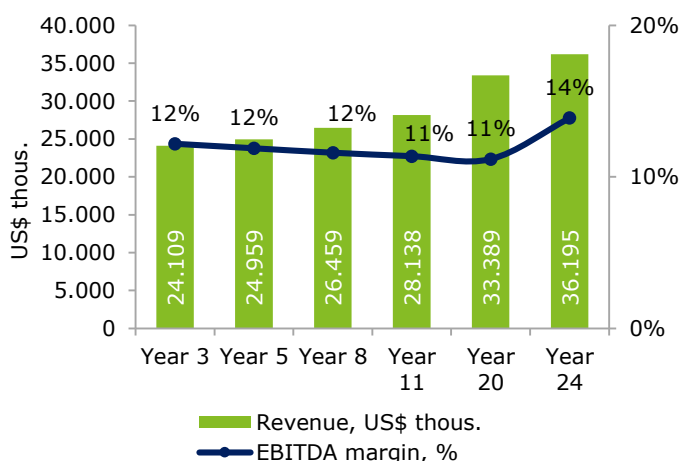


Market background:

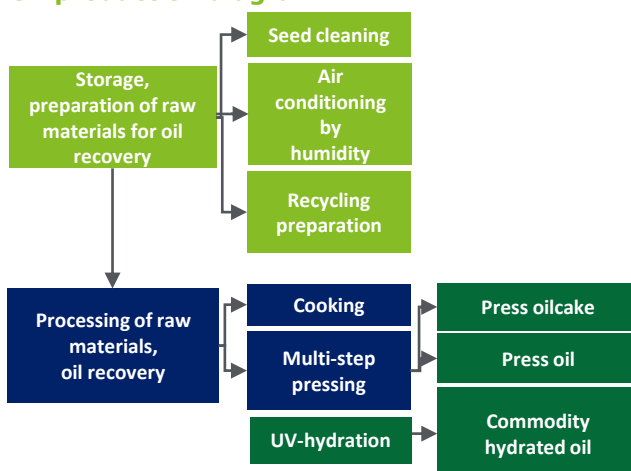
Growing demand for vegetable oil and oilcake in the domestic and global markets. There is an increased demand for vegetable oils. Also, oilcake is used in preparation of feed for livestock, which generally contributes to the realization of the project. Compound annual growth rate (CAGR) of oilseed consumption is projected to be 1.95% by 2023. Global vegetable oil consumption reached 188 million tonnes in 2018.

Rich raw materials base. Accessible in the country raw materials base corresponds to the creation of highly efficient plants for the production of vegetable oils. Recently, there has been a trend of intensive growth of sown oilseeds in Kazakhstan. Sunflower dominates (36.9%, or 849 thousand hectares) among other oil seed crops produced in the country. In the structure of world production of vegetable oils, rapeseed oil occupies the third position among all types of oil, with a share of 15.0%.

Project profitability



Oil production diagram:



Agricultural sector

Construction of a soybean processing plant

Project description:

Creation of a modern production complex for processing of self-grown soybeans.

Initiator: KEA LLP

Targets:

- Creation of an effective integrated Kazakhstan business for growing and supplying non-GMO soy and its derivatives to the domestic and neighboring markets;
- Obtaining high-quality, export-oriented, competitive products using advanced proven technologies for production, supply and distribution.

Processing method: Mechanical method (pressing).

Commercial products: Soybean oil, soybean meal

Production capacity: Processing 100 thousand tons of soybeans per year,

Key investment indicators of the Project

Indicator	Results
Investment amount, thous. USD	32,620
Project NPV, thous. USD	69,373
IRR, %	28.3%
EBITDA margin, %	23.8%
Payback period, years	5.1
Discounted payback period, years	6.4

Project location: North-Kazakhstan Oblast, Akmola Oblast



Prerequisites for Project implementation

Export potential

The current difficult trade relations between China and the United States, a major supplier of soy and its derivatives to China, create a unique opportunity for Kazakhstan to occupy a certain share in this market. Also, the presence of the Kazakhstan port in China and the remoteness of the main suppliers of soybean meal from it's main importers create favorable conditions for the development of export of soybean meal.

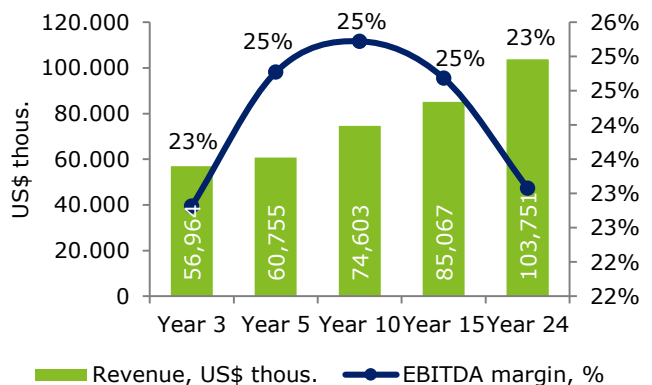
Potential for improved fertility

The soil and climatic conditions of northern Kazakhstan allow the cultivation of early and ultra-ripening soybean varieties with a vegetation period of 85 to 100 days.

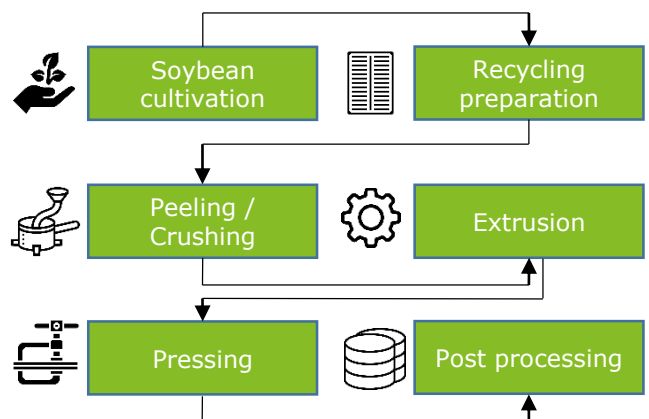
Own raw material base

The initiator's extensive own raw material base will reduce raw material costs. The presence of our own raw materials base will also allow us to directly control the stability of supplies and the quality of raw materials used in processing.

Project profitability



Production technology



Construction of a plant for the production of non-alcoholic products, concentrates and puree

Project overview:

This investment project provides for the construction of a plant for the production of non-alcoholic products in assortment, as well as the production of concentrates and purees from fresh fruits and berries according to the European standards BSI, DIN, EN and ISO EU.

Project location:

Shymkent, Republic of Kazakhstan.

Project Initiator:

ANM group LLP

Production technology:

The production of non-alcoholic drinks is planned to be made using BRFC technology (Blowing Rinsing Filing Capping).

Maximum Project capacity:

- Bottled water – 80 mln bottles/year;
- Natural and juice drinks – 30 mln bottles/year;
- Iced teas – 33 mln bottles/year;
- Iced coffee drinks – 11 mln cans/year;
- Carbonated soft drinks – 40 mln bottles/year;
- Apple concentrate – 60,000 tonnes/year;
- Apple puree – 15,000 tonnes/year;
- Other fruits – 38,000 tonnes/year;
- Concentrate of berries – 25,000 tonnes/year.

Commercial products:

Bottled drinking water, natural juices and juice drinks, iced teas and coffee drinks, carbonated soft drinks. Concentrates and purees.

Market assumptions

Growing demand for non-alcoholic drinks

According to Mordor Intelligence forecasts, there is an increase in the total level of consumption of non-alcoholic drinks in the world. Average annual growth rate (CAGR) for 2019-2024 will be equal to 4.7%. In Kazakhstan, the average annual growth rate of consumption will be equal to 8.3%.

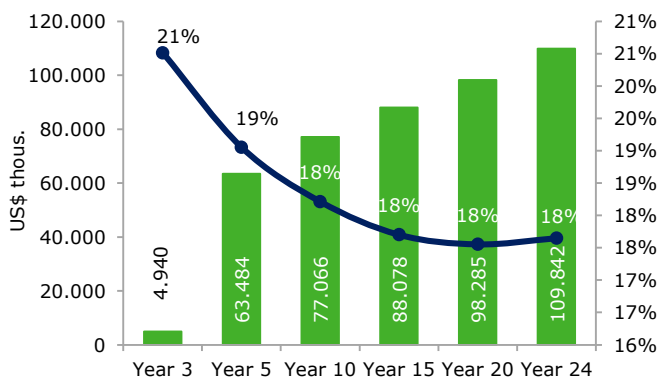
Growing demand for fruit concentrate

According to Mordor Intelligence forecasts, there is an increase in the global consumption of nectar, fruit and vegetable juices. Average annual growth rate (CAGR) in 2019-2024 will be equal to 3.2%.

Import substitution

The volume of imports over the past 5 years equals to 105.5 thousand tonnes, which is 3.5 times higher than in 2014, given that domestic production in the country is 1.6 times less than the consumption of non-alcoholic drinks.

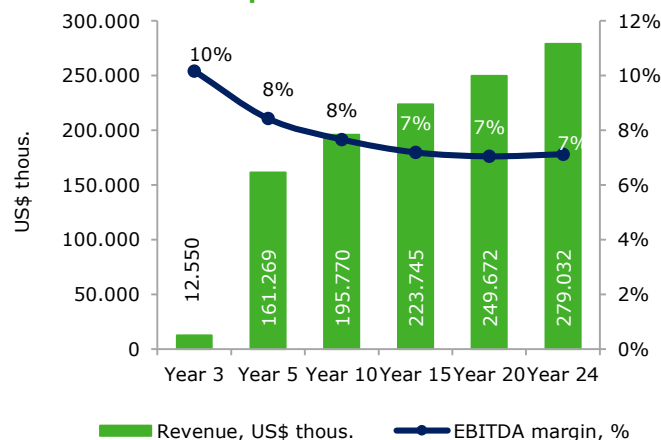
Project profitability for the production of non-alcoholic products



Key investment indicators

Indicator	Results: non-alcoholic products	Results: concentrates and puree
Investment, US\$ thousands	27,667	38,178
Project NPV, US\$ thousands	30,495	26,198
IRR, %	28%	26%
EBITDA returns, %	18.1%	7.6%
Payback period, amount of years from the start of production	6	7
Discounted payback period, amount of years from the start of production	7.8	9.2

Project profitability for the production of concentrates and puree



Construction of greenhouse in Pavlodar oblast

Project description:

Construction of a greenhouse complex for the cultivation of tomatoes and cucumbers, domestic and export sales of products for the purpose of import substitution and development of the export potential of country's vegetable production.

Initiator:

JSC "Social and Entrepreneurial Corporation" Pavlodar "

Production volume:

3.7 thous. tons of tomatoes and 3.9 thous. tons of cucumbers for one year

Project parameters:

The total area of greenhouse – 8.4 ha;
planting area – 7.9 ha

Products:

tomatoes and cucumbers

Location:

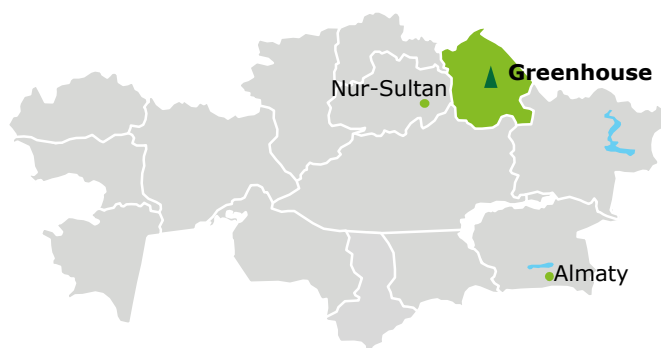
Pavlodar oblast, city of Ekibastuz

Target markets: Pavlodar oblast, northern regions of Kazakhstan, neighboring regions of Russia

Key investment indicators

Indicator	Result
Investment amount, \$US thousands	21,891
Project NPV, \$US thousands	12,769
IRR, %	15.7%
EBITDA margin, %	43%
Payback period, years	8.0
Discounted payback period, years	14.5

Location of project implementation: Pavlodar oblast



Market prerequisites

Dependence of the country on imports of tomatoes and cucumbers

- Due to the climatic features of most regions of Kazakhstan during the off-season, there is a shortage of tomatoes and cucumbers. The deficit is covered by imports, which amounted to 65 thousand tons of tomatoes and 14.5 thousand tons of cucumbers in 2018.

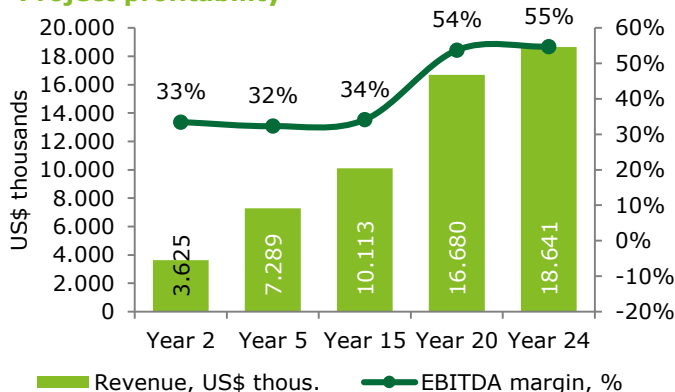
Price differential with Russian Federation - The average price for tomatoes and cucumbers in the regions of the Russia bordering the country is higher than average price in Kazakhstan by 33% and 24%.

Development of export supplies to foreign countries

- Exports of tomatoes and cucumbers from Kazakhstan are growing at a dynamic pace: in 2018 exports of tomatoes amounted to 20.7 thousand tons, cucumbers 6.1 tons.

Proximity to the Russia, a major importer of tomatoes and cucumbers, provides easy access to the target market. In 2018 Russia imported 578 thousand tons of tomatoes and 123 thousand tons of cucumbers.

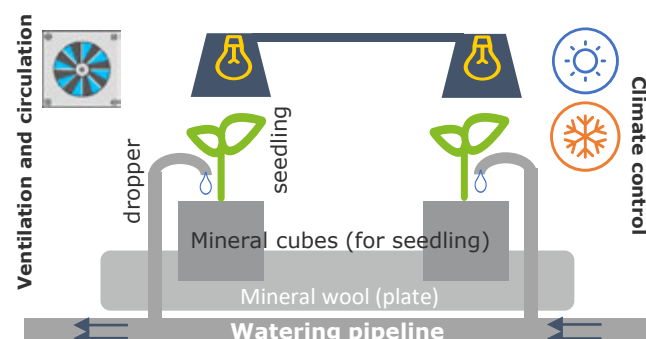
Project profitability



Technical process

Photo culture (electric illumination)

- compensates lack of sunlight
- improves yielding capacity and product quality



Construction of greenhouse complex in North Kazakhstan oblast

Project description:

Construction of a greenhouse complex for year-round tomato and cucumber production and product sales on the domestic and foreign markets for the purpose of import substitution and development of the export potential of country's vegetable production.

Initiator:

Rim-KazAgro LLP

Products:

Tomatoes and cucumbers

Production volume :

1,200 tons of tomatoes and 1,300 tons of cucumbers per year

Seeding:

Greenhouse area – 3 ha; planting area– 2 ha with following expansion up to 10 ha

Target markets:

Petropavlovsk and border regions of Russia.

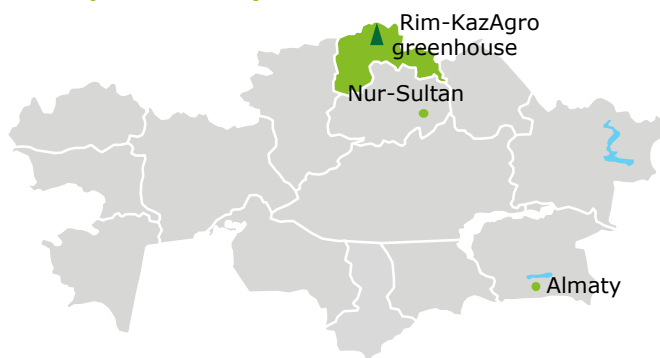
Location:

North Kazakhstan oblast, Petropavlovsk city, Yaroslav Gashek st., 3

Key investment indicators

Indicator	Result
Investment amount, \$US thousands	17,764
Project NPV, \$US thousands	9,738
IRR, %	15.4%
EBITDA margin, %	70%
Payback period, years	9.5
Discounted payback period, years	14.7

Location of project implementation: Petropavlovsk city



Market prerequisites

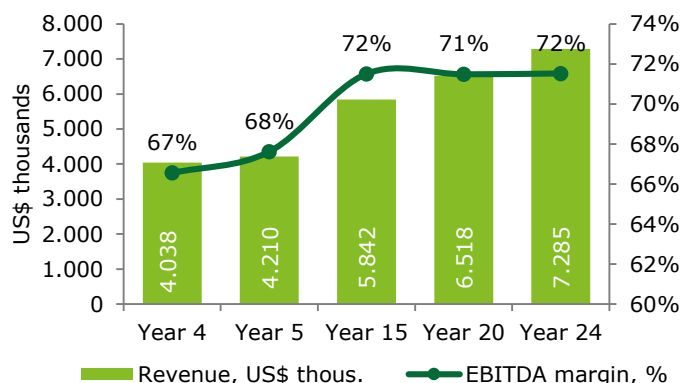
Dependence of the country on imports - Due to the climatic features of most regions of RK during the off-season there is a shortage of tomatoes and cucumbers. The deficit is covered by imports, which amounted to 65 thousand tons of tomatoes and 14.5 thousand tons of cucumbers in 2018.

Price differential with Russia- The average price for tomatoes and cucumbers in the regions of the Russia bordering the country is higher than average price in Kazakhstan by 33% and 24%.

Development of export supplies to foreign countries - Exports of vegetables from RK are growing at a dynamic pace: in 2018 exports of tomatoes amounted to 20.7 thous. tons (2.9 thous. in 2016), of cucumbers – 6.1 tons (2.5 thous. in 2016).

Proximity to the Russia, a major importer of tomatoes and cucumbers, provides easy access to the target market. In 2018 Russia imported 578 thous. tons of tomatoes and 123 thous. tons of cucumbers.

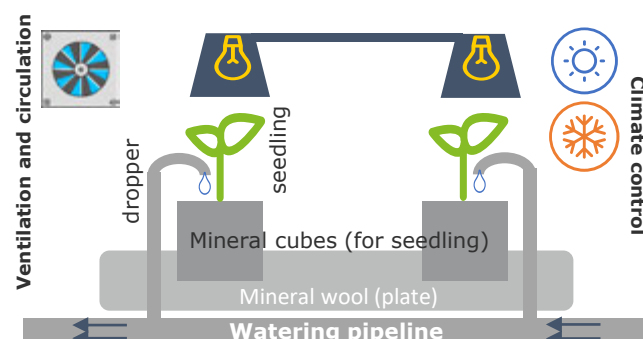
Project profitability



Technical process

Photo culture (electric illumination)

- compensates lack of sunlight
- improves yielding capacity and product quality



Expansion of greenhouse up to 40 ha in Almaty oblast

Project description:

An increase in production capacity by expanding the area of the greenhouse complex to 40 ha with an annual production volume of 55.5 thousand tons of tomatoes and cucumbers, domestic and export sales of products for the purpose of import substitution and development of the export potential of country's vegetable production.

Initiator:

Green Land Alatau LLP, an operating enterprise with a 10 ha greenhouse

Production volume:

55.5 thousand tons of product

Project parameters:

The total area of greenhouse – 40 ha

Products:

tomatoes and cucumbers

Location:

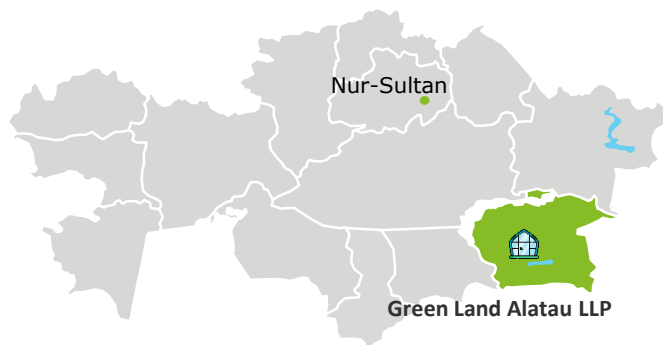
Almaty oblast, Kapshagay city, 65 km of Almaty – Ust-Kamenogorsk route

Target markets: Almaty city, Almaty oblast, export to Russia

Key investment indicators

Indicator	Result
Investment amount, \$US thousands	118,442
Project NPV, \$US thousands	123,422
IRR, %	25.7%
EBITDA margin, %	49.2%
Payback period, years	5.3
Discounted payback period, years	7.2

Location of project implementation: Almaty oblast, Kapshagay city



Market prerequisites

Dependence of the country on imports of tomatoes and cucumbers

- Due to the climatic features of most regions of Kazakhstan during the off-season, there is a shortage of tomatoes and cucumbers. The deficit is covered by imports, which amounted to 65 thousand tons of tomatoes and 14.5 thousand tons of cucumbers in 2018.

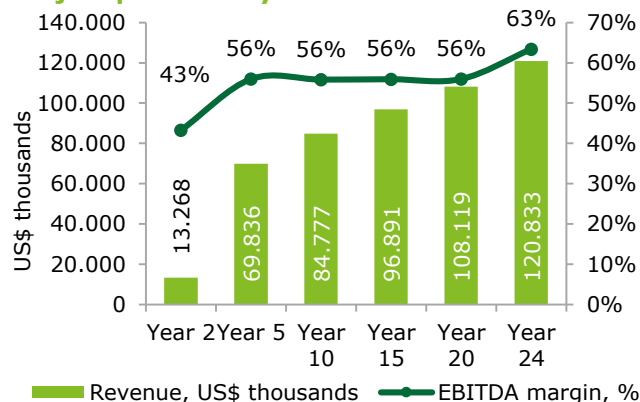
Price differential with Russian Federation - The average price for tomatoes and cucumbers in the regions of the Russia bordering the country is higher than average price in Kazakhstan by 33% and 24%.

