



Islamic Republic of Iran

Ministry of Economic Affairs and Finance

General Department of Economic Affairs and Finance of North Khorasan

# Livestock Abattoir in Maneh & Samalghan

## Center of Investment Services of North Khorasan

2021 April

# Summary of Technical-Economical Pre-Feasibility Study

The name: Livestock Abattoir

Sector: Agricultural

Subsector: Alterant Industries

ISIC Code: 1511312451

The owner of:

Organization of Economic Affairs and Finance (North Khorasan)



The ADDRESS:

Iran, North Khorasan, Maneh & Samalghan

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# 1 Abstract

## 1.1 Project Profile - Summary Sheet

Table 1: Summary Sheet

Project Introduction			
<b>Project Title</b>	Livestock abattoir		
<b>Sector</b>	Agricultural		
<b>Sub Sector</b>	Alterant Industries		
<b>Location</b>	Iran, North khorasan, Maneh & Samalghan		
<b>The County</b>	Maneh & Samalghan		
<b>Products / Services</b>	Livestock Abattoir Products		
<b>Annual Nominal Capacity</b>	Cow=2,167 and Sheep=28,889		
<b>The Raw Material</b>	Cow, Sheep and Packaging Equipment		
<b>Employment</b>	76		Person
<b>Land Area</b>	10,000		$m^2$
<b>Floor Area</b>	4,800		$m^2$
<b>Energy and Water Consumption</b>	Water Consumption	42,500	$m^3$ in year
	Electricity Consumption	100	KW
	Gas Consumption	100,000	$m^3$ in year
<b>Fixed Capital</b>	346,371		Million Rial
<b>Working Capital (The First Year)</b>	234,218		Million Rial
<b>Payback Period</b>	2.95		Year
<b>Net Present Value (NPV)</b>	837,076		Million Rial
<b>Internal Rate Of Return (IRR)</b>	62		%
<b>Modified Internal Rate of Return (MIRR)</b>	30		%
<b>Break Even Point</b>	24		%
<b>The Exchange Rate (Dolar)</b>	240,000		Rial
<b>Description</b>	In this project, we will review all the information related to the market study of the livestock Abattoir project.		

*Table 2: Legal Authorizations*

Licensure Status:	
Descriptions	Issuance Status
Principal Agreement (Establishment licensure)	<input checked="" type="checkbox"/>
Land Allocation	<input type="checkbox"/>
Environmental Inquiry	<input type="checkbox"/>
Possibility of Water Supply	<input type="checkbox"/>
Possibility of Electricity Supply	<input type="checkbox"/>
Possibility of Electricity Supply	<input type="checkbox"/>
Possibility of Gas Supply	<input type="checkbox"/>

*Table 3: Total Investment*

Descriptions	Local Currency Required			Foreign Currency Required (Million Euro)	Total (Million Euro)
	(Million Rial)	Rate	Equivalent in (Million Euro)		
Fixed Capital	346,371	240,000	1.44	1.44	1.44
Working Capital	234,218.2		0.98	0.98	0.98
<b>Total Investment</b>	<b>580,589.2</b>		<b>2.42</b>	<b>2.42</b>	<b>2.42</b>

- Value of foreign equipment / machinery: 0 Million Euro
- Value of local equipment / machinery: 1.3389 Million Euro
- Net present value (NPV): 3.49 Million Euro in 15 years
- Internal Rate of Return (IRR) (for 15 years): 62%
- Payback period: 2.95 years

Table 4: General Information

Company Profile	
Project Type	Establishment <input checked="" type="checkbox"/>
Company Name	North Khorasan Organization of Agriculture Jihad
Contact Person (Name and Position)	Mr Rezvan Nikbakht
Email	et.1383@yahoo.com
Mobile	+989379094738
Tel	+9858-32257990
Website	http://portal.nkj.ir
Address	North Khorasan Province, Bojnurd, Chehelodometri Kamarbandi Blvd, North Khorasan Organization of Agriculture Jihad
Company's Legal Structure	Government <input checked="" type="checkbox"/>

## 2 Project Location

### 2.1 Province: North khorasan

### 2.2 The County: Maneh and Samalqan

Maneh and Samalqan County is a county in North Khorasan Province in Iran. The capital of the county is Ashkhaneh. The county has three districts: Central District, Maneh District, and Samalqan District. The county has four cities: Ashkhaneh, Pish Qaleh, Shahrabad-e Khavar and Qazi.

This project will be establish in Maneh and Samolghan outside the industrial town and on a suitable land with an area of 10,000 square meters of natural resources, and due to the unknown location of the exact GIS map of the project site will not be provided.

## 2.3 The Project: Livestock abattoir

## 2.4 Access to the Infrastructures

This project will be implemented in Maneh & Samolghan county outside the industrial town and on a suitable land with an area of 10,000 square meters of natural resources and due to the unknown location of the exact GIS map of the project site will not be provided. However, assuming the proximity of the project site to the industrial town, spatial information according to the industrial town is presented in the table below.

Table 5: Access to Infrastructures

No.	Needed Infrastructures	Distance to the Project	The Supply Infrastructures
1	Water	0	not specified
2	Electricity	0	not specified
3	Gas	0	not specified
4	Telecommunications	0	not specified
5	High way	<1 km	is provided
6	Sub way	0	is provided
7	Airport	51	is provided
8	Amirabad Port (Behshahr)	384	is provided
9	Bandar Abbas Port	1,536	is provided
10	Rail way station of Joveyn	210	is provided
11	Rail way station of Jajarm	122	is provided

## 3 Technical Specifications of Plan

### 3.1 Product

Table 6: Project Specifications Based on ISIC Code

The Project	ISIC Code	Customs Tariff	Environmental Category
Abattoir Activities	1511312451	Service	5

In this project, we will review all the information related to the market study of the livestock Abattoir project. The purpose of implementing the plan to establish an Abattoir for the production of red meat, including a variety of Abattoir products with a capacity of

1,000 tons per year, in North Khorasan Province (Maneh & Samalghan). In this unit, 300 working days will be done in an 8-hour shift of production activity. The place of implementation of the city plan is Maneh & Samalghan.

According to studies, the amount of meat production through Abattoirs is expected to increase from 2,021 to 2,025, which reassures new investors. So that the amount of this demand from 2,020 to 2,023 will increase by about 2,500,000 heads, which by reducing the capacity of Abattoirs with physical progress (above 75%), the country's need until 2,023 is about 2,200,000 heads of livestock. It should be noted that the capacity of this Abattoir is 31,000 head of livestock, so from the perspective