Development of export supplies to foreign countries

- Exports of tomatoes and cucumbers from Kazakhstan are growing at a dynamic pace: in 2018 exports of tomatoes amounted to 20.7 thousand tons, cucumbers 6.1 tons.

Proximity to the Russia, a major importer of tomatoes and cucumbers, provides easy access to the target market. In 2018 Russia imported 578 thousand tons of tomatoes and 123 thousand tons of cucumbers.

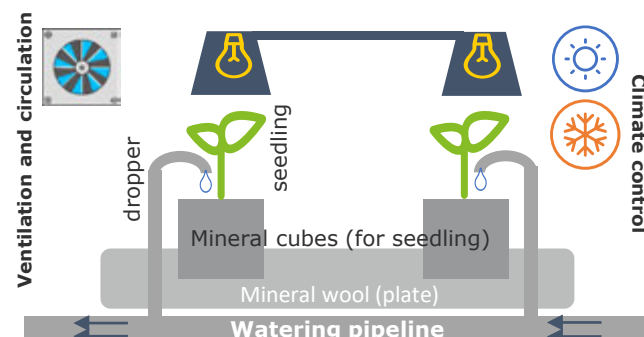
Project profitability



Technical process

Photo culture (electric illumination)

- compensates lack of sunlight
- improves yielding capacity and product quality



Agro-Industrial Complex

Expansion of intensive apple orchards in the Almaty region

About the Project

Expansion of intensive apple orchards of the operating company Fresh Land LLP to 105 hectares in Enbekshikazakh district of Almaty region.

Initiator:

Fresh Land LLP

Project location:

Almaty region, Enbekshikazakh district

Principal products:

Fresh apples varieties:

- "Golden Delicious";
- "Red Delicious";
- "Fuji".

Project's peak capacity:

6,819 tons of apples per year

Fruit season: September – October

Sales markets:

The domestic market of the Republic of Kazakhstan and the Russian Federation

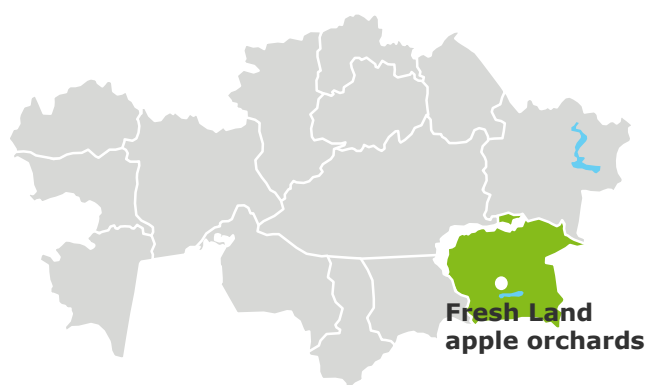
Seedling Suppliers:

Vivai Nischler D. Nischler Georg & Co. (Italy)

Investment attractiveness of the Project

Indicator	Results
Investment amount, US\$ thous.	6,814
Project NPV, US\$ thous.	7,291
IRR, %	22.99%
EBITDA yield, %	58%
Payback period, years	7.2
Discounted payback period, years	9.5

Project Location: Almaty oblast



Prerequisites for implementation of the Project

Stable demand for apples in the domestic market

Among stone fruits, apples are the most common and significant food product. The beneficial properties of apples and ease of consumption create a constant demand for the product. Overall, consumption of apples per capita increased by 8.1% since 2016 and amounted to 17.4 kg in 2018.

Export potential

The neighborhood with the largest apple importer, Russia, provides convenient access to a large target and large-scale sales market. In 2018, Russia imported 843.5 thousand tons of apples or 10% of the world import. Due to the political situation in the country, Russia broke off trade relations with Ukraine and Poland, major suppliers of apples to the Russian Federation, which also allows Kazakhstan to take a certain share in the market of neighboring countries.

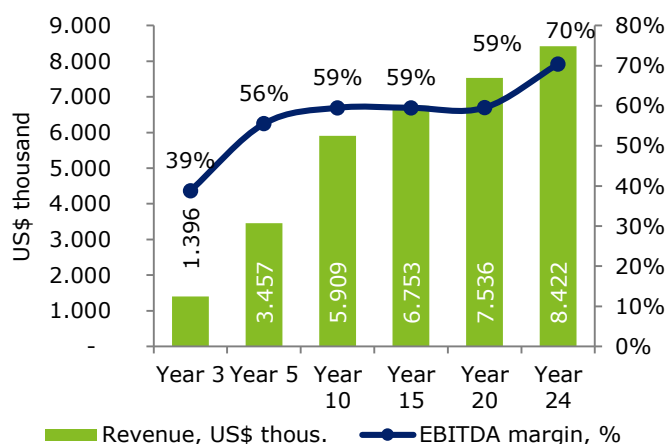
Price differential with neighboring countries

In the regions of the Russian Federation adjacent to Kazakhstan, a kilogram of apples on average during the year can be purchased for 1.3 - 2.0 US\$, which is higher than the average Kazakhstan prices by 4% - 65%.

Import dependence of Kazakhstan on apples during the off-season

Since the fruit is seasonal, and the shelf life of the product is short-lived, Kazakhstan experiences import dependence in the periods from January to July. Due to the lack of fruit storages, after the end of its stocks, apple imports increase hundreds of times.

Project Profitability



Deloitte. Complex for the breeding and incubation of fish, the production of fish and related products

Agro-Industrial Complex

Project overview:

Organization of integrated farming for the breeding and incubation of catfish and barramundi, the production of fish and related products.

Project location:

Almaty Oblast, Talgar district, Kaynar rural district, 25 km away from Almaty.

Initiator:

Zor Fish LLP

Project's peak capacity:

729 thousand units of canned catfish (*Clarias gariepinus*), 900 tonnes of barramundi (*Lates calcarifer*), 600 thousand units of fry per year.

Principal products:

Canned food, fish, fish products, chilled fish, fish products and semi-finished products in the range.

Production process:

Fish farming, fish processing (production of canned food, fish products, semi-finished products, minced fish).

Market assumptions

Growing demand for fish - According to the OECD and FAO UN projections, there will be an increase in total fish consumption in the world. The average annual growth rate (CAGR) will be equal to 1.8% in the years 2019-2025. So, if in 2018 fish consumption per capita was equal to 20.3 kg per capita, by 2027 it will reach the level of 21.3 kg per capita.

Import substitution - The share of imports in the structure of consumption of fish and fish products in the country equals to 74%, which indicates a high import dependence of the country.

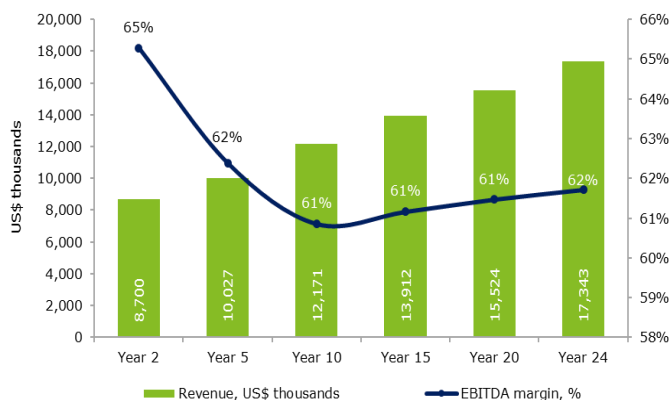
Thus, in 2018, Kazakhstan imported 30 thousand tonnes of frozen fish, which is 5 times higher than its own production.

Export potential - Kazakhstan also provides biogenous fish products for export. In 2018, exports of fish amounted to 12.5 thousand tonnes, showing an increase of 64% compared with 2013.

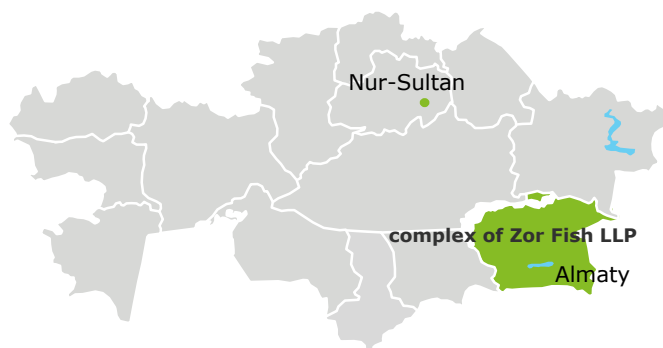
Key investment indicators

Indicator	Results
Investment, US\$ thousands	18,716
Project NPV, US\$ thousands	23,739
IRR, %	23.38%
EBITDA returns, %	61.8%
Payback period, amount of years from the start of production	5.87
Discounted payback period, amount of years from the start of production	8.04

Project profitability



Project location: Almaty Oblast



Land

Soil Type/Purpose	Area, sq. m
Building developments	13,786
Covering	10,887
Planting	43,569
Ponds	12,737
Total	80,979

Project overview:

Construction of a complex for breeding and incubating commercial sturgeon and beluga

Project location:

Atyrau Oblast, Atyrau, Ural river, Sadok channel

Initiator:

Caspian Eco-Tour LLP, specializing in the development of freshwater aquaculture and eco-tourism

Products and capacities:

Commercial fish (sturgeon and beluga) - 300.0 tonnes

Food caviar - 2.0 tonnes

Production process:

1. Keeping and feeding in a closed water installation (spawning of females, fertilization, sorting)
2. Maintenance and feeding in cage (hibernation, sorting, selling)

Key investment indicators

Indicator	Results
Investment, US\$ thousands	10,982
Project NPV, US\$ thousands	13,613
IRR, %	22.9%
EBITDA returns, %	52%
Payback period	6.7
Discounted payback period	9.1

Project location: Atyrau Oblast



Market assumptions

Increase in demand for fish

According to OECD and FAO forecasts, we will face global increase in fish consumption in total. Compound annual growth rate (CAGR) in 2019-2025 will be 1.8 percent. Thus, by 2027 fish consumption will reach 21.3 kg per capita (2018: 20.3 kg per capita).

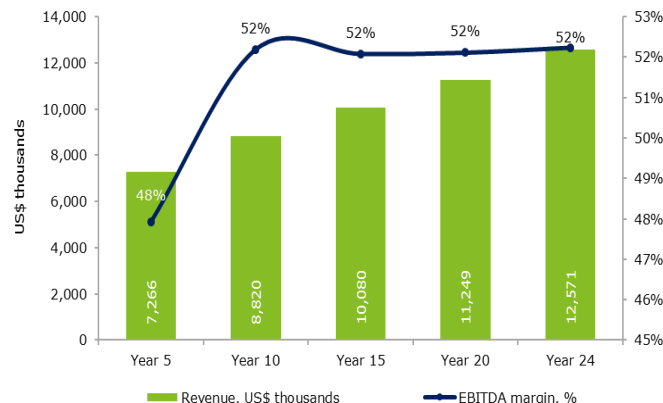
Import substitution

Currently, Kazakhstan imports 74% of fish and fish products included in the consumption pattern. It proves that the country is highly dependent on imports. For example, in 2018, Kazakhstan imported 30 tonnes of frozen fish which is five times higher than domestic production capacities.

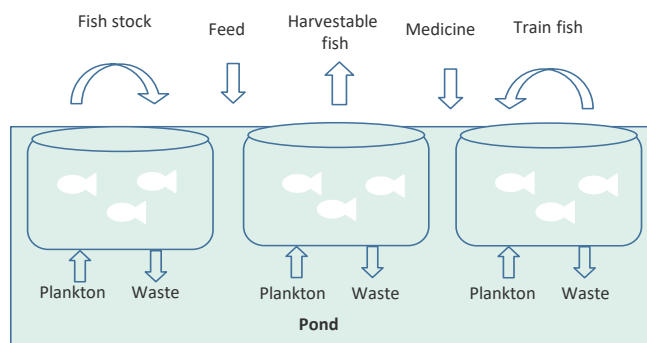
Export development

Kazakhstan also exports organic fish products. In 2018, due to commencement of high volume supplies to Russia, its major purchaser, Kazakhstan fish export reached 12.5 thousand tones and saw 64% increase versus 2013. As of 2017, over 25% of total exports have been delivered to China.

Project profitability



The scheme of the typical construction of the cage line



Project overview:

Construction of a full cycle aquaculture complex. The project envisages the creation of a modern production for the cultivation and processing of marketable fish of valuable species in closed water supply installations with subsequent sale in the domestic and foreign markets.

Project location:

Almaty Oblast, Karaoisky village, Ili district

Initiator:

"Central Asia Beer (CAB)" LLP

Project's peak capacity:

Annual production of 6 thousand tons of a harvestable fish

Principal products:

Rainbow Trout

Production process:

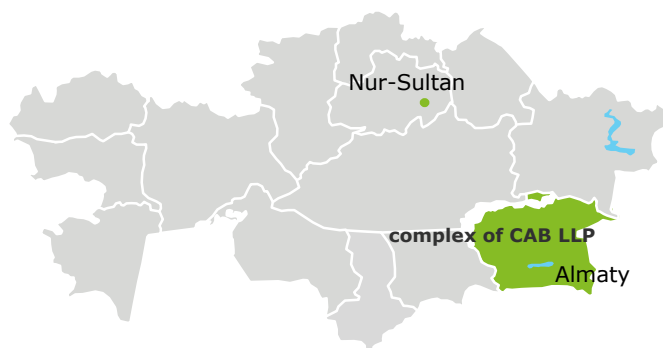
Closed terrestrial aquaculture farm in closed water installations

Key investment indicators

Indicator	Results
Investment, US\$ thousands	35,194
Project NPV, US\$ thousands	29,567
IRR, %	20.4%
EBITDA returns, %	46%
Payback period, amount of years from the start of production	9.1
Discounted payback period, amount of years from the start of production	12.6

Project location:

Almaty Oblast



Market assumptions

Growing demand for fish - According to the OECD and FAO UN projections, the world will see an increase in total fish consumption. The average annual growth rate (CAGR) in the years 2019-2025 will be 1.8%. So, if in 2018 fish consumption per capita was 20.3 kg per person, by 2027, consumption will reach 21.3 kg per person.

Import substitution - The share of imports in the structure of consumption of fish and fish products in the country is 74%, which indicates a high import dependence of the country.

So, in 2018 Kazakhstan imported 30 thousand tons of frozen fish, which is 5 times higher than the volume of its own production.

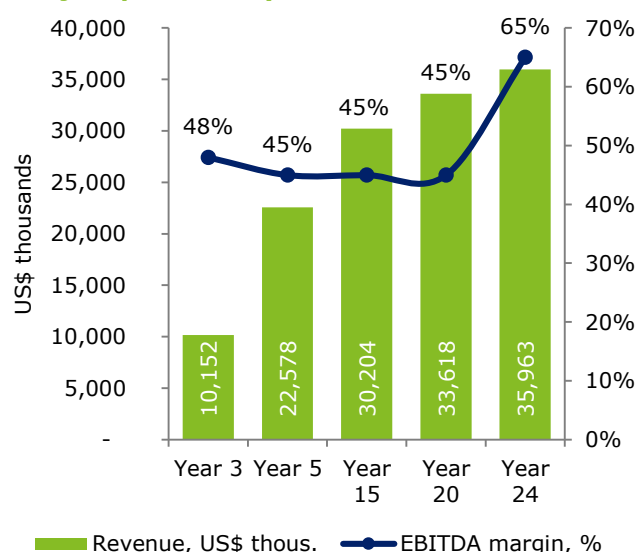
Export potential - Kazakhstan also sends fish products of organic origin for export. In 2018, the volume of fish exports amounted to 12.5 thousand tons, showing an increase of 64% compared with 2013.

This growth is explained by the beginning of large deliveries to Russia, which is a major buyer of Kazakhstani fish. Since 2017, over 25% of all exports went to China.

High-value species of fish. Trout is a delicacy valued for its digestive and dietary qualities. It is used in cooking across the world thanks to its health properties and small size (300-600 g).

Absence of industrial catches. In Kazakhstan, trout is bred in small quantities in cool mountain lakes in the east and south of the country, which prevents it from being caught for industrial purposes.

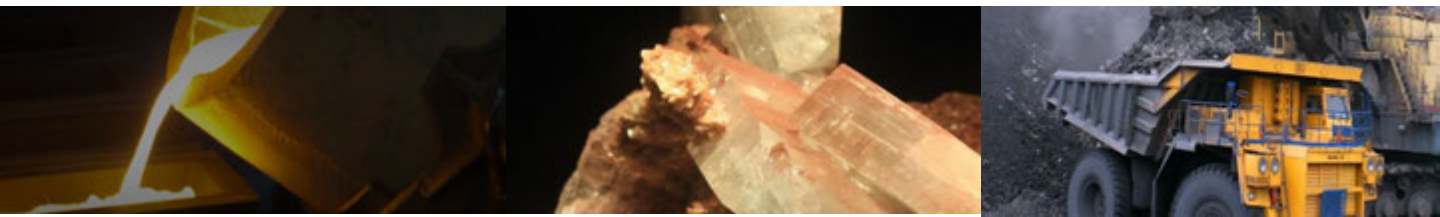
Project profitability





KAZAKHSTAN CUMHURİYETİ
ANKARA BÜYÜKELÇİLİĞİ

Mining and Metallurgy



Extraction and processing of gold-bearing ores at Shoyimbai deposit

Project overview:

Extraction and processing of gold-bearing ores at the Shoyimbai deposit (the "Project")

Commercial product: Gravity concentrate, later supplied to the smelting and refining factories of the country.

Output capacity: processing over 130 thousand tonnes of gold-bearing ores per year

Project implementation period: 12 years

Initiator:

CaspianGeoConsultingServices LLP, a subsidiary of KM GOLD JSC, carries out exploration of precious metals and their extraction. The company plans to build its own modular processing plant.

Project implementation location: Karagandy region

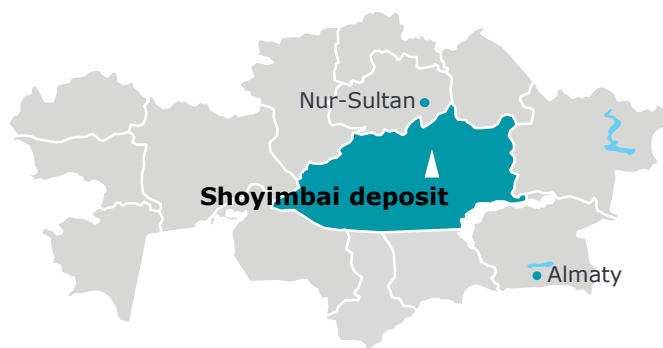
Potential markets: Kazakhstan

Key investment indicators

Index	Results
Project implementation period, years	12
incl. investment stage, years	3
operational stage, years	10
Investment amount, US\$ thousands	11 000
Project NPV, US\$ thousands	6 139
IRR, %	36,7%
EBITDA margin, %	47%
Payback period, years	4,7
Discounted payback period, years	5,6

Project location:

Karagandy region



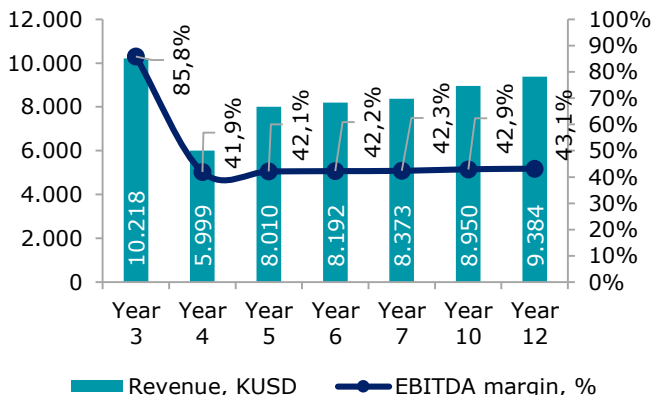
Market assumptions:

Availability of supply sources – gold consumption in Kazakhstan is mainly created as a result of gold processing done by three refineries: Kazzink in Ust-Kamenogorsk, Kazakhmys in Balkhash and Tau-Ken-Altyn in Nur-Sultan. Currently, all of the produced refined gold is used for the purpose of replenishing the country's currency reserves. According to experts, by 2020, refining volumes in Kazakhstan will reach up to 80-90 tons.

Import substitution – Domestic production facilities cannot meet the demand for gold. Despite the decline in imports during the period from 2013 to 2017, in 2018, 210 thousand tons of metal were imported.

Stable high demand – Gold is in stable demand in the world. It is used in technology in the form of alloys with other metals, in the aviation and space industry, in radio equipment, electronics, medicine, as well as for manufacturing jewelry. It also plays the role of the main currency metal.

Project profitability



Shoyimbay field reserves

	Reserves			
	C1	C2	P1	P2
Gold	426 kg (14 g/t)	3,42 t (6 g/t)	30 t (2,5 g/t)	109 t (2,5 g/t)

Processing volumes

	Phase 1	Phase 2
Processing volumes	30 000 kg	1 166 667 kg
Gold content	14,09 g/t	2,50 g/t

Development of Nurbay, Besshocky and Sarybulak copper ore deposits

Project Description:

Construction of industrial complex for copper ore extraction at the Nurbay, Basskocky and Sarybulak deposits in East Kazakhstan oblast and copper cathode production in the amount of 12,500 tonnes per year

Product: Copper cathode

Capacity: Processing of 1 million tons of copper oxide ore per year. Further expansion is possible for the processing of sulphide ores.

Production volumes: Expected production of 12,500 tons of cathode copper per year.

Initiator: Ertis-Med' LLP.

Location: Ayagoz district, East-Kazakhstan Oblast.

Potential markets: non-ferrous metal processing plants in CIS, China and Europe.

Market conditions:

Availability of raw materials and subsoil use rights. The forecasted reserves of the complex of Nurbay-Basskocky-Sarybulak deposits amount to over 280 thous. tonnes of copper.

High demand. It is expected that the steady growth in demand for refined copper will continue in subsequent years, since copper is the most important resource and factor of production in a modern technological society. Annual growth in demand for refined copper is projected at 2% in 2019 and 1.5% in 2020.

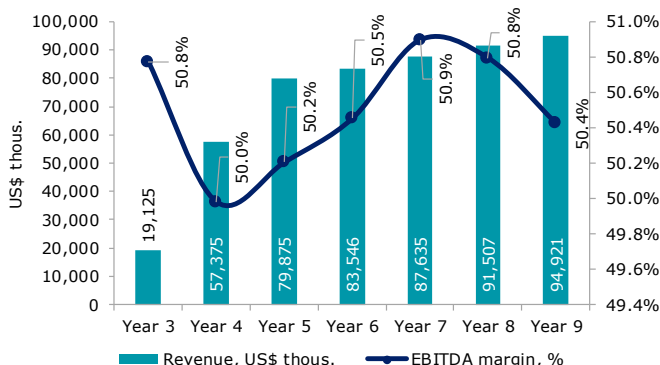
Price stabilization. According to analysts at Bloomberg, a moderate increase in refined copper prices is expected in the medium term, with subsequent stabilization of the price level: 2019 - \$6,038.5; 2021 - \$6,011; 2023 - \$6,087 per tonne.

Export potential. The shortage of this product indicates the potential for import substitution. Also RK has an opportunity to increase exports to the PRC and other countries.

Key investment indicators of the Project

Indicator	Results
Project implementation period, years	9
<i>incl. investment stage, years</i>	2
<i>operational stage, years</i>	7
Investment amount, US\$ thousands	43,845
Project NPV, US\$ thousands	54,884
IRR, %	40.1%
EBITDA margin, %	51%
Payback period, years	4.5
Discounted payback period, years	5.2

Project profitability



Project location:

Ayagoz district, East-Kazakhstan Oblast



Deposit reserves

Indicators	Unit meas.	Reserves
Nurbay (Presumably according to intelligence data from 1962)		
Copper (C2)	'000 tonnes	180.00
Incl. oxidized	'000 tonnes	30.00
Basskocky (According to the evaluation work)		
Copper (P1) (oxidized)	'000 tonnes	20.00
Sarybulak (According to intelligence)		
Copper	'000 tonnes	75.00
Incl. C2 (oxidized)	'000 tonnes	15.00
Incl. P1 (oxidized)	'000 tonnes	60.00

Construction of a mining and metallurgical complex on Besshoky Square in the Karaganda region

Project overview:

This investment project (hereinafter referred to as the "Project") provides for the construction of a mining and metallurgical complex at the Besshoky field.

Project goals: development of a group of deposits on Besshoky Square, creation of an effective integrated business for the extraction and processing of copper-molybdenum ore.

Initiator: Ulmus Fund B.V.

Production process: open pit mining; ore processing at the processing plant and production of copper-molybdenum concentrate; processing of concentrate at a smelter to produce copper and molybdenum.

Products: copper and molybdenum

Production capacity:

10 mln tons of ore per year

Project implementation assumptions:

Large reserves of copper. Kazakhstan takes the 8th place in the world in copper reserves with a share of 4.7% of world reserves (37 million tons).

High demand. Copper plays a significant role in modern infrastructure, generation and transmission of electricity, in the production of industrial equipment and electrical appliances. According to the forecasts of the International Copper Study Group, the annual growth in demand for refined copper will be 2% in 2019 and 1.5% in 2020.

Price stabilization. According to Bloomberg, the price of refined copper is expected to increase with its subsequent stabilization in the medium term: 2019 - 6038.5 USD, 2023 - 6087 USD per ton.

Molybdenum price increase. Despite a significant drop in molybdenum prices from 2013 (24,889 USD) to 2015 (11,625 USD), according to the London Metal Exchange (LME) index, the price of molybdenum began to rise steadily to 24.9 thousand USD in 2018 (CAGR for 2015-2018 - 29%).

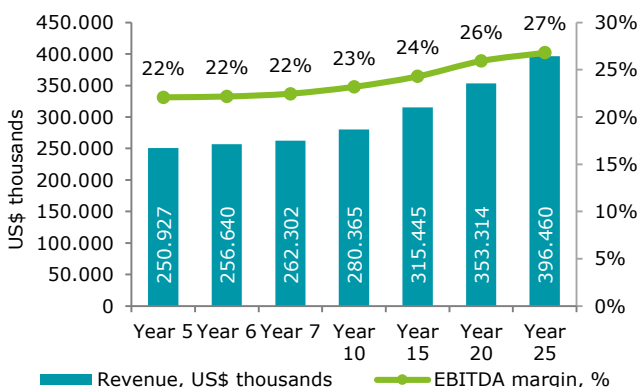
Key investment indicators

Indicator	Results
Amount of investments, US\$ thousands	210,000
Project NPV, US\$ thousands	116,747
IRR, %	21.2%
EBITDA margin, %	14-28%
Payback period, years	8.5
Discounted payback period, years	11.7

Project location: Besshoky square, Karagandy oblast



Project profitability



Field reserves by JORC (2012)

Field	Ore, mln tons	Copper, ths tons	Cu, %
East Besshoky			
Measured	9.64	74.58	0.77
Indicated	19.09	116.93	0.61
South Besshoky			
Measured	44.36	164.52	0.37
Indicated	147.32	527.03	0.36
Kaindyshoky			
Measured	-	-	-
Indicated	37.87	143.52	0.38

Commercial development of the Zhaissan copper deposit

Project overview:

This investment project ("Project") provides for the commercial development of the Zhaissan deposit in Zhambyl Oblast, involving copper mining and processing.

Products: Cathode copper, pelleted silver.

Manufacturing process:

Mining – underground method;

Processing – mined oxidized ores are going to be transported by road to the heap leaching site of the Shatyrkul mine. Sulphide ores are going to be transported by truck to the station Berlik-1, then by rail to the Balkhash beneficiation plant (BOF). The copper concentrate obtained at the BOF will be processed at the Balkhash Metallurgical Plant.

Initiator: Zhanashyr Project LLP, subsidiary organization Kazakhmys Corporation LLP.

Project location: Zhambyl Oblast, Shu district.

Annual production capacity :

600 thousand tonnes of ore.

Project implementation assumptions:

High demand. A stable increase in demand for the refined copper is expected over the next years. Copper plays a significant role in infrastructure, generation and transmission of electricity, transport, communications, in the production of industrial equipment and electrical appliances. Demand for the refined copper is forecasted to increase annually by 2% and 1.5% in 2019 and 2020, respectively.

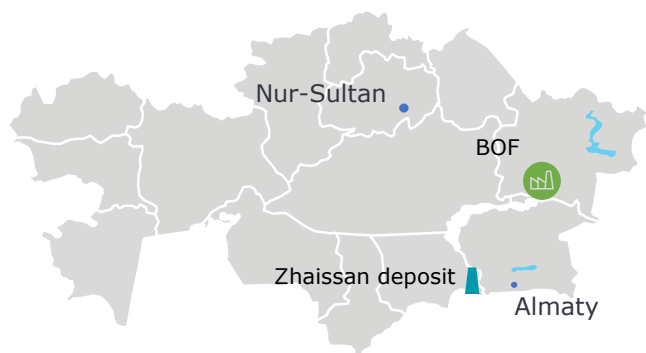
Price stabilization. World prices for the refined copper currently show a moderate upward trend. According to Bloomberg, a moderate rise in prices for the refined copper with the subsequent price stabilization is expected in the medium term: 2019 – US\$ 6,038.5, 2020 – US\$ 5,961, 2021 – US\$ 6,011, 2022 – US\$ 6,054.5, 2023 – US\$ 6,087 per tonne.

World silver production. In recent 5 years, Kazakhstan was among the world's ten largest silver producers; Kazakhstan is the third largest country by world silver reserves, according to the USGS geological survey.

Key investment indicators

Index	Results
Investment, US\$ thousands	118,436
Project NPV, US\$ thousands	111,287
IRR, %	27.4%
EBITDA return, %	60%
Payback period, years	10.2
Discounted payback period, years	11.4

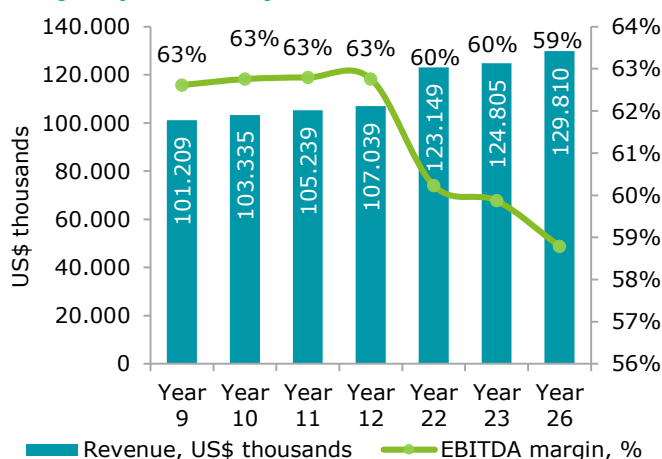
Project location: Shu district, Zhambyl Oblast



Deposit reserves

Index	Unit	Reserves
Zhaissan		On-balance reserves
Copper (C1)	thousands of tons	205.6
Copper (C2)	thousands of tons	96.1
Molybdenum (C1)	tons	908
Silver (C2)	tons	35.2

Project profitability



Construction of a mining and processing complex and industrial development of Aidarly copper deposit

Project description:

This investment project ("Project") provides for the construction of mining and processing complex at the Aidarly deposit in the East Kazakhstan Oblast.

Product: Cathode copper, copper concentrate.

Objective of the project: development of the Kazakhmys Corporation resource base, creation of an effective integrated business for the extraction and processing of copper ore and the sale of cathode copper in the domestic market and abroad.

Manufacturing process: mining – open-pit method. Oxide ores processing (stage1) – processing of oxide ores will occur at a heap leaching plant with the production of cathode copper.

Sulphide ores processing (stages 2 and 3) – processing of sulphide ores will occur at a processing plant with the production of copper concentrate.

Initiator: Aidarly Project LLP, subsidiary organization Kazakhmys Corporation LLP.

Annual production capacity:

Processing of 1.3 mln tonnes of ores (stage 1), 20 mln tonnes (stage 2), 50 mln tonnes (stage 3).

Key investment indicators

Index	Results
Investment, US\$ thousands	1,474,770
Project NPV, US\$ thousands	104,605
MIRR, %	8.2%
EBITDA return, %	29%
Payback period, years	18.3
Discounted payback period, years	21.0

Project location: Ayagoz district, East-Kazakhstan Oblast



Project implementation assumptions:

High demand. A stable increase in demand for the refined copper is expected over the next years. Copper plays a significant role in infrastructure, generation and transmission of electricity, transport, communications, in the production of industrial equipment and electrical appliances. Demand for the refined copper is forecasted to increase annually by 2% and 1.5% in 2019 and 2020, respectively.

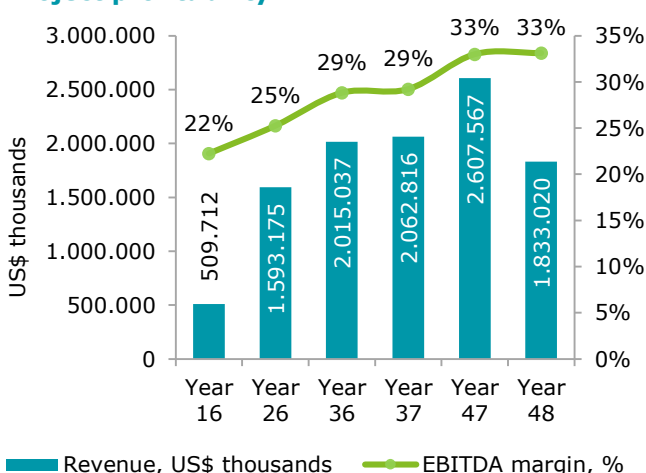
Price stabilization. World prices for the refined copper currently show a moderate upward trend. According to Bloomberg, a moderate rise in prices for the refined copper with the subsequent price stabilization is expected in the medium term: 2019 – US\$ 6,038.5, 2020 – US\$ 5,961, 2021 – US\$ 6,011, 2022 – US\$ 6,054.5, 2023 – US\$ 6,087 per tonne.

Import substitution and local production growth. While the dynamics of the trade balance shows a surplus in the category "refined copper and crude copper alloys", the opposite situation is observed for the category of goods with a greater depth of processing as "plates, sheets and stripes or strips of copper".

Deposit reserves, thousand tonnes

Index	On-balance reserves in the pit contour			
	Oxide ores		Sulphide ores	
	C1	B	C1	C2
Reserves				
Ore	5,878	317,849	1,205,889	
Copper	20.5	1,220/0	4,630	
Molybdenum, tonnes			154,278	
Gold, kg				14,141
Silver, tonnes			2,170.4	

Project profitability



Mining and smelting industry

Extraction and processing of nickel-cobalt ore deposit Bogetkol

Project Description

This investment project provides for the extraction and processing of nickel-cobalt ores from the Bugetkol deposit in the Aktoke region (the "Project").

Project goals:

- Development of the resource base of Sary Arka Mining Company LLP, creation of an effective integrated business for the extraction and processing of cobalt/nickel ores and the sale of final products in the domestic market and abroad;
- obtaining high-quality, export-oriented, competitive products through rational and effective field development using advanced proven technologies.

Project Initiator

Mining company "Sary Arka" LLP

Production

- Nickel concentrate;
- Cobalt concentrate.

Annual production capacity:

Nickel – from 4,508 to 9,125 tons, Cobalt – from 281 to 580 tons.

Key Investment indicators

Indicators	Results
Investment amount, thous. USD	574,743
Project NPV, thous. USD	384,347
IRR, %	35.5%
EBITDA margin, %	58-61%
Payback period, years	4.2
Discounted payback period, years	4.9

Project location:

Aytekebi district, Aktoke region



Market prerequisites:

Rising prices for nickel and cobalt. According to forecasts by Bloomberg analysts, the average nickel price in 2019 will increase by 27% and amount to US\$ 13,550 per ton, and for the period 2019 – 2022, the average annual price will increase yearly by 9% and rise to US\$ 15,900 per ton by 2027.

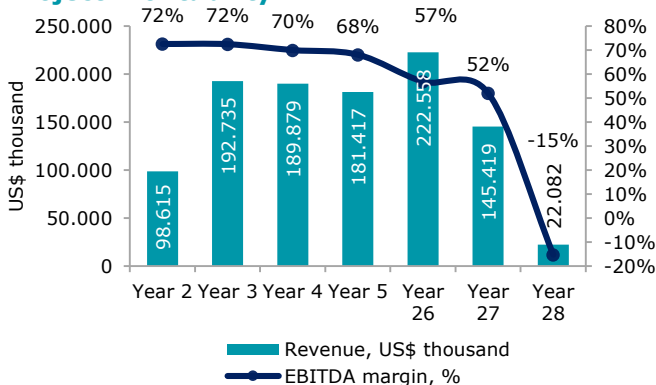
Export potential. The country's domestic demand for cobalt and nickel is low, so it is possible to cover it with excess. nickel-cobalt ore reserves in Kazakhstan allow the export of this mineral in significant quantities to China, South Korea, Russia, Japan and Ukraine. China is the main importer of nickel, nickel concentrates, cobalt ores and cobalt concentrates.

In-situ recovery (ISR) method of mining with sulphurous acid leaching:

The extracted productive solution (which contain nickel and cobalt ores) then goes to the processing plant. Received productive solution further goes through the following stages:

- Nickel/cobalt extraction from pregnant solutions by ion exchange;
- Eluate neutralization;
- Nickel/cobalt sulphate purification and recovery;
- Tailings neutralisation, storage and evaporation.

Project Profitability



Field Reserves

Category	mln tons	%Ni	%Co	Ni, thous. tons	Co, thous. tons
Inside Tenement					
Indicated	36.01	0.68	0.037	243,366	13,221
Inferred	1.76	0.68	0.039	11,986	682
Outside Tenement					
Indicated	1.11	0.71	0.041	7,855	454
Inferred	0.39	0.55	0.045	2,140	173
Total					
Indicated	37.12	0.68	0.037	251,221	13,675
Inferred	2.15	0.66	0.040	14,126	855

Industrial development of non-ferrous and precious metal deposits in the East Kazakhstan Oblast

Project overview:

Investment project (the "Project") provides for industrial development for the extraction and processing of non-ferrous and precious metal ores at the Belousovsky deposit in the East Kazakhstan Oblast.

Products: Cathode copper, silver pellets, gold bars, zinc in zinc concentrate.

Production process:

- 1) Mining – underground;
- 2) Ore beneficiation is planned at the Nikolayevsky plant, owned by Kazakhmys;
- 3) Refining of copper, gold and silver concentrates (obtaining a final product) will be carried out by the Balkhash smelting plant owned by Kazakhmys.

Initiator: Kazakhmys Barlau LLP.

Project location: East Kazakhstan Oblast, Glubokovsky district, Belousovka village.

Annual production capacity: 250 thousand tonnes of ore.

Project implementation assumptions:

High copper demand. A stable increase in demand for the refined copper is expected over the next years as copper is the major resource and industrial driver in the modern technological society. Demand for refined copper is forecasted to increase annually by 2% and 1.5% in 2019 and 2020, respectively.

Stable gold demand. Gold consumption in Kazakhstan is mainly created as a result of gold processing done by three refineries: Kazzink in Ust-Kamenogorsk, Kazakhmys in Balkhash and Tau-Ken-Altyn in Nur-Sultan. Currently, all of the produced refined gold is used for the purpose of replenishing the country's currency reserves. According to experts, by 2020, refining volumes in Kazakhstan will reach up to 80-90 tons.

World silver production. Kazakhstan is one of the largest silver producers. In recent 5 years, Kazakhstan was among the world's ten largest silver producers. Kazakhstan ranks third by world silver reserves, according to the USGS geological survey.

Key investment indicators

Indicator	Results
Amount of investments, US\$ thousands	13,378
Project NPV, US\$ thousands	30,009
IRR, %	42.2%
EBITDA margin, %	28%
Payback period, years	3.8
Discounted payback period, years	4.4

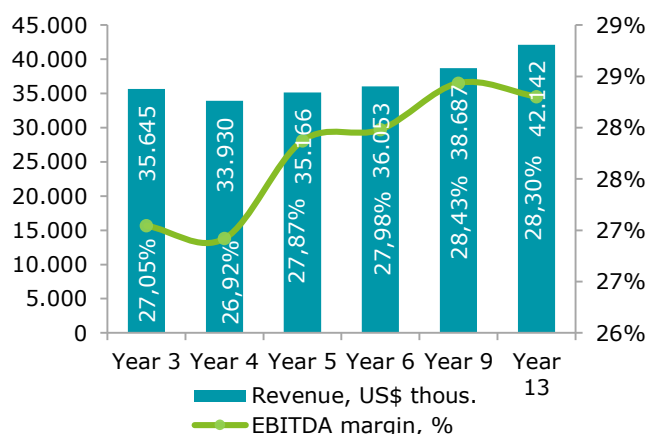
Project location: East Kazakhstan Oblast, Glubokovsky district



Deposit reserves, thousand tonnes

Ore/metal	On-balance reserves by category				
	A	B	C1	A+B+C1	C2
Ore	15	951.3	3,498.3	4,464.6	8,027
Copper	0.5	16.9	26.2	43.6	33.1
Lead	0.1	19.3	31.3	50.7	64.2
Zinc	0.8	65.1	136.5	202.4	287.7
Ore	-	-	1,398.6	1,398.6	11,102.0
Gold, kg	-	-	1,679.4	1 679.4	4,605.0
Silver, tons	-	-	55.9	55.9	555.1

Project profitability



Development of Kulan-Ketpes fluoride ore deposits

Project description:

The Project involves development of fluorite ore deposits and ore enrichment plant construction at Kulan-Ketpes ore field

Product:

- fluorspar (acid and ceramic grades containing 75%, 90%, 95%, 97% CaF₂);
- manganese concentrate (37% content).

Initiator:

Muyunkum-Mineral LLP

Location:

Muyunkum district, Jambyl Region

Potential markets:

large-scale manufacturers in chemical, steel, nuclear, and aluminium industries of CIS countries

Market conditions:

Rich resource base

The Kulanketpes ore field with a balance of fluorite reserves of 2,931 thousand tons is one of the largest deposits in Kazakhstan.

Pricing advantage

The favorable location of production plant near to its main consumers and tariffs imposed by the Eurasian Economic Union on fluorspar imports (9-10%) provide substantial geographical pricing advantage on the Russian fluorspar market.

Growing demand and production volume contraction

Due to increasing operational and transport costs, a principal Russian fluorspar manufacturer halted fluorspar production.

Low production cost

High processability of the Kulan-Ketpes ore and homogeneity of its mineral content allow to configure an economical technological process with minimal manufacturing and operational costs while adhering to the highest international products quality standards.

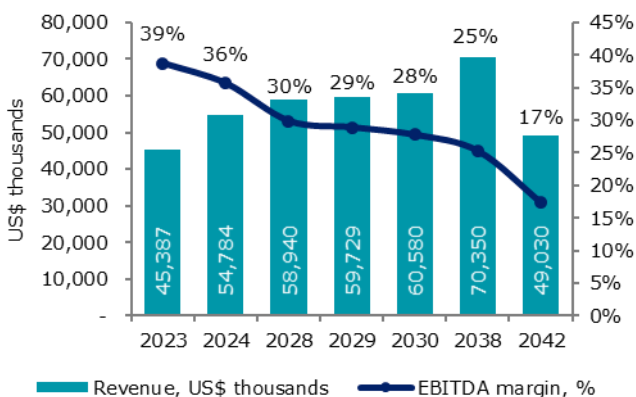
Key financial measures

Measure	Value
Project's life, years	24
<i>incl. development period, years</i>	3
<i>operational period, years</i>	21
Investment amount, USD thousands	68,157
Project's NPV, USD thousands	16,499
IRR, %	21.0%
EBITDA margin, %	26%
Payback period, years	8.5
Discounted payback period, years	11.5

Project location: Muyunkum district, Jambyl Region



Project Profitability



Deposit reserves, category C1+C2

Measure	Ore, thous. tons	Fluospar, thous. tons	Content, %
Vein deposits	5,764	1,667	28.92%
Stratified deposits	5,946	1,264	21.26%
Total	11,710	2,931	25.02%

Expansion of production capacity of a ferroalloy plant in Karaganda

Description of the Project:

This investment project provides for the expansion of the production capacity of a ferroalloy plant in the city of Karaganda.

Production and annual capacity:

Ferrosilicon – 240 thousand tonnes per year.

Project goals:

- Expanding the production capacity of the existing ferroalloy plant from 192,000 tonnes to 240,000 tonnes of products per year;
- Obtaining high-quality, export-oriented, competitive products using advanced proven production technologies;
- Meeting local and global demand for ferrosilicon through the production and subsequent sale of products in the markets of Kazakhstan, Europe, Southeast Asia, North and South America.

Initiator:

YDD CORPORATION, LLP

Sales market: Kazakhstan, China, Russia, USA, EU.

Key investment indicators:

Indicator	Results
Investment, USD thousands	116,828
Project NPV, USD thousands	509,427
IRR, %	121.7%
EBITDA returns, %	37%
Payback period, number of years from the start of production	2.0
Discounted payback period, number of years from the start of production	2.1

Location of the Project:

Karaganda, Karaganda region



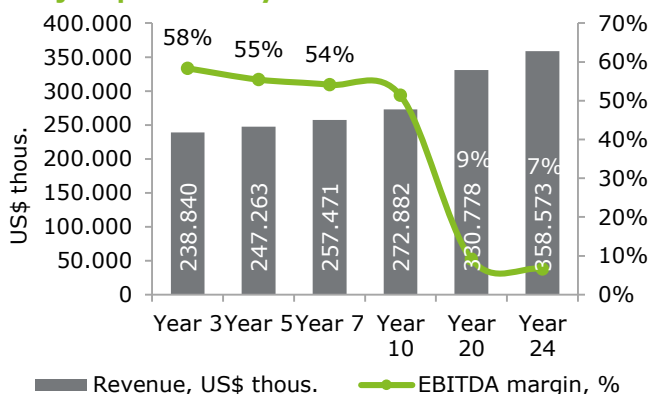
Market assumptions:

Growth in demand for ferrosilicon. According to the AlloyConsult analytical agency, global demand for (CAGR 2.7% from 2014 to 2028) ferrosilicon will reach 9.5 million tonnes by 2026.

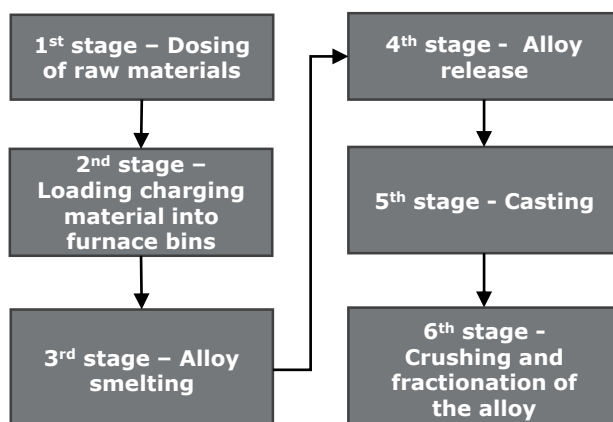
Persistent steel demand. High rates of historical production growth and the strategic importance of the further development of industries, which use steel as raw materials, create a steady demand for the products manufactured under the Project. According to the forecasts of the International Steel Association, the global demand for steel and steel products will increase by 1.4% in 2019. According to Lucintel forecasts, steel demand is projected to grow. Compound annual growth rate (CAGR) will be 1.6% in the period from 2019 to 2024, and revenue will be about 68.4 billion US dollars, which will also contribute to the rise of ferrosilicon demand.

Provision of raw materials. The company concluded long-term contracts for the main raw material base for the production of ferrosilicon, fixing prices for a long-term period, which, in turn, helps to maintain low production costs.

Project profitability



Technological process of the Project:



Construction of a ferroalloy plant in Kyzylorda

Description of the Project

This investment Project provides for the construction of a ferroalloy plant in Kyzylorda

Production and annual capacity

- Shop 1 - 42,000 tonnes of ferrosilicon per year;
- Shop 2 - 120,000 tonnes of ferrosilicon per year.

Project goals

- Low aluminum ferrosilicon production;
- Obtaining high-quality, export-oriented, competitive products using advanced proven production technologies;
- Meeting local and global demand for ferrosilicon through the production and subsequent sale of products in the markets of Kazakhstan, Europe, Southeast Asia, North and South America.

Initiator:

National Center on Complex Processing of Mineral Raw Materials of the Republic of Kazakhstan, «RSE NCCPMRM»

Key investment indicators

Indicator	Results
Investment, USD thousands	242,264
Project NPV, USD thousands	277,539
IRR, %	29.2%
EBITDA returns, %	52%
Payback period, number of years from the start of production	6.1
Discounted payback period, number of years from the start of production	7.6

Location of the Project:

Site of the Industrial Zone, Kyzylorda, Kyzylorda Oblast, Republic of Kazakhstan



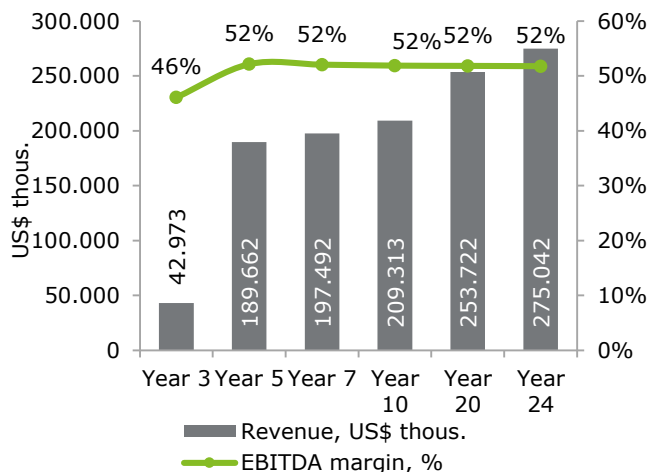
Market assumptions:

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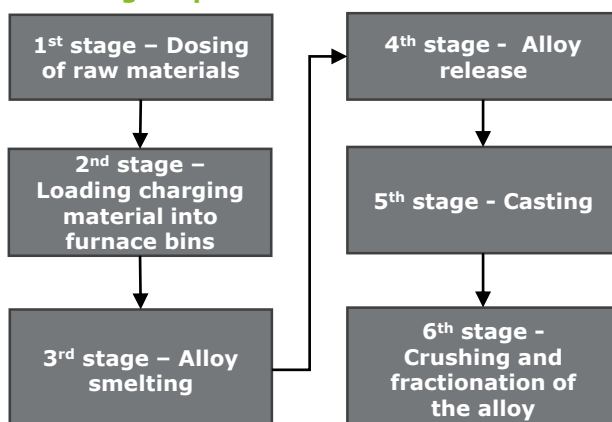
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Provision of raw materials. The company concluded long-term contracts for the main raw material base for the production of ferrosilicon, fixing prices for a long-term period, which, in turn, helps to maintain low production costs.

Project profitability



Technological process:



Organization of the production of ferrosilicon aluminum in Pavlodar oblast

Description of the Project :

The investment project provides for the construction of a plant for the production of ferrosilicon aluminum in Ekibastuz.

Production and annual capacity :

Ferrosilicon aluminum labeled as FS45A10 till FS65A20 – 60 thousand tons per year.

Raw materials:

Carbonaceous rock, quartzite, coal

Initiator:

Vtormet Asia LLP

Location:

Ekibastuz, Pavlodar region

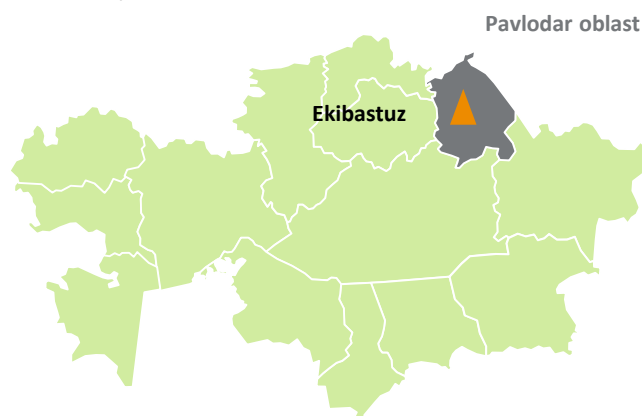
Sales market: domestic market, China, Russia.

Key investment indicators:

Indicator	Results
Investment, USD thousands	70,000
Project NPV, USD thousands	86,388
IRR, %	29.5%
EBITDA returns, %	38-43%
Payback period, number of years from the start of production	6.4
Discounted payback period, number of years from the start of production	7.9

Location of the Project:

Ekibastuz, Pavlodar oblast



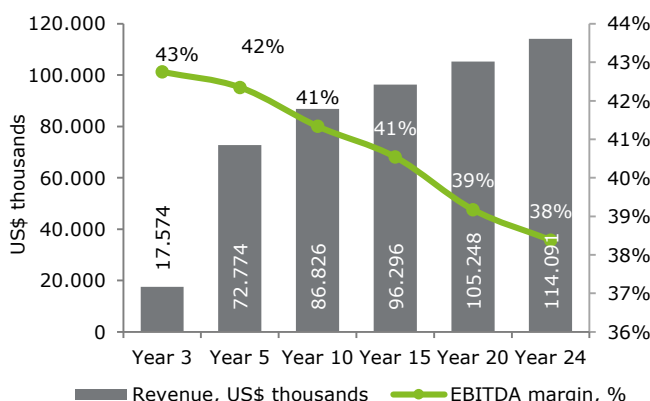
Market background:

Growth in demand for steel. According to the forecasts of the International Steel Association, the global demand for steel and steel products will increase by 1.4% in 2019. Lucintel expects steel demand to grow. Compound annual growth rate (CAGR) will be 1.6% in the period from 2019 to 2024.

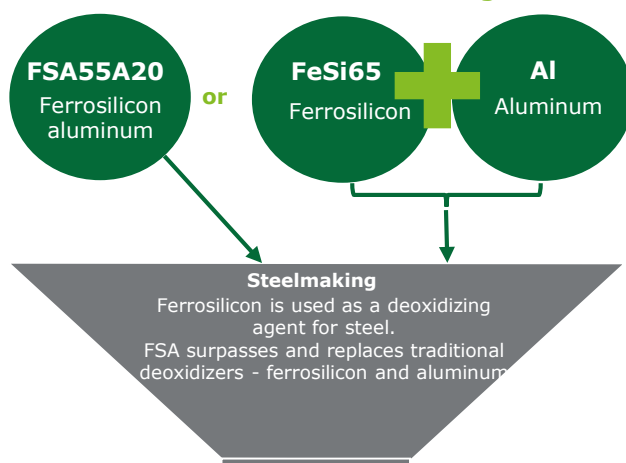
Low competition. The demand for FSA among steel producers is significant. Competition is made only by producers of ferrosilicon. However, the superiority of the FSA over the analogue will cover a significant share of domestic and foreign markets.

Increased production, export and domestic consumption of ferrosilicon. Ferrosilicon aluminum surpasses and replaces the traditional deoxidizers - ferrosilicon and aluminum, reducing the percentage of defective products and reducing the amount of sulfur, fluorine and other non-metallic parts. The growth of production by 8.8%, exports by 4.3% and consumption by 12.6% in 2017-2018 show growing demand for ferrosilicon and, accordingly, for PSA also as an analog product.

Project profitability



Ferrosilicon aluminum and its analogues:



Construction of a metallurgical complex for the production of pig iron in Mangystau Oblast

Project overview:

The project involves construction of a complex for the production of pig iron, with ROMELT technology. Iron ore mining and crushing will be carried out at the Beskempir deposit. The processing complex with the ROMELT technology, to which iron ores are going to be transported after crushing, will be located on the SEZ "Seaport Aktau".

Product: Intermediate pig iron

Production process:

Mining – open-pit;
Processing – ROMELT, liquid phase recovery with energetic coals.

Initiator: Technogran Aktobe LLC.

Location: Mangystau district, Mangystau Oblast.

Consumer market : China.

Annual production capacity:

240 thousand tonnes of pig iron.

Project implementation assumptions:

Deficiency of ferrous scrap. In Kazakhstan, there is currently a shortage of ferrous scrap caused by its export ban. Since the ban in 2014, the volume of domestic consumption of ferrous scrap has decreased by 50-60% compared with 2011.

Rich resource base. The Beskempir deposit, located in the Mangystau Oblast in the central part of the Karatau ridge, is the largest iron ore deposit, the reserves of which are approved under the State Reserves Committee of the Republic of Kazakhstan in category C2, amounted to 13,812 thousand tons. Iron ore is characterized by a high iron content and the absence of impurities. Also, the Mangystau oblast is rich in natural gas reserves.

Production technology. ROMELT technology for ore processing is based on direct iron reduction technology without an enrichment stage, which has a number of economic advantages in the production of pig iron.

Key investment indicators

Indicator	Results
Amount of investments, US\$ thousands	172,340
Project NPV, US\$ thousands	152,771
IRR, %	27.4%
EBITDA margin, %	51%
Payback period, years	5.7
Discounted payback period, years	7.2

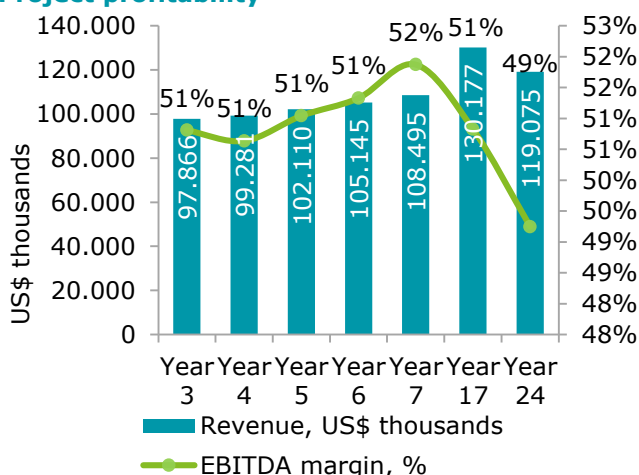
Deposit reserves and its provision

Site	Provision, years	Reserves, thousand tonnes	Content, Fe, %
On-balance reserves, C2	23	13,811.64	43.88
North		5,760.19	40.39
Central 1		5,608.23	46.67
Central 2		1,424.06	46.89
Central 3		1,019.15	44.12
Off-balance reserves	22	13,696.26	40.19
Total	45	27,507.9	42.04

Project location: Mangystau district, Mangystau Oblast



Project profitability



Launch of long products manufacturing at Aktau Foundry in Aktau city

Project description:

This investment project provides for the launch of production of long products at the Aktau Foundry, carried out as part of a comprehensive reengineering program.

Production capacity:

180,000 tones/year

Project objectives:

- Creation of an efficient integrated business for long product production and its sale on domestic and foreign markets;
- Obtaining high quality, competitive products using advanced approved production technologies corresponding to the world class level of the long products manufacturing.

Products: rebar, I-beam, structural channel, angle.

Initiators: ALZ LLP and BCC Invest.

Market background:

Growth in consumer demand for long products.

According to Metal Expert forecasts, in the non-residential construction sector, the main drivers of demand will be actively initiated government programs and measures to stimulate industrial production and investment. In the conservative scenario, demand is expected to grow by 3-5%.

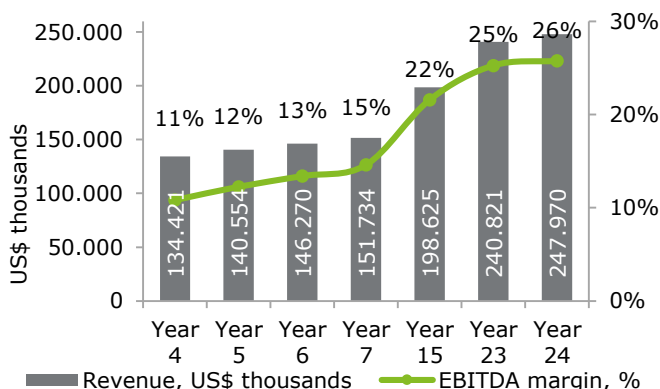
Import substitution. Growth in consumer demand has sharpened competition between domestic producers and suppliers from the Russian Federation. Also, in Kazakhstan there are no enterprises producing a full range of long products.

Export Development. Over the past five years, Kazakhstan mainly exported rebars (among long products). In the structure of exports, the share of Tajikistan in the total volume of exports of rebars is 73% (86,663 tons); Russian Federation and Kyrgyzstan account for 11% (13,217 tons) and 10% (12,031 tons), respectively.

Key investment indicators

Indicator	Results
Investment amount, US\$ thousands	79,348
Project NPV, US\$ thousands	59,687
IRR, %	15.9%
EBITDA margin, %	19%
Payback period, years	9.7
Discounted payback period, years	16,4

Project profitability

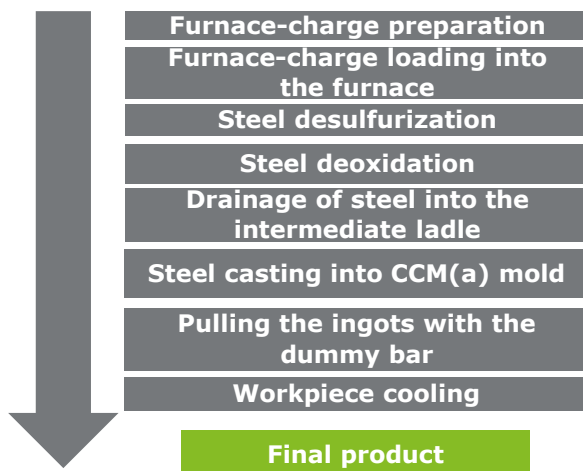


Project location:

Mangystau oblast, Aktau, Industrial area



Technological process:



Expansion of the production of steel pipes in the Mangistau Oblast

Description of the Project:

The investment project provides for the construction of a plant for the production of oil and gas equipment in the SEZ "Seaport Aktau" of the Mangistau Oblast.

Production and annual capacity:

- Tubing pipes – 78.3 thousand tonnes per year;
- Casing – 66.7 thousand tonnes per year;
- Line pipe – 5089 tonnes per year.

Raw materials:

High alloy steel

Initiator:

The initiator of the project is Kaskor-Mashzavod JSC, which is one of the leading machine-building enterprises in the Republic of Kazakhstan.

Location: SEZ "Seaport Aktau" - subzone 3, the Mangistau Oblast

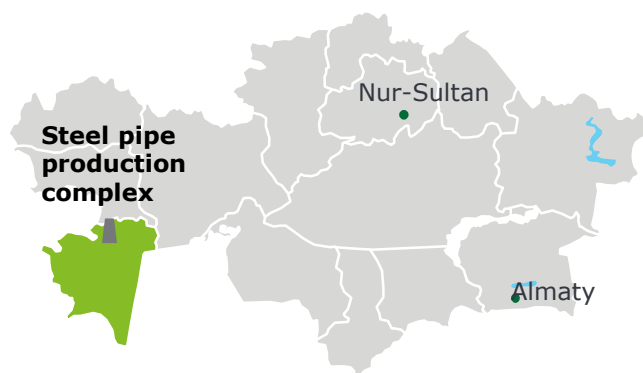
Sales market: domestic market, China, Russia, Turkmenistan

Key investment indicators

Indicator	Results
Investment, USD thousands	245,923
Project NPV, USD thousands	257,581
IRR, %	25.5%
EBITDA returns, %	42%
Payback period, number of years from the start of production	6.8
Discounted payback period, number of years from the start of production	8.4

Location of the Project:

Aktau, Mangistau Oblast



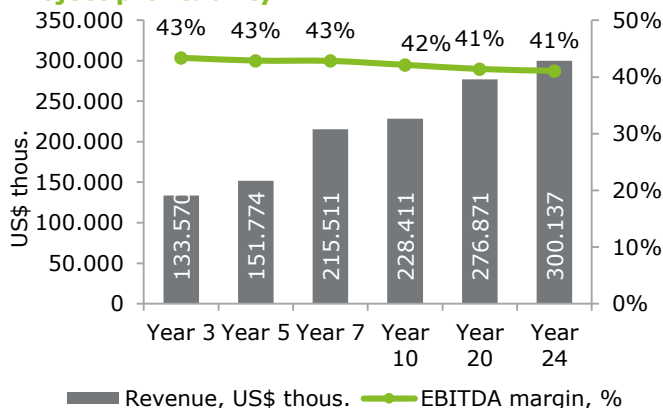
Market background:

Growth in demand for steel pipes. Lucintel predicts that there will be an increase in global demand for steel pipes in the world. Compound annual growth rate (CAGR) in 2019-2024 will be equal to 1.6%, and revenue will be equal to about US\$ 68.4 billion. The main drivers of this market are the construction of new pipelines, the replacement of obsolete pipelines, the level of urbanization and the development of infrastructure.

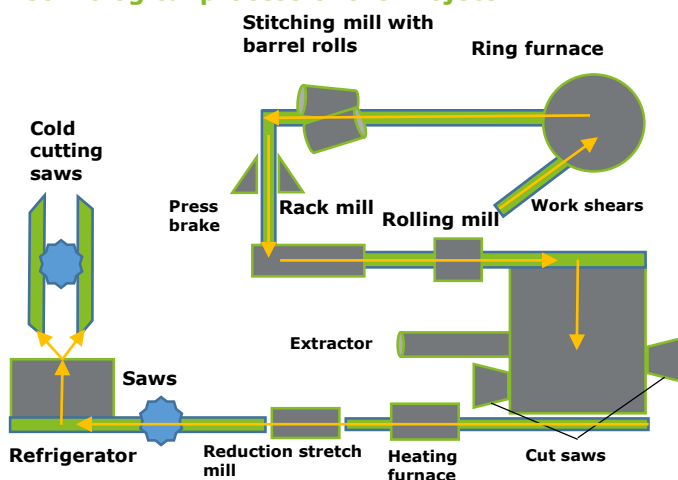
Import substitution. Import volumes over the past year equal to 210.8 thousand tonnes, which is twice as high than in 2015, given that the country's domestic production rate is 2.4 times lower than the use of tubing, casing and line pipes. The expansion of the steel pipe plant will reduce the dependence on imports.

Export development. Kazakhstan also exports steel pipes. In 2018, the volume of export of tubing pipes, casing and line pipes amounted to 149.4 thousand tonnes, demonstrating an increase of 57% compared to 2014.

Project profitability



Technological process of the Project:



Construction of a mining and processing plant for the production of manganese concentrate

Description of the Project

The present investment project (the "Project") provides for the construction of a mining and processing complex for the production of manganese concentrate at the Karamola deposit in the Almaty region.

Product: manganese concentrate.

Aims of the Project: Creation of an innovative mining and metallurgical complex for the production of manganese concentrate in the Almaty region.

Manufacturing process: The developed technological enrichment scheme includes two-stage crushing of the initial ore to a fineness of 40 mm, followed by wet screening into fineness classes of 40-5 mm, 5-125 mm and 1.25-0.0 mm.

Initiator: Tentek LLP.

Production volumes:

ore - 49.6 thousand tons per year,

concentrate - 19.2 thousand tons per year.

Market conditions:

High demand. Manganese in ferromanganese alloys is used to "deoxidize" steel during its melting (to remove oxygen from it). The high growth of steel production in the world and the strategic importance of the further development of industries using steel as raw materials create a steady demand for the products manufactured under the Project. According to the forecasts of the International Steel Association, the global demand for steel and steel products will increase by 1.4% in 2019. According to Lucintel forecasts, the average annual growth rate (CAGR) for steel pipes will be 1.6% in 2019-2024.

Export potential. China is the world's largest importer of manganese concentrate (27 656 thousand tons in 2018). Russia is the fourth largest importer of manganese concentrate (1318 thousand tons in 2018). Over the past 5 years, the growth rates of imported manganese concentrate by China and Russia amounted to 14.3 and 6.6%, respectively.

Key investment indicators of the Project

Indicator	Results
Investment amount, US\$ thous.	10,114
Project NPV, US\$ thous.	5,651
IRR, %	24.04%
EBITDA yield, %	75.2%
Payback period, years	6.48
Discounted payback period, years	8.22

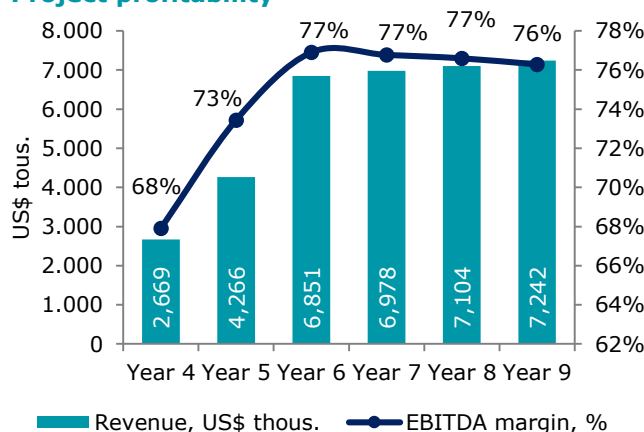
Deposit reserves

Currently, one area has been explored with estimated reserves of 1.5 - 2.0 million tons of manganese ores, including the estimated and approved GKZ RK C1 - 233.4 thousand tons (Mn 22.65%), C2 - 215, 0 thousand tons (Mn 22.53%). The reserves of the deposit are estimated at more than 16 million tons of manganese and 80 million tons of ore. The manganese content in ores varies from 12-14% to 38-46%, with a phosphorus content of up to 0.1%. Estimated reserves in general for 23 ore sites (including the Karamola deposit) of the Karamola area are estimated at 250 million tons.

Project location: Alakol district, Almaty Oblast



Project profitability



Construction of a complex for the production of barite concentrate in Mangystau Oblast

Project description:

The project involves construction of a complex for the extraction of barite-celestine ores and their processing into barite concentrate for use as weighting agents for drilling muds. The mining of barite-celestine ores and their processing will be carried out at the North Aurtas deposit.

Product: Barite-celestine based weighting agent («BCWA»), carbonate based weighting agent («CWA»).

Reserves (Category C1):

3,579 thousand tons

Initiator:

Chemicals trading LLC.

Location:

Mangystau district, Mangystau Oblast

Annual production capacity:

200 thousand tons of ore per year;

- BCWA - 186 thousand tons;
- CWA - 14 thousand tons.

Key investment indicators

Indicator	Results
Amount of investments, US\$ thousands	14,123
Project NPV, US\$ thousands	14,999
IRR, %	32.5%
EBITDA margin, %	34-41%
Payback period, years	5.0
Discounted payback period, years	6.1

Project location: Mangystau district, Mangystau Oblast



Project implementation assumptions:

Existence of a rich resource base.

The Aurtas deposit, located in Mangystau Oblast, is the largest barite ore deposit with a balance stock of 3.5 million tons of ore. Additionally, ore reserves may increase during additional geological exploration of the area during mining operations.

Advantageous location.

The geographical proximity of the Aurtas deposit to the oil and gas fields of western Kazakhstan and to the Caspian Sea and the ports of Aktau and Kuryk provides a favorable logistic advantage in the delivery of final products to both domestic and foreign consumers.

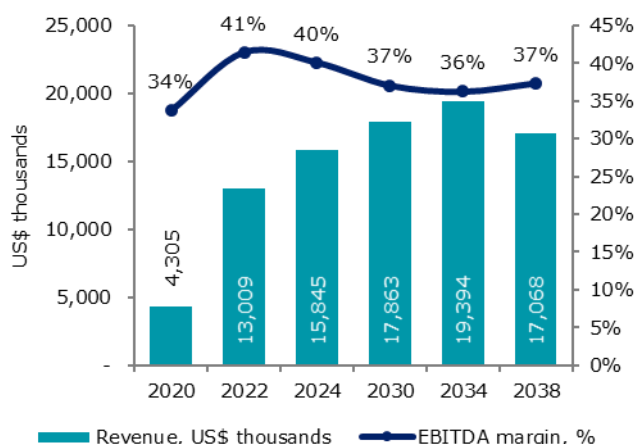
Development of the oil and gas industry of Kazakhstan.

The last four years, the volume of purchases of the entire oil and gas market in Kazakhstan has increased by an average of 20% per year. The total amount of oil services purchased in 2018 amounted to US\$ 8.26 billion, which is 15.5% more than in 2017 (US\$ 7.15 billion).

Lack of competition in foreign markets and export potential.

According to the analysis of competitors in foreign markets in Turkmenistan, Russia, Azerbaijan and Saudi Arabia, the extraction and processing of barite is insufficient or completely absent to meet domestic demand.

Project profitability



Construction of coal-preparation plant in Karaganda

Description of the Project

This investment Project provides for the construction of a coal-preparation plant in Karaganda

Production and annual capacity

- Coal coke – 260,000 tonnes/year;
- Metallurgical products – 28,000 tonnes/year;
- Fraction D - 0 mm - 3 mm – 134,000 tonnes/year;
- Fraction D - 3 mm - 18 mm – 286,000 tonnes/year;
- Fraction D - 18 mm - 50 mm – 140,000 tonnes/year.

Project goals

- expansion of production capacities of the existing coal-preparation plant and additional output of finished products in the amount of 560 thousand tonnes per year;
- obtaining high-quality, export-oriented, competitive products, as well as expanding its assortment, using advanced proven production technologies
- providing the raw material base for the existing ferroalloy plant.

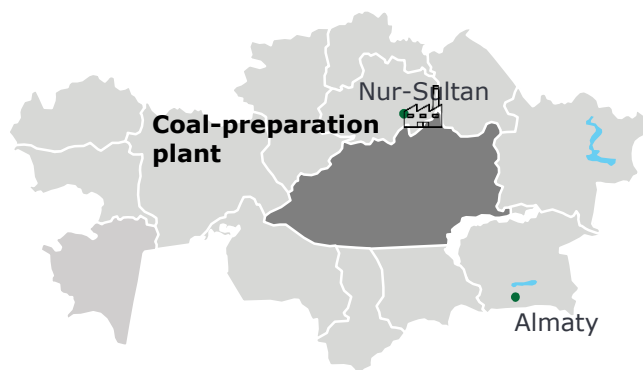
Initiator: QazCarbon LLP

Key investment indicators

Indicator	Results
Investment, USD thousands	25,660
Project NPV, USD thousands	20,693
IRR, %	18.39%
EBITDA returns, %	7.5%
Payback period, number of years from the start of production	2.09
Discounted payback period, number of years from the start of production	2.15

Location of the Project:

Octyaberskaya Industrial Zone, Karaganda, Karaganda Oblast, Kazakhstan



Market assumptions

The presence of stable demand and offtake contract

The main assumption for the construction of the enrichment plant is the need for raw materials for the plant for the production of ferrosilicon in Karaganda ("YDD Corporation"). A 10-year contract was concluded with YDD Corporation for the supply of 285 thousand tonnes of coal concentrate (51% of the total production). Also, 25% of the coal concentrate will be used for the production of semi-coke, and the remaining volume will be exported.

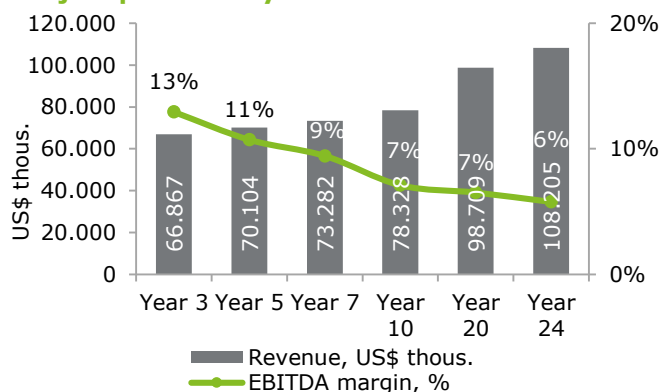
Stable growth in demand for ferroalloys

The annual increase in consumption of ferroalloys is estimated at 500 thousand tonnes. According to Market Research Future analysis, the global ferroalloy market in the forecast period from 2019 to 2025 will grow with an average annual growth rate (CAGR) of 5.6%.

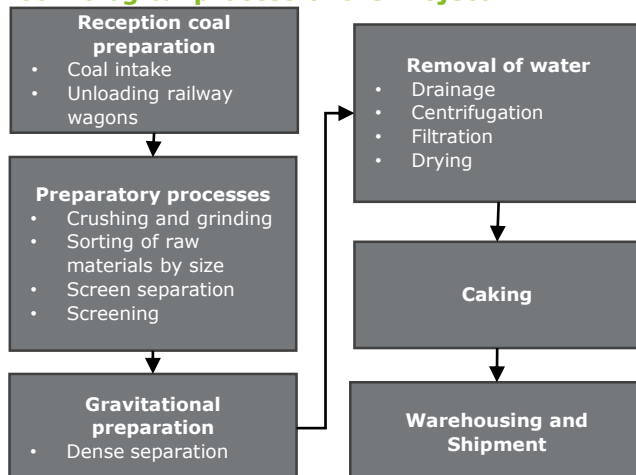
Rich raw material base

Kazakhstan is one of the ten countries with the largest coal reserves (estimated 25 billion tonnes). Over 100 million tonnes of coal are mined annually in the country.

Project profitability



Technological process of the Project:





KAZAKHSTAN CUMHURİYETİ
ANKARA BÜYÜKELÇİLİĞİ

Chemical and Petrochemical Industry



Construction of a plant for the production of biological products according to the GMP standard

Project description: Construction of a biopharmaceutical plant for the production of biological products according to the GMP (Good Manufacturing Practice) standard with a capacity of 15 million doses per year.

Project goals: Construction of the first biopharmaceutical plant in Kazakhstan in accordance with the international GMP standard.

Project initiator: Republican State Enterprise "Research Institute for Biological Safety Problems".

Product and output:

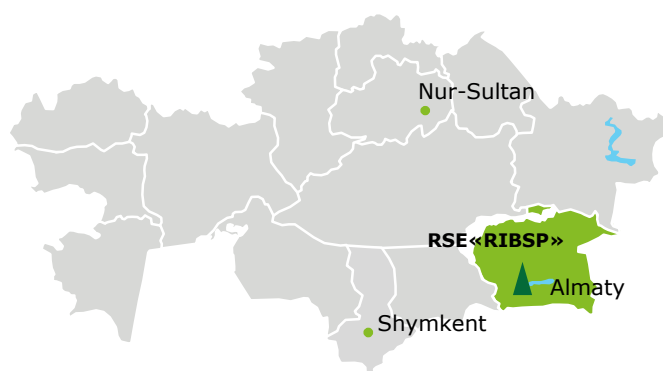
- Smallpox vaccine – 3,750 thousand doses;
- Avian influenza vaccine – 2,250 thousand doses;
- Cattle Nodular Dermatitis Vaccine – 3,000 thousand doses;
- Cattle Plague Vaccine – 2,250 thousand doses;
- Small Cattle Ecthyma Vaccine – 1 500 thousand doses;
- Animal Brucellosis Vaccine – 2,250 thousand doses.

Key investment indicators of the Project

Indicator	Results
Investment amount, thous. USD	10,171
Project NPV, thous. USD	8,603
IRR, %	22.4%
EBITDA margin, %	57%
Payback period, years	8.2
Discounted payback period, years	11.2

Project location:

Almaty Oblast, Zhambyl district, urban-type settlement Gvardeyski.



Prerequisites for Project implementation

Lack of production in accordance with GMP standards

As of today, there are no production of biological products that meets international GMP standards in Kazakhstan. Compliance with GMP standards will provide laboratory comprehensive verification and regulation of production parameters, the quality of all products, and reduce the risk of manufacturing errors to a minimum.

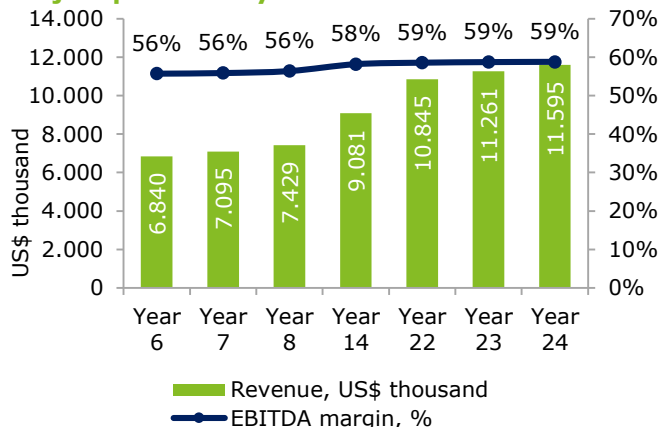
The growth of cattle, small cattle and poultry

Currently, Kazakhstan has seen an increase in the number of cattle, small cattle and birds. For example, in 2018, the increase in the number of cattle was 6%, small cattle - 2% and birds - 11%. For this reason, the need for veterinary drugs for the prevention and treatment of animals is increasing.

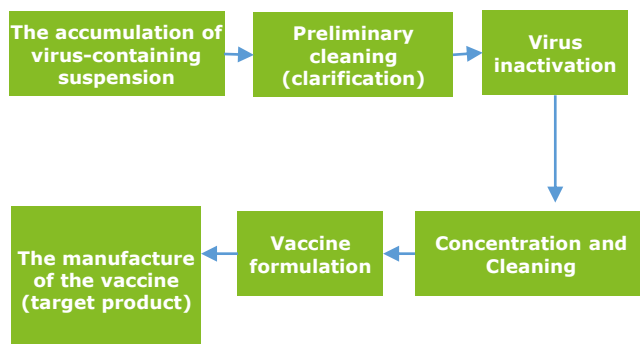
Import substitution

The share of imports in the structure of consumption of veterinary drugs in the country is 78%, which indicates a high import dependence. In 2018, imports to the country amounted to 246 tons of veterinary drugs, of which 200 tons were imported from Russia.

Project profitability



Biological product manufacturing technology



Construction of a plant for the production of household chemicals in Almaty

Project overview:

This investment project provides for the construction of a plant for the production of household chemicals with a capacity of 18,500 thousand liters per year (the "Project").

Initiator: "Aurora Holding" Group of Companies

Commercial products:

- Dishwashing detergents;
- Glass spray;
- Cleaning product for kitchen;
- Cleaning products for plumbing;
- Cosmetics;
- Detergents for clothes and textiles.

Output capacity:

18 500 thousand liters/year

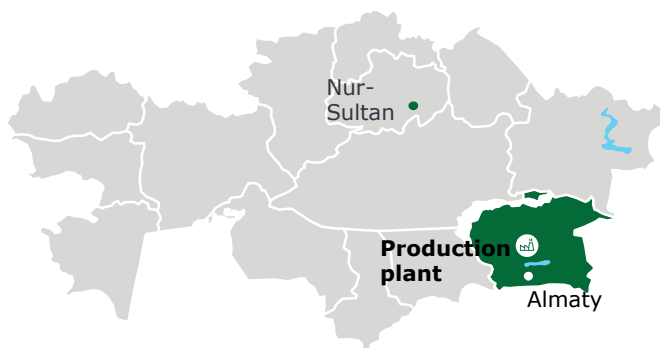
Project location: Industrial zone, Alatau district, Almaty city

Key investment data

Index	Results
Investment, US\$ thousands	23,479
Project NPV, US\$ thousands	13,946
IRR, %	20.6%
EBITDA returns, %	18%
Payback period, years	7.2
Discounted payback period, years	11.5

Project location:

Industrial zone, Alatau district, Almaty city



Market assumptions:

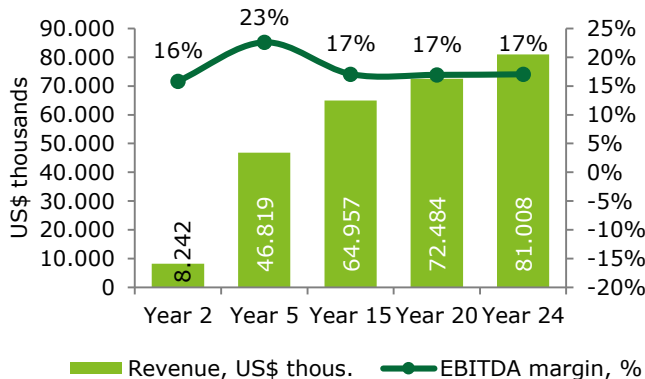
Growing demand – The average annual growth rates for certain products of this industry range from 3% to 8% per year. The detergent market was estimated at \$ 27.4 bln in 2017 and, according to forecasts by Allied Market Research, it will reach US\$ 40.5 bln by 2025. The global market of hair care products was estimated by Mordor Intelligence at US\$ 91.95 bln in 2017 and is expected to reach US\$ 112.57 bln by 2023.

Availability of customer base –

The company has a large customer base: its main customers are large retail chains, supermarkets, grocery stores, hotel complexes and educational institutions.

Import substitution – According to the comments of representatives of "Aurora Holding", the market of household chemicals of the Republic of Kazakhstan depends on import for 95%. For this reason, the dynamics of price increases in this industry can vary from 7% to 14% per year.

Project profitability



Commercial products

Product name	Volumes at full capacity, thous. liters
Dishwashing liquid	7,806
Glass spray	1,498
Kitchen cleaning products	1,000
Cleaning products for plumbing	3,758
Cosmetics	3,886
Detergents for linen and textiles	556
Total	18,500

Construction of a new complex for the production of nitrogen mineral fertilizers in Aktau

Project overview:

Construction of a new complex for the production of class 2 ammonia, on the territory of the existing ammonia and ammonium nitrate production plant in Aktau, Republic of Kazakhstan.

Commercial products and annual output:

300 thousand tonnes of liquid class 2 ammonia per year.

Initiator:

The Project is initiated by KazAzot JSC ("Initiator"), an industrial enterprise in Mangystau Oblast, the only country producer of ammonium nitrate and ammonia.

Project location: Mangystau Oblast, Aktau.

Consumer markets: domestic market, Ukraine, as well as possible supplies to China, Turkey, Russia and Europe.

Market assumptions:

Growing demand for fertilizers

According to the report of Grand View Research Inc. it is expected that by 2025 the world demand for fertilizers will reach US\$ 178.26 billion (CAGR 3.4%).

Import substitution

Kazakhstan is import-dependent on ammonia, the annual import of which amounted to 20-30 thousand tonnes. Imported ammonia is used by agricultural enterprises as a nitrogen fertilizer.

Raw materials availability

A new complex for the processing of natural gas into nitrogen mineral fertilizers will be built in close proximity to the current plant of KazAzot JSC.

Export potential

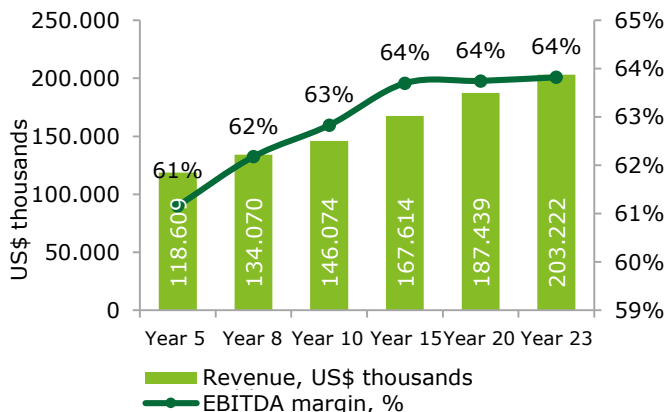
By increasing the production of ammonia, Kazakhstan can increase its share of exports to Turkey, China, Russia, as well as to Europe, which are one of the main consumers of ammonia on the world market.

Key investment indicators

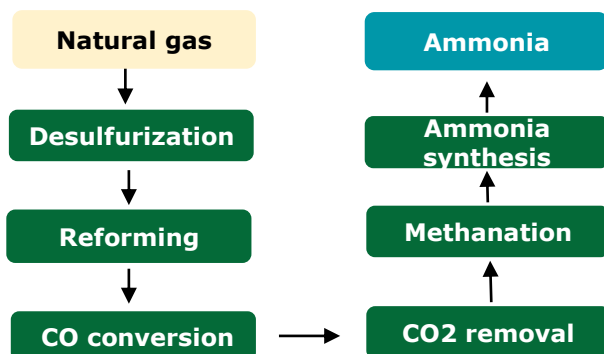
Indicator	Results
Investment, US\$ thousands	344,571
Project NPV, US\$ thousands	79,986
IRR, %	14.0%
EBITDA returns, %	63%
Payback period, amount of years from the start of production	9.7
Discounted payback period, amount of years from the start of production	20.1

Project location: Mangystau Oblast, Aktau

Project profitability



Technological flows during Project implementation period



Construction of a complex for the production of caustic soda, hydrochloric acid and coagulants in the territory of the SEZ "NIPT"

Project overview:

Construction of a chemical complex for the production of caustic soda, hydrochloric acid and coagulants using specialized technologies in the territory of the SEZ "NIPT" in the Atyrau Oblast.

Commercial products and annual output:

- Sodium hydroxide 48%: 30 thousand tonnes per year;
- Calcium hypochlorite: 16.5 thousand tonnes per year;
- Ferric chloride 40%: 5 thousand tonnes per year;
- Hydrochloric acid 35%: 8.5 thousand tonnes per year;
- PAC-17 (aluminum oxychloride): 2 thousand tonnes per year.

Initiator:

Global Chemical LLP

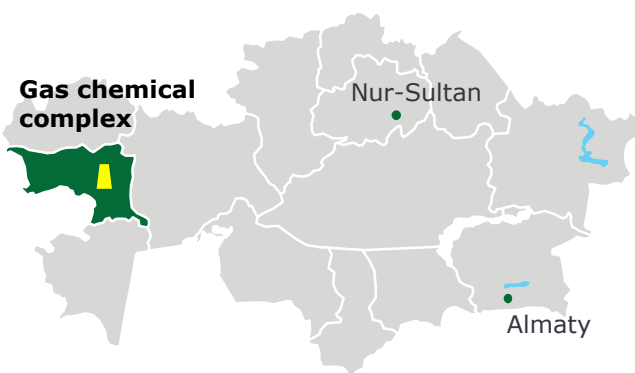
Project location: SEZ "NIPT", Atyrau Oblast

Consumer markets: Domestic market, China, Russia

Key investment indicators

Indicator	Results
Investment, US\$ thousands	70,000
Project NPV, US\$ thousands	55,646
IRR, %	22.2%
EBITDA returns, %	49%
Payback period, amount of years from the start of production	6.1
Discounted payback period, amount of years from the start of production	8.8

Project location: SEZ "NIPT", Atyrau Oblast



Market assumptions:

Growing demand for caustic soda

According to forecasts of the analytical agency Grand View Research, by 2024 the volume of the world market of caustic soda will exceed US\$ 46 billion.

Growing demand for hydrochloric acid and coagulants

Demand for hydrochloric acid and coagulants, according to Grand View Research, the global market will exceed US\$ 160 million (CAGR 5.8%) and US\$ 2.63 billion dollars (CAGR 2.4%), respectively.

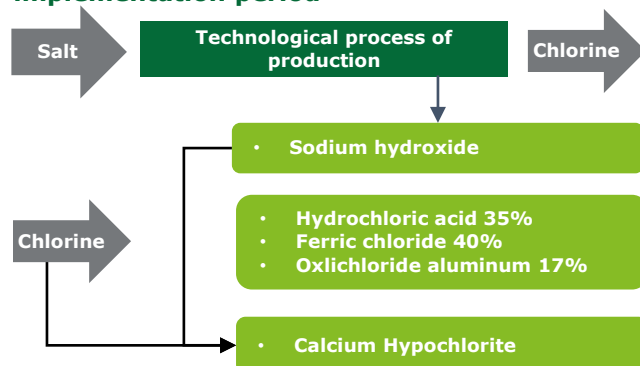
Raw materials availability

The main raw material for the production of caustic soda is plain salt, the supplier of which will be TUZ LLP. Salt supplies will be 27 thousand tonnes per year for a period of operation of 20 years. Also, an important raw material for the production of soda is technical water, the supplier of which will be the Association "Su Arnasy Kazakhstan".

Project profitability



Technological flows during Project implementation period



Construction of a gas-chemical complex for the production of methanol in the West Kazakhstan region

Project overview:

Construction of a gas-chemical complex for the production of methanol in the West Kazakhstan region

Raw materials:

natural gas (potential supplier – “Zhaikmunai” LLP)

Commercial products:

AA grade methanol

Output capacity:

Production of 350,000 metric tons of methanol/year;

Consumption of 306,000 thous. normal cubic meters of natural gas/year.

Project initiator:

Limited Liability Partnership “Zhaik Petroleum Ltd”

Project location: country district Beles, Zelenovsky district, West Kazakhstan region.

Consumer markets : Sweden, Finland, Kazakhstan.

Market assumptions:

Growing demand – According to a report by Market Research Future® (WantStats Research And Media Pvt. Ltd.), the global methanol market is expected to reach \$ 61 billion by 2023. Methanol is widely used as an alternative fuel in internal combustion engines due to its efficiency and cost-effectiveness.

Import substitution – Kazakhstan is 100% import dependent on methanol, the annual consumption of which is at least 25 thousand tons. Imported methanol is used by gas industry enterprises as a method to combat the formation of hydrates. The need to import methanol (raw materials) at high prices determines the price non-competitiveness of Kazakhstan's final products and enterprises.

Availability of customer base – The largest potential consumers can be large oil-extracting and oil refineries of Kazakhstan, importing gas chemical elements for the production of drilling fluids, coagulants and inhibitors.

Investment attractiveness of the Project

Indicator	Results
Investment, US\$ thousands	166,100
Project NPV, US\$ thousands	127,522
IRR, %	22.4%
EBITDA returns, %	43%
Payback period, years	6.3
Discounted payback period, years	9.3

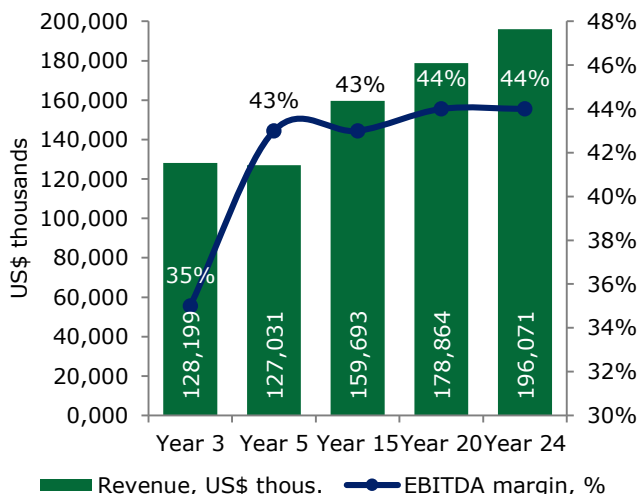
Project Location:

country district Beles, Zelenovsky district, West Kazakhstan region



Raw materials availability – The plant will be built in the West Kazakhstan region, bordering the Aktobe and Atyrau regions, the country's oil and gas centers. In the region itself there is the Karachaganak oil and gas condensate field, with reserves of 1.35 trillion cubic meters of gas and 1.2 billion tons of oil and gas condensate.

Project profitability



Construction of a gas chemical complex for the production of methanol and olefins in Aktau

Project overview:

Construction of a gas chemical complex for processing natural gas and methanol using specialized technologies, where gas is primarily processed into methanol, and methanol, subsequently, processed into olefins.

Commercial products and annual output:

- AA class methanol: 1,800 thousand tonnes per year;
- Olefins: 600 thousand tonnes per year (propylene - 360 thousand tonnes, ethylene - 240 thousand tonnes).

Initiator:

WestGasOil LTD, an industrial enterprise in the West Kazakhstan Oblast, which is engaged in large-scale gas chemical projects.

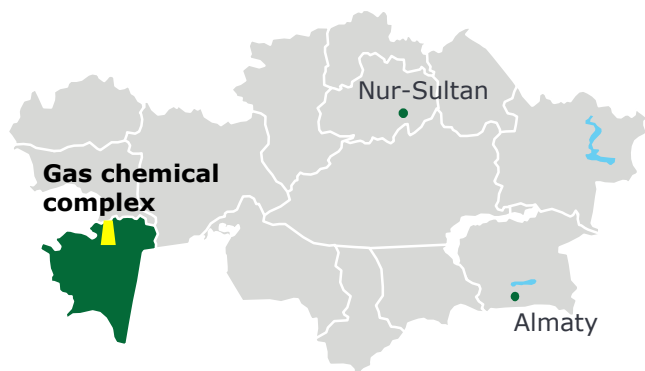
Project location: Mangystau Oblast, Aktau

Consumer markets: domestic market, Europe, Russia.

Key investment indicators

Indicator	Results
Investment, US\$ thousands	1,800,000
Project NPV, US\$ thousands	1,068,605
IRR, %	21.2%
EBITDA returns, %	63%
Payback period, amount of years from the start of production	6.9
Discounted payback period, amount of years from the start of production	9.7

Project location: Mangystau Oblast, Aktau



Market assumptions:

Growing demand for methanol and olefins

According to a report by Market Research Future® (WantStats Research And Media Pvt. Ltd.), the global methanol market is expected to reach US\$ 61 billion by 2023. Global imports of propylene are growing at an average rate of 2.2% per year, while ethylene imports are growing at an average rate of 4.2% per year.

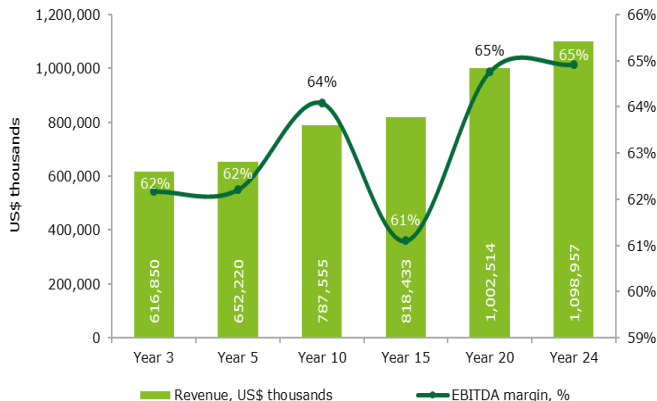
Import substitution

Over the past five years, Kazakhstan imported about 24 thousand tonnes of methanol per year, despite the fact that import volumes grow by an average of 14% per year. Production of domestic products will reduce the volume of gas and chemical imports.

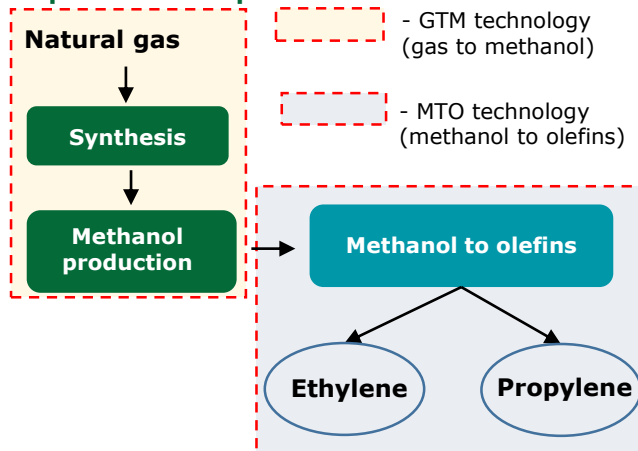
Export potential

Besides sales, products will also be exported. The external market is attractive for sales due to the growing demand and availability of cheap raw materials, which opens up significant prospects for the organization of export of the Project's products.

Project profitability



Technological flows during Project implementation period



Construction of a plant for the production of base oil components in the West Kazakhstan Oblast

Project overview:

Construction of a plant for the production of base oil components from natural gas

Raw materials:

natural gas - 1.0 bln normal cubic meters per year

Commercial products and output capacity:

- 280 thousand tons of base oil components (paraffin) per year;
- 110 thousand tons of diesel and gasoline fractions per year;
- 10 thousand tons of liquefied petroleum gas per year.

Initiator: Company group "Condensate"

Project location: Aksai city, WKO.

Consumer markets: Kazakhstan, China, EU

Tax payments during the operation of the Project (2022-2042):

CIT – US\$ 618 millions;

Other taxes, fees and contributions –

US\$ 66 millions;

Obligatory pension contributions - US\$ 34 millions.

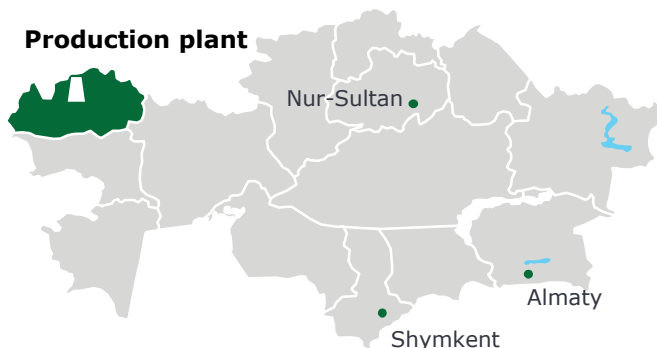
Key investment data

Index	Results
Investment, US\$ thousands	820,744
Project NPV (in Scenario 2 with price of natural gas 60 US\$/thous. m3), US\$ thousands	266,538
IRR, %	17.01%
EBITDA returns, %	58-63%
Payback period, years	8.2
Discounted payback period, years	13.8

Project location:

Production site Sulusay, Aksai city, West Kazakhstan Oblast

Production plant



Market assumptions:

Growing demand

According to the report provided by Grand View Research Inc., base oil consumption reached 33 million tonnes in 2016, the world market of base oils is expected to reach US\$ 40.47 bln by 2024. The growing demand for base oils is a key driver increasing the demand for the products to be manufactured by the Project.

Availability of customer base

China-based Shanxi Lu'an Group (minority shareholder of Cathay Biotech) is a holder of the patent for the gas chemical technology to produce base oil components. The major portion of the base oil components will be delivered to Shanxi Lu'an Group's plant located south of Shanghai, and partly to the EU countries. Gasoline and diesel fractions can be consumed by the Condensate Group in their production cycle.

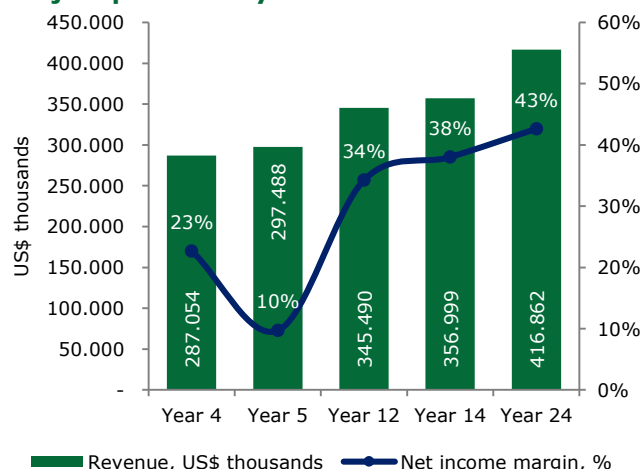
Raw materials availability

Reserves of the Karachaganak oil and gas condensate field amount to 1.35 trillion cubic meters of gas and 1.2 billion tons of oil and gas condensate. The resources of this field in the amount of 8.5 billion cubic meters per year are processed at the Orenburg Gas Processing Plant, and WKO consumers have a priority right to purchase natural gas from these resources.

Export potential

The major portion of the products will be exported to China or the EU countries for further processing into finished products. The remaining by-products will be sold domestically in Kazakhstan.

Project profitability



Construction of a plant for the assembly and production of non-electric initiation systems and emulsion explosives

Project overview:

This investment project provides for the construction of a plant for the assembly and production of non-electric initiation systems and a mobile plant for the production of emulsion explosives ("Project").

This project is considered as innovative, since there is a construction of the first plant in Kazakhstan for the full-cycle production of NEIS.

Commercial products and annual output:

- emulsion explosives ("EE"): 24 thousand tonnes per year;
- non-electric initiation systems ("NEIS"): 50 million units per year.

Initiator:

Nitro-Kazakhstan LLP

Project location: Karaganda Oblast, Satpayev

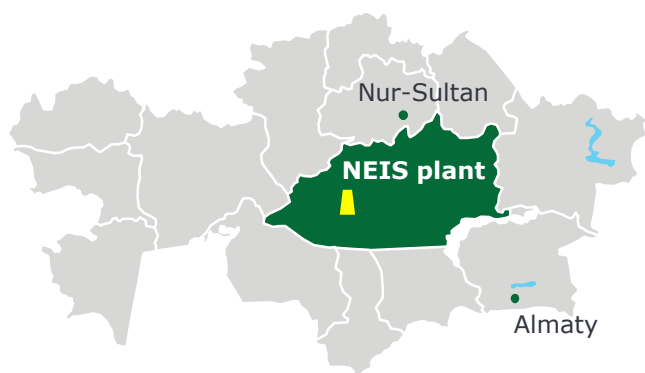
Consumer markets:

domestic market, Russia and Uzbekistan.

Key investment indicators

Indicator	Results
Investment, US\$ thousands	47,669
Project NPV, US\$ thousands	238,209
IRR, %	72.94%
EBITDA returns, %	62.4%
Payback period, amount of years from the start of production	3.93
Discounted payback period, amount of years from the start of production	4.22

Project location: Karaganda Oblast, Satpayev



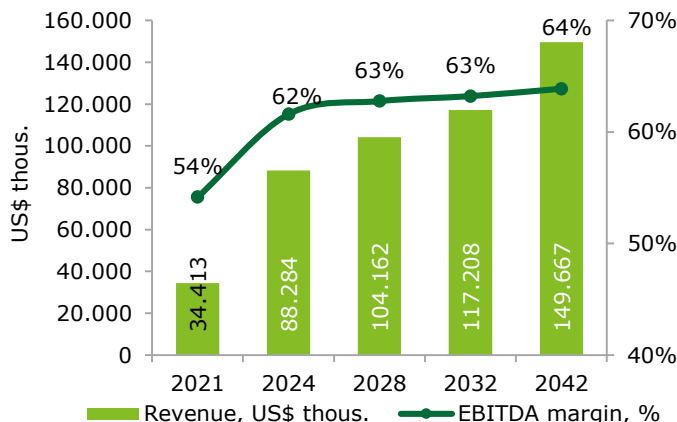
Market assumptions:

Growing demand for explosives The total market for explosives in Kazakhstan is estimated at US\$ 150 million per year. The total consumption of explosives equals to about 300,000 tonnes per year. Along with the development of new fields, consumption is expected to grow by 7-10% annually.

Import substitution Today in Kazakhstan there is no production of NEIS. All components used in the production of NEIS are manufactured abroad. In Kazakhstan there are only assembly shops of NEIS. The launch of the plant for the production of NEIS will help reduce import dependence on other countries. According to the results of 2018, the import of NEIS in Kazakhstan amounted to 1,635 tonnes in the amount of about US\$ 18 million.

Exporting potential Production of explosives and NEIS in the Karaganda Oblast will allow covering the country's MMC market, as well as exporting products while increasing volumes to Turkey, Russia, Uzbekistan and Kyrgyzstan.

Project profitability



Products and services provided within the framework of the Project:

Types of NEIS:

- Single layer NEIS;
- Two-layer NEIS;
- Two-layer NEIS reinforced with industrial thread.

Types of EE:

- NPGM-100 Type A (for overburden and non-sulphide ores);
- NPGM-100 Type B (for sulphide ores).

Other services:

Blasting and drilling operations

Construction of a chemical complex for the production of sodium cyanide

Project overview:

This investment project provides for the construction of a complex for the production of sodium cyanide up to 30 thousand tonnes per year.

Commercial products:

Sodium cyanide

Raw materials:

Ammonia, methane, caustic soda and air

Technology:

Direct production method (more efficient method without the need for sulfuric acid, phosphoric acid, energy and water).

Initiator:

ScandGreen Energy

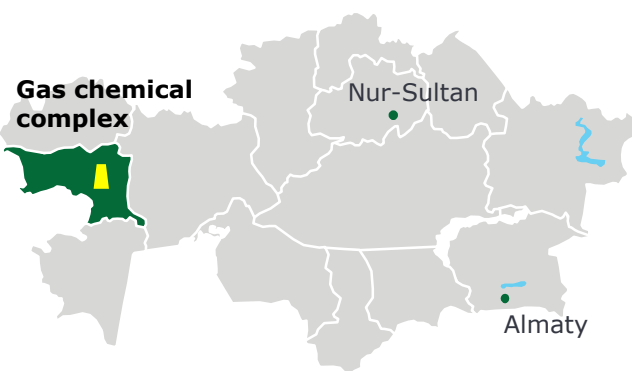
Project location: SEZ "NIPT", Atyrau Oblast

Consumer markets: domestic market, CIS countries, China

Key investment indicators

Indicator	Results
Investment, US\$ thousands	73,878
Project NPV, US\$ thousands	93,075
IRR, %	30.3%
EBITDA returns, %	44-54%
Payback period, amount of years from the start of production	5.1
Discounted payback period, amount of years from the start of production	6.4

Project location: SEZ "NIPT", Atyrau Oblast



Market assumptions:

Growing demand

According to the Statistics Committee of the Republic of Kazakhstan, over the past ten years, gold production in Kazakhstan has increased by almost 70%. Accordingly, manufacturers' demand for sodium cyanide has increased.

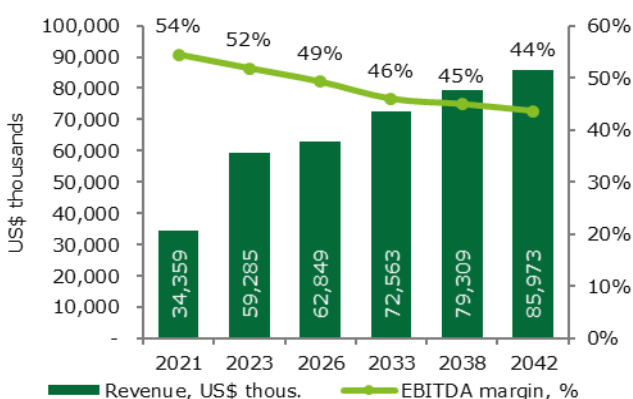
Import substitution

In 2018, imports of sodium cyanide to the republic amounted to 24,456 US\$ thousands (14 thousand tons). The growth in imports was due to an increase in gold mining and production in the country. The expected growth dynamics in the gold mining industry of the country necessitates the expansion of domestic production of sodium cyanide.

Export potential

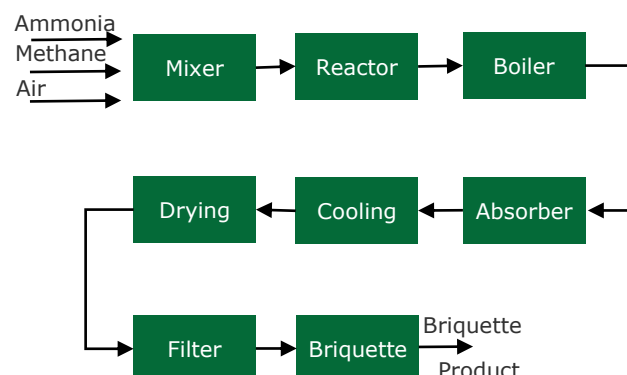
In 2014-2018 the average annual growth rate of world gold production was equal to 2%. At the same time, the neighboring countries, such as China and Russia, are the largest producing countries of the precious metal, which account for about 15% and 8% of world production, respectively.

Project profitability



Technological flows of the Project

direct production method





KAZAKİSTAN CUMHURİYETİ
ANKARA BÜYÜKELÇİLİĞİ

Communication, transportation and trade



Construction of Trade and Transport Logistics center in the West Kazakhstan region

Project description:

This investment project envisages the construction of a Trade and Transport Logistics Center "Bask" (hereinafter referred to as "TLC") of interregional significance in the West Kazakhstan region ("WKR") in the city of Uralsk.

Capacity:

- Cargo turnover of 800 thous. tons/year;
- The warehouse area is 10,000 sq. m;
- Camping area – 1600 sq. m;
- Service stations (including shops) – 790 sq. m;
- Gas Station – 1580 sq. m;
- TIR parking – 5600 sq. m;
- Auto parking – 625 sq. m.

Location: Republic of Kazakhstan, West-Kazakhstan region, Uralsk, the area of the chalk hills and microdistrict "Sarytau"

Services: storage of goods, terminal cargo handling, provision of open areas, warehouses, TIR parking, car refueling services (gas stations)

Initiator: "EurasianLogistics" LLP

Key investment indicators

Indicator	Results
Investment amount, US\$ thous.	15,581
Project NPV, US\$ thous.	5,367
IRR, %	18.1
EBITDA margin, %	37.8%
Payback period, years	7.2
Discounted payback period, years	12.1

Project location: West-Kazakhstan region, Uralsk



Market prerequisites:

Growth in the volume of wholesale, retail and foreign trade turnover

The growth in the volume of wholesale and retail trade in WKR in the period from 2017 to 2018 was 16% and 2%, respectively. Given the direct correlation between the increase in trade volumes and the growth in storage capacity of warehouses, an increase in demand in the warehouse rental sector is expected. In the period from 2016 to 2017, the WKR foreign trade turnover grew by 23% from 4,443 million US dollars in 2016 to 5,472 million US dollars in 2017.

Increasing freight turnover

The volume of cargo transportation in WKR for 2016-2018, is growing rapidly with an average CAGR of 10%.

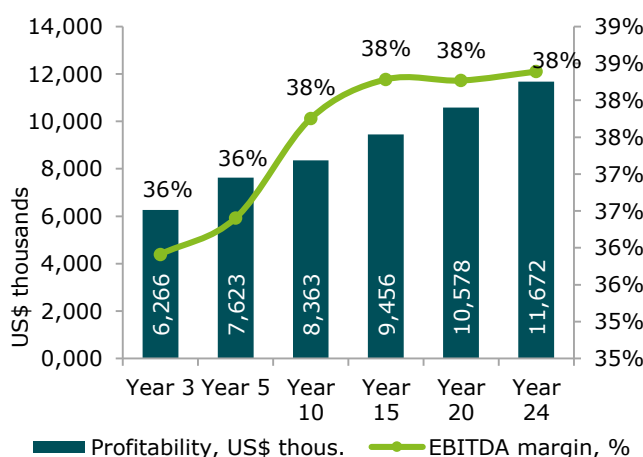
Low competition in the field of transport and logistics in the West Kazakhstan region

Currently, there are no TLCs on the WKR market, which provide a full range of high-quality services. Due to the significant financial costs for the construction of the TLC and the lack of qualified personnel, competition for this type of service is not expected.

Favorable geographical location

The territory of the WKO is located in a strategic location in the oil and gas processing region. The region is bordered by the Russian Federation, also, it is adjacent to the Atyrau and Aktoobe regions, which are the country's oil and gas centers, and where the total population is over 1.5 million people. Within a radius of 200 km are the nearest four cities of the Russian Federation with a total number of more than 5 million people.

Project profitability



Construction of a cargo terminal at the international airport in Aktobe

Project description:

This investment project (hereinafter referred to as the "Project") envisages the construction of a modern cargo terminal at the base of Aktobe International Airport, promising to become an aviation hub and a transport and logistics center connecting China, Russia and Europe.

Location:

The Project will be implemented in Aktobe on the basis of the existing airport Aktobe.

Field of concern:

Service of passenger air flows (through the placement of the existing airport under discretionary management):

- Aircraft;
- Passengers.

Air cargo services:

- Cargo planes;
- Transit cargo planes.

Market prerequisites:

Strategic location -

Aktobe Airport has the potential to become an international aviation bridge specializing in transit cargo and passenger traffic between China, the Russian Federation and the EU. The transport corridor Western Europe - Western China, which recreates the Silk Road, passes through the territory of Kazakhstan and through the city of Aktobe, in particular. The route is 8445 km of automobile and 11 500 km of railway, of which 2787 km and over 2000 km, respectively, run through Kazakhstan. The convenient location of the airport and proximity to key highways contribute to the development of multimodal transportation, which is an important factor for the success of the Project

Growth of freight traffic from China -

The analysis of Lufthansa Consulting showed that in 2017 the international air traffic from China, geographically relevant for transit traffic through the Republic of Kazakhstan, was approximately 5 million tons. This requires the development of an appropriate infrastructure for the full service of a substantial share of the specified freight traffic. It is expected that the average annual growth rate of cargo traffic from China will be 4.5% -6.7% until 2030.

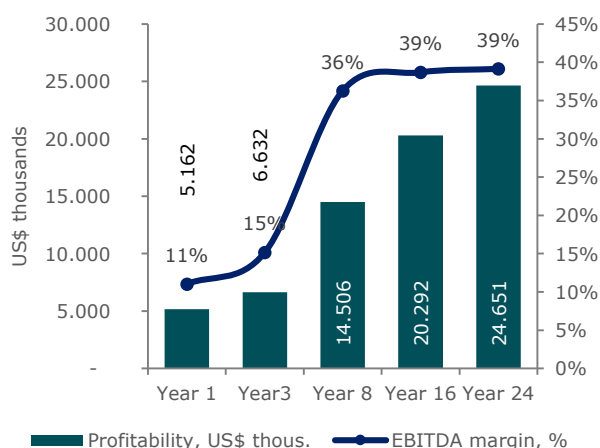
Current international agreements -

It should be noted that today there is an agreement between Kazakhstan and Beijing China-Russia united international logistics Co. Ltd on the development of air cargo from / to Kazakhstan and in transit through Kazakhstan. For the purposes of this agreement, cargo flows will be generated (35-90 tonnes per flight) from the territory of the PRC to the territory of the RK, as well as in transit through Kazakhstan, by aircraft.

Key investment indicators:

Indicator	Results
Investment amount, US\$ thous.	25,599
Project NPV, US\$ thous.	15,091
IRR, %	14.5
EBITDA margin, %	32.9%
Payback period, years	10.3
Discounted payback period, years	16

Project profitability:



Project location: Aktobe oblast, Aktobe city



Introduction of roadside services on the roads of the Republic of Kazakhstan

Project description:

This investment project provides for the construction and organization of roadside service along the roads of national and international importance.

Project Goal: Creation and development of a roadside service network on the country's roads to improve transport infrastructure in the Republic of Kazakhstan and increase budget revenues, as well as improve the quality of transport services, ensure safe and uninterrupted traffic and increase the competitiveness of Trans-Kazakhstan transit routes.

Services provided:

Motels with 25 rooms, commercial and public service blocks with cafes, maintenance blocks (gas stations, service stations with a car wash), parking lots, engineering structures and networks in all regions and cities of the regional destination of Kazakhstan.

Initiator:

JSC "National company"KazAvtoZhol"

Key investment indicators of one object

Index	Categories of motoway services		
	A and B	C	D
Investment, US\$ thousands	2,456	367	883
Project NPV, US\$ thousands	2,045	319	167
IRR, %	26.12%	28.41%	17.10%
EBITDA return, %	18.4%	79.9%	13.1%
Payback period, years	5.12	4.81	6.98
Discounted payback period, years	7.35	6.67	13.84

Types of roadside service points

- For IB, IIIA, IIIB climatic subareas with usual geological conditions;
- For IVA, IVG climatic subareas with usual geological conditions;
- For IB, IIB, IIIA, IIIB, IVG climatic subareas with seismic activity of 7 points;
- For IB, IIB, IIIA, IIIB, IVA, IVG climatic subareas with seismic activity of 8 points;
- For IB, IIB, IIIA, IIIB, IVA, IVG climatic subareas with seismic activity of 9 points;

Buildings and construction of the objects of category "A" and "B"

Name	Floors	Built-up area, sq. m	Total area, sq. m	Constr volume of the building, cub. m
Motel with 25 rooms	2	410	567	2,667
Block of commercial services with a cafe	1	850	616	3,584
Maintenance block with gas station building	1	370	275	1,437
Total	-	1,630	1,348	7,688

Market prerequisites:

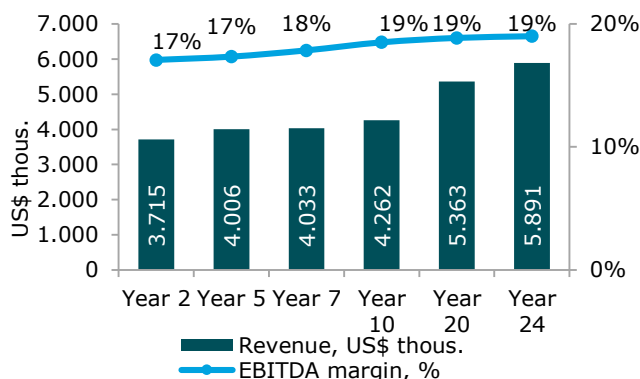
Growing demand for cars. Over the past 10 years, the average annual increase in the number of cars in the country amounted to 5%. According to forecasts, the car fleet will grow from 4.3 million units in 2018 to 10 million units by 2045-2050. The country has also increased passenger and cargo turnover in road transport. The average annual growth for these indicators over the past 5 years was 2.6% and 2.05%, respectively. At the same time, Project implementation will create pressure on informal road carried for their registration and subsequent streamlining of the transport industry.

Transit potential. The use of the territory of the Republic of Kazakhstan for the transit of goods between East and West is becoming increasingly attractive. The growth in transit by road over the past year amounted to 223%. Project implementation is necessary to extract the greatest benefits from transit flows and ensure high quality transport infrastructure for them.

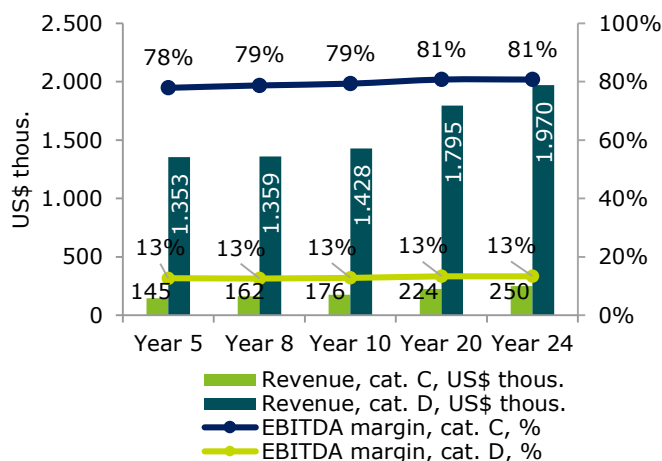
Extensive customer base. In 2018, the share of cargo transportation by land was 30%, and the share of passenger turnover was 88%.

Project profitability

Categories "A" and "B"



Categories "C" and "D"



Modernization of the sea ferry complex Kuryk in the Mangystau oblast

Project description:

This investment project (the "Project") provides for the modernization of the sea ferry complex Kuryk with the possibility of providing following services: the transshipment of bulky, heavy cargo, and the mooring ships to the berth using tugboats. It is planned to build a grain complex in the port.

Project Goal: The development of the socio-economic situation of the region, the expansion of cross-border external trade and economic relations, increasing the transport, export and transit potential of the Republic of Kazakhstan.

Types of services: Transshipment of cargoes, ship calling services at a port for cargo operations. Services as mooring of vessels to the berth with the help of tugboats, and transshipment of bulky, heavy cargoes are planned.

Initiator: Port Kuryk LLP/NC KTZ JSC

Location: Mangistau oblast, Kuryk rural area

Key investment indicators

Indicator	Results
Investment amount, US\$ thousand	37,742
Project NPV, US\$ thousand	97,699
IRR, %	33.3%
EBITDA margin, %	75%
Payback period	5.5
Discounted payback period	6.9

Project development location:

R, Mangistau oblast, Karakiya district, KuKryk rural area, Sarsha region, sites 26 and 27



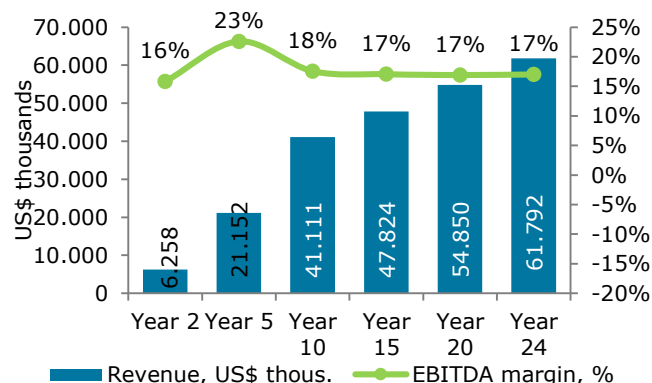
Market prerequisites:

The position of Kazakhstan between the largest trading partners - China and the EU countries gives an advantage for increasing the volume of transit cargo. The volume of foreign trade between China and the EU by 2020 will increase from 615 to 800 billion USD, and, taking into account these factors, the potential volume of transit freight through the RK can reach 5-8% of the total transit freight.

The growth of cargo transit. The transit of goods through the territory of the RK in 2014 amounted to 8.7 million tons and reached 9.3 million tons by 2018. According to experts of Strategy Partnership, an increase in the volume of transit of goods through the RK to 36 million tons is expected by 2020, with the subsequent achievement of up to 50 million tons per year.

Low competition. The location of the Kuryk port allows the supply of port cranes for the organization of bulky and heavy cargo transshipment, which cannot be physically handled through the port of Aktau and the Aktau Sea North Terminal due to overall dimensional restrictions.

Project profitability



Technical process

The main activity of the port of Kuryk is transshipment from one mode of transport to another. The production process of transshipment operations is the movement of cargo in the port for the purpose of loading or unloading vehicles (ships, wagons, cars). The structure of transported vehicles is railway, automobile, self-propelled machinery, rolling cargo.



Communications service provider for government bodies and budget organizations in rural areas through satellite communication systems

Project overview:

The organization of broadband Internet access services in rural areas of the Republic of Kazakhstan through satellite communication systems.

Project objective: Organization of broadband Internet access services, VPN and telephony for 1944 points in 1058 rural areas of the Republic of Kazakhstan via satellite communication systems.

Commercial product/service:

Broadband Internet access (satellite connection, LTE-800)

Initiator:

Kazakhtelecom JSC

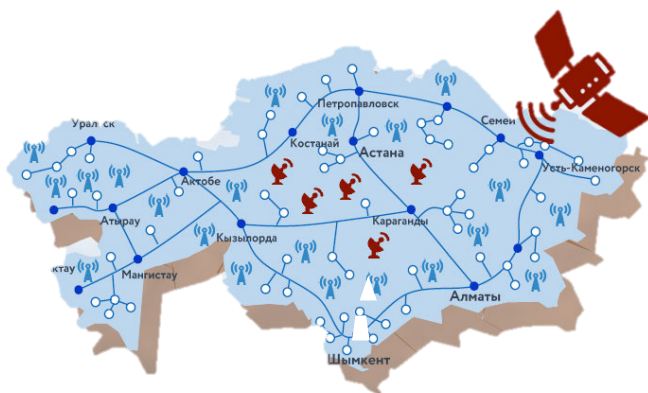
Location:

Branches of Kazakhtelecom JSC, 1058 rural areas – state bodies, budget organizations.

Key investment indicators

Indicator	Results
Investment, US\$ thousands	20,608
Project NPV, US\$ thousands	25,034
IRR, %	44.87%
EBITDA returns, %	51.50%
Payback period, number of years from the start of production	3.57
Discounted payback period, number of years from the start of production	4.34

Project location: Branches of Kazakhtelecom JSC, 1058 rural areas

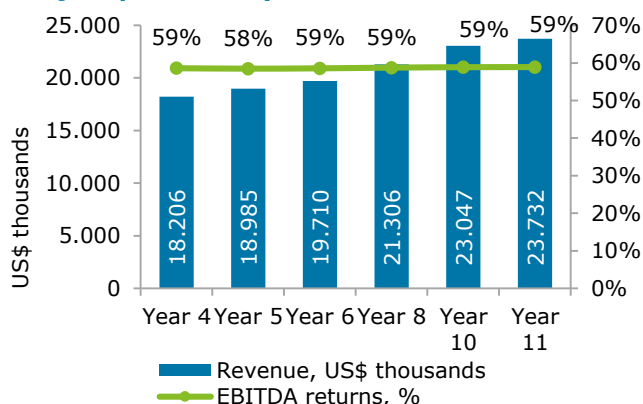


Market assumptions:

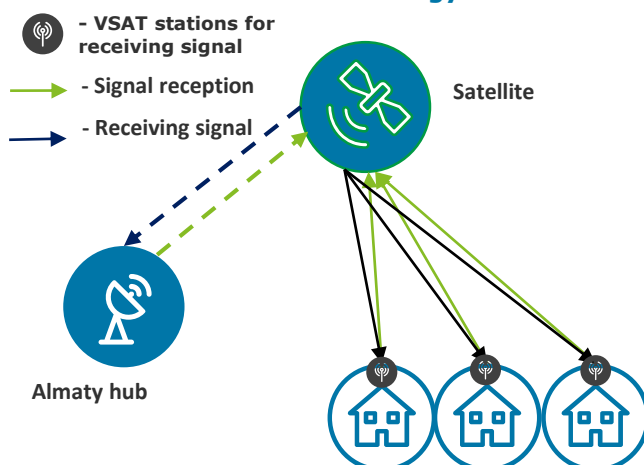
Growing demand for broadband access in Kazakhstan. The increase in per capita income in the Republic of Kazakhstan and positive demographic indicators make it an attractive telecommunication market. The structure of revenues from communication services in Kazakhstan has undergone significant changes reflecting global trends: revenues have grown significantly in the segments of mobile telephony and the Internet. According to ITU forecasts, Kazakhstan is expected to have a cumulative annual growth rate (CAGR) of broadband access use of 4.6% between 2019-2023.

Development prospects of broadband access. Both in the traditional and in the new segments of the telecommunications sector, significant changes will occur in the upcoming years. In the face of increasing price pressure, cost containment and growing competition, telecommunications companies are paying more attention to expanding their business in existing markets, developing new products and increasing operational efficiency. Based on ITU forecasts, the population using broadband access will increase to 3.42 million people in 2023.

Project profitability



Satellite transmission technology



The development of software and technological equipment in the field of logistics

Project description:

The project provides the development of software and technological equipment in the field of logistics.

Capacity: 15,645 tastamats

Products: Tastamats; TOOLPAR hardware; Range of services: «Postbox», «Client», «Service» and «Marketplace».

Initiator: TOOLPAR LLP

Location: Nur-Sultan, st. Mambetova 24.

Main consumers:

- 1) Owners of commercial premises willing to work under the partnership scheme;
- 2) Mail and logistics operators, e-commerce traders;
- 3) Legal entities and individuals in the marketplace;
- 4) Enterprises providing repair of personal items, as well as dry cleaning and laundry services.

Market prerequisites

Growth of the mail and logistics market.

Globally as well as in Kazakhstan, the general trend of growth in the volume of postal and courier services could be admitted. In particular, the volume of postal and courier services rendered within the market of Kazakhstan is estimated at KZT 33,688 mln in 2018, which is 16% higher than the same indicator for 2014.

E-commerce market development. The e-commerce market in Kazakhstan is growing at a dynamic pace. According to the data from the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, the volume of services sold via the Internet in 2016 amounted to 32.5 mln units, of which 15.4 mln units are retail goods. The annual increase in traded volumes is more than 42%.

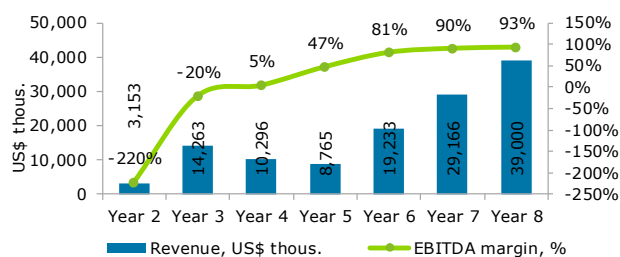
Growth in demand for postamat services.

Accordingly to a described reasons, operators launched an active adaptation of postamats into the market of Kazakhstan. Currently, there are over than 400 parcel lockers installed across the Kazakhstan. Moreover, it is expected to install additional 1,500 postamats by 2020.

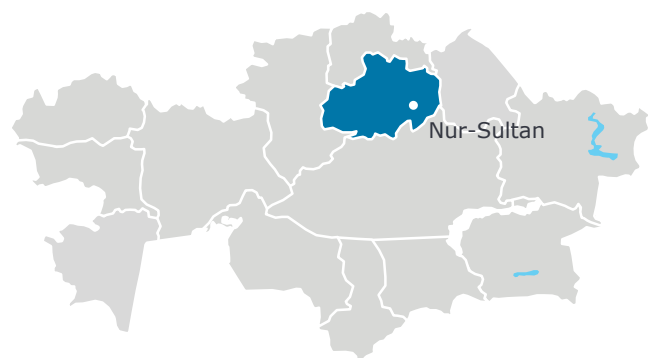
Key investment indicators

Indicator	Results
Investment amount, US\$ thous.	10,975
Project NPV, US\$ thous.	78,233
IRR, %	28.7%
EBITDA margin, %	63%
Payback period, years	6.5
Discounted payback period, years	7.4

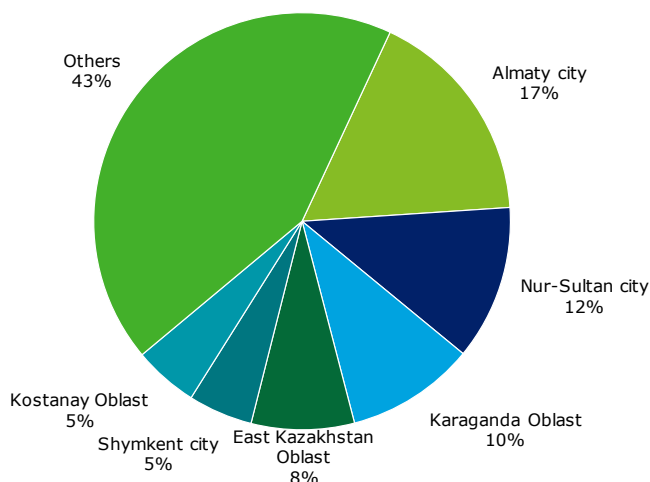
Project profitability



Project location: Nur-Sultan, st. Mambetova 24



The number of postamats by regions of RoK, 2018





KAZAKHSTAN CUMHURİYETİ
ANKARA BÜYÜKELÇİLİĞİ

Recycling and production of refractory, irrigation and corrugated cardboards



Modernization of MSW management system in the Karaganda Oblast

Project description:

Construction and equipment of 300 waste collection points. As well as the acquisition and commissioning of equipment using composting technology, to reduce the volume of municipal solid waste disposal by production of biogas and generation of green energy.

Capacity: 5 MW of electricity;

Service of 265 thousand people per year for Municipal Solid Waste ("MSW") disposal services.

Products: Service of MSW disposal and electric power.

Initiator: GorKomTrans goroda Karagandy LLP

Location: Karaganda and Karaganda Oblast.

Main consumers:

1) The main consumers of electrical energy are the Financial Settlement Center of RE (state) and enterprises operating on electric power.

2) The main consumers of sorted MSW are companies engaged in recycling of secondary raw materials.

Market prerequisites

High level of MSW generation. The Republic of Kazakhstan has a high level MSW generation at the level of 3 million tonnes annually. Moreover, due to the dynamic growth of the economy and the growth of the well-being of population, the waste generation indicator is anticipated to grow to 8.3 million tonnes per year.

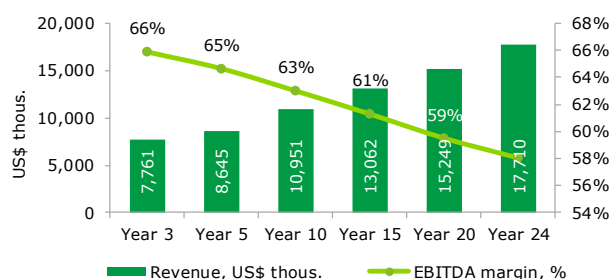
Lack of competition in the region. The Karaganda Oblast does not have the enterprises engaged with the recycling of MSW by production of biogas, while the total volume of wastes continues to increase annually. Thus, by the end of 2017, more than 350 thousand tonnes of MSW was generated in the Karaganda Oblast, which is the third highest indicator across the country after the largest cities Almaty and Nur-Sultan.

The development of new sources of electricity production. Currently, the state allocates large amount of the investments in the sphere of electricity production by Renewable Energy Sources ("RES"), therefore, production volumes are growing at an average of 3% annually. At the same time, the volume of production using biogas in 2017 amounted to only 200 thous. kWh, while the total volume of produced electricity by RES being equal to 11,643 mln kWh.

Key investment indicators

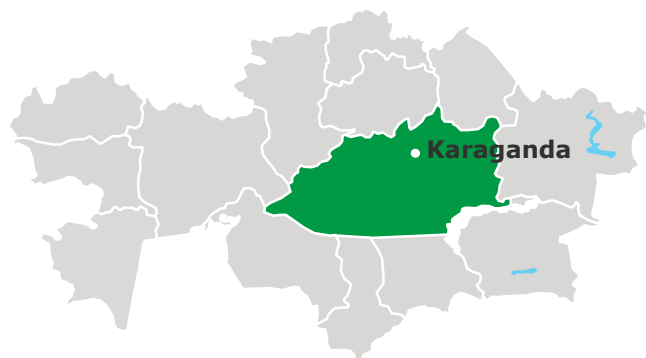
Indicator	Results
Investment amount, US\$ thous.	16,713
Project NPV, US\$ thous.	28,418
IRR, %	25.7%
EBITDA margin, %	61%
Payback period, years	6.1
Discounted payback period, years	7.6

Project profitability



Project location:

Karaganda and Karaganda Oblast



Product sales provision

MSW disposal services

The main income will be generated through the payments made by the population and legal entities for waste disposal services. 300 waste collection points will serve 265,000 people in the city of Karaganda.

Electrical power

According to the Law of the Republic of Kazakhstan "On support for the use of renewable energy sources", KOREM JSC conducts auction bidding for the purchase of "green energy" produced. The winner receives a contract for a guaranteed purchase of electricity for a period of 15 years.

GorKomTrans goroda Karagandy LLP is currently registered as a participant in an auction for RES bidding.

Modernization of the MSW management system in Pavlodar Oblast

Project overview:

Modernization of the municipal solid waste (MSW) management system in Pavlodar Oblast.

Objective of the Project:

Improving the efficiency, reliability, environmental and social acceptability of a range of services for the collection, transportation, processing and disposal of municipal solid waste, increasing the share of solid waste recycling, as well as ensuring safe disposal of waste in Pavlodar Oblast.

Production: solid waste disposal service, 20 types of recyclable materials obtained by sorting.

Annual capacity: 150 thousand tonnes of solid waste per year.

Initiator: Specmashin LLP, Pavlodar city

Location:

Pavlodar city, satellite cities – Aksu and Ekibastuz.

Key consumers:

Household solid waste companies engaged in the recycling of secondary raw materials.

Key investment indicators

Indicator	Results
Investment, US\$ thousands	6,427
Project NPV, US\$ thousands	9,631
IRR, %	13.8%
EBITDA returns, %	35%
Payback period, number of years	2.8
Discounted payback period, number of years	3.1

Location of the Project:

Pavlodar, Aksu and Ekibastuz



Market assumptions

High level of MSW accumulation.

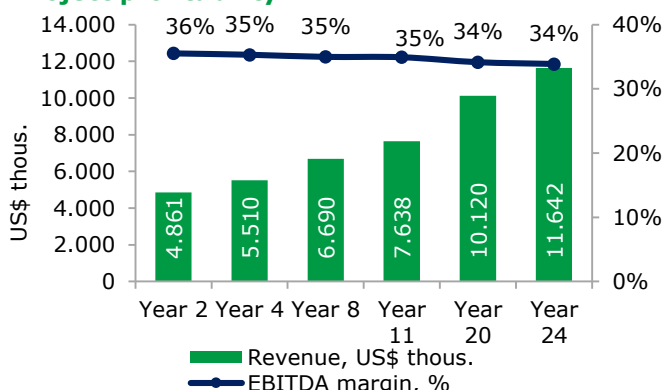
According to the Committee on Statistics of the Republic of Kazakhstan, there is a high level of generation of solid household waste, which is not regenerated, at the level of 3 million tonnes annually. Between 2021 and 2030, an increase in waste generation is expected to reach 8.3 million of solid waste per year. For comparison, the global waste management market amounted to US\$ 330.6 billion in 2017 and it is predicted that by 2025 this figure will reach US\$ 530 billion with a CAGR of 6%.

Increased public awareness of waste management.

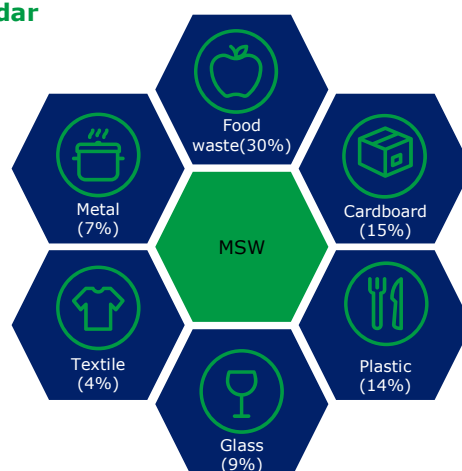
The number of landfills and their area is growing rapidly, having a negative impact on the environment. At present, in Kazakhstan there are more than four thousand landfills, of which only 13% comply with sanitary standards and have a permit for emissions into the environment. The standard of living of the population will improve significantly with the comprehensive modernization of the MSW management system in the country.

Dynamic socio-economic development of the region. Pavlodar is one of the most economically important cities in the country with an average annual growth of gross regional product of 13%.

Project profitability



Morphological composition of the MSW in Pavlodar



Production of corrugated containers in the Akmola region

Project description:

Construction of a plant for the recycling of paper and cardboard waste paper and the production of corrugated containers in the Akmola region.

Initiator: Association of Legal Entities Association of Packers of Kazakhstan

Targets:

- Development of the pulp and paper industry and the packaging industry of Kazakhstan;
- Getting high-quality, competitive products using advanced manufacturing technologies;
- Creation of a modern plant for the production and marketing of paper and cardboard products.

Commercial products: corrugated packaging.

Production capacity:

- waste paper recycling capacity - 5,000 tonnes;
- corrugated packaging production capacity - 7,766 thousand square meters per year.

Prerequisites for Project implementation

Growth of demand for corrugated cardboard or paper boxes

According to Market Line forecasts, there will be an increase in the global level of demand for corrugated cardboard or paper boxes. In 2022, the world market of paper and cardboard will amount to US\$ 385.2 bln., which is 3.1% higher than in 2017. According to forecasts, in 2022 the world market for paper and cardboard will amount to 399.5 million tonnes, which is 2.5% more than in 2017.

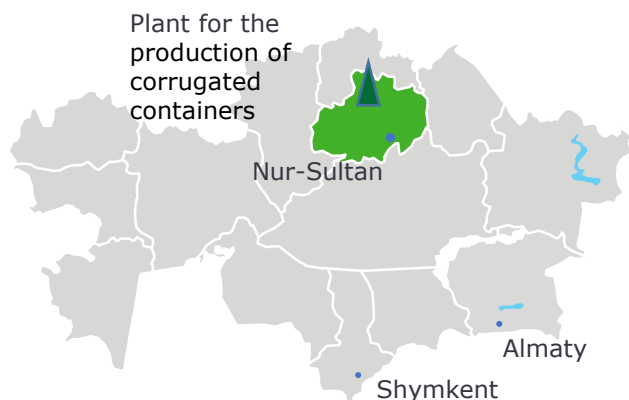
Growth of demand for food industry products

The main potential consumer of corrugated cardboard and products thereof is the food industry. A growing demand for such products as chicken eggs, meat and fruits/vegetables stimulates the demand for corrugated packaging..

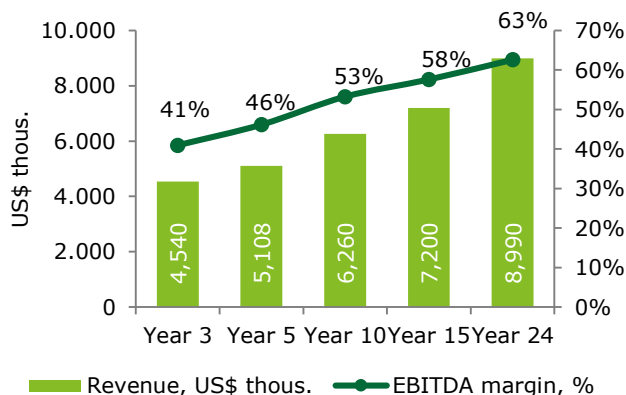
Key investment indicators of the Project

Indicator	Results
Investment amount, thous. USD	7,875
Project NPV, thous. USD	11,461
IRR, %	23.9%
EBITDA margin, %	55%
Payback period, years	5.9
Discounted payback period, years	8.1

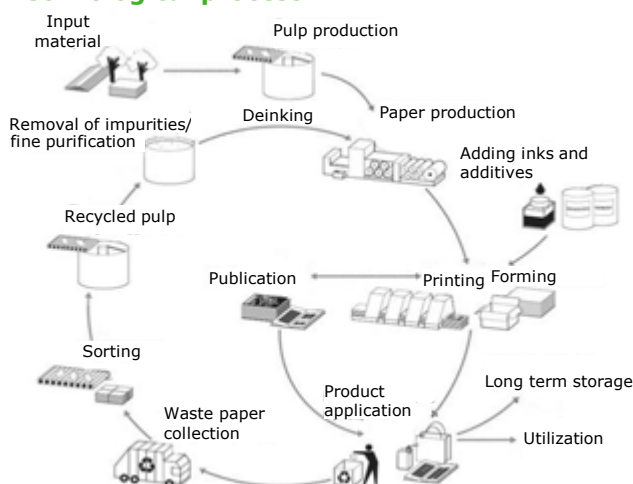
Project location: Akmola Oblast, Kokshetau



Project profitability



Technological process



Organization of the production of refractory products in the Karagandy oblast

Description of the Project :

This investment project provides for the construction of a plant for the production of refractory products in the Karagandy city.

Production and annual capacity :

- 15,000 tons of refractory products per year

Project objectives:

- creation of an effective integrated business for the production of refractory products and their implementation in the domestic market;
- obtaining high-quality, export-oriented products using advanced, domestic, patented production technology;
- application of domestic technology for the production of competitive products that facilitate import substitution.

Initiator:

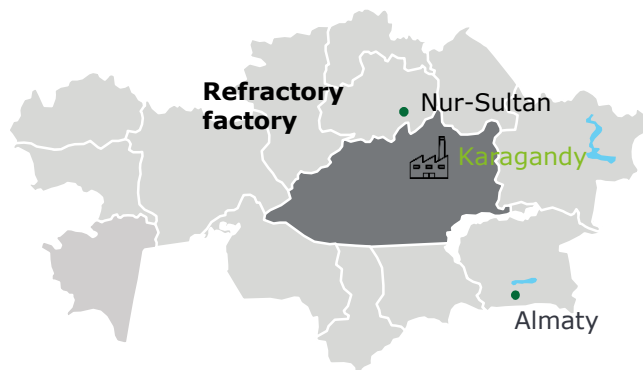
Republican State Enterprise "National Center for the Integrated Processing of Mineral Raw Materials of the Republic of Kazakhstan" ("RSE National Center IPMRM")

Key Investment Indicators

Indicator	Results
Investment, USD thousands	7,763
Project NPV, USD thousands	5,405
IRR, %	25.0%
EBITDA returns, %	17-32%
Payback period, number of years from the start of production	5.0
Discounted payback period, number of years from the start of production	6.9

Location of the Project

Karagandy city, Karagandy oblast, Republic of Kazakhstan



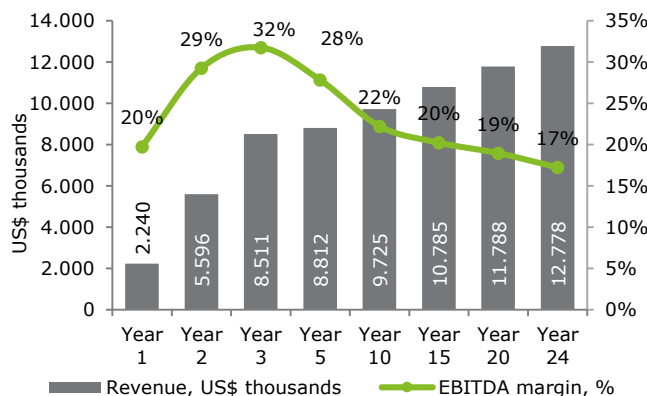
Market prerequisites

Import dependence of the country. Demand for refractory products in the country doubles their production. Domestic consumption is met through imports mainly from Russia and China. The share of imports in domestic consumption in 2018 was 51%. The demand for refractory products increases due to their use in ferrous and non-ferrous metallurgy, energy and the chemical industry.

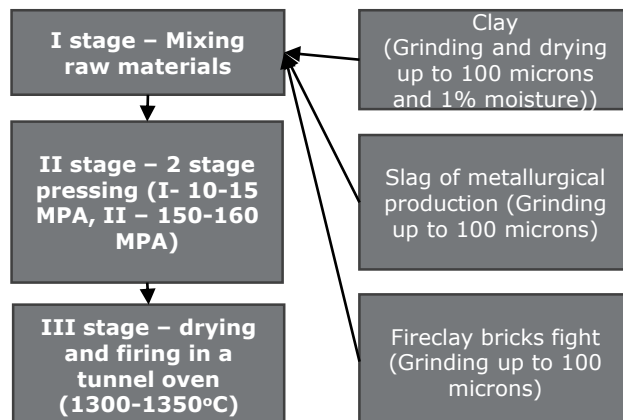
Unique technology. The technology of RSE NC IPMRM using chemically active mixtures allows the use of chemical energy in the system itself, which in turn accelerates the processes of solid-phase sintering, improves quality and reduces cost.

Stable growth in steel demand. High rates of growth in the world of steel production and related industries create a steady demand for products. Lucintel forecasts that global demand for steel and steel products will increase in 2019-2024 with a CAGR of 1.6%.

Project profitability



Technical process



Project description:

Construction of water infrastructure for the regular irrigation section of Balatobe in the Urdzhar district of East Kazakhstan region. It is planned to install a circular irrigation system on a land area of 2,200 ha.

Initiator: URDZHAR AGRO COMPANY JSC

Targets:

- Increasing crop yields while maintaining and improving soil fertility;
- Leading in grain and oilseed production volumes

Project location:

East-Kazakhstan Oblast (EKO), Urdzhar region.

Commercial products: soybeans, corn, sunflower seeds.

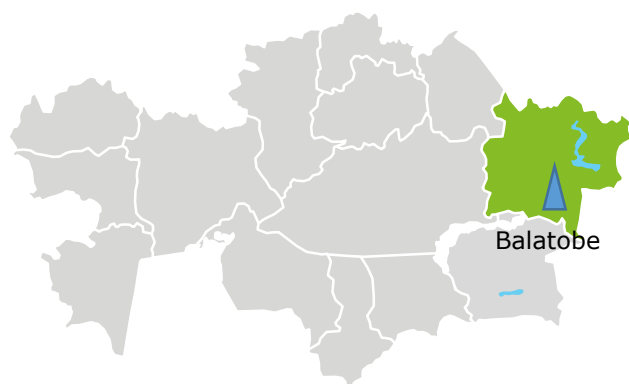
Production capacity:

per year: corn - 18 thousand tons, sunflower - 2,800 tons, soybeans - 300 tons.

Key investment indicators of the Project

Indicator	Results
Investment amount, thous. USD	7,421
Project NPV, thous. USD	16,291
IRR, %	37.1%
EBITDA margin, %	69.9%
Payback period, years	4.3
Discounted payback period, years	5.1

Project location: North-Kazakhstan Oblast, Akmola Oblast



Prerequisites for Project implementation

Productivity

The irrigation technique and technology has a decisive influence on the quality of regulation of the water regime of the soil, and, consequently, not only on crop yields, but also on the efficiency of the use of water, soil-climatic, material-technical and energy resources, as well as the ecological state of the environment .

Stable demand for corn and sunflower seeds in the domestic market

The growing demand for corn and sunflower seeds creates favorable conditions for growing these crops. Over the past 5 years, per capita consumption of corn and sunflower seeds has grown with an average annual growth rate of 4.6% and 7.9%. Most of the domestic demand is covered by the domestic production of these crops.

Export potential

The neighborhood with one of the largest corn importers - China - provides convenient access to the target large and large-scale sales market. China's imports in 2018 amounted to 3,521 thousand tons of corn. In addition, more than 93% of the corn export from Kazakhstan goes to Uzbekistan, whose import volumes have increased by 40% over the past year.

Price differential with neighboring countries

In the regions of the Russian Federation adjacent to Kazakhstan, the average price of a kilogram of sunflower seeds during the year varies depending on the region in the range of 0.25 - 0.4 US dollars, which is higher than the average price in Kazakhstan by 5% - 60%.

Project profitability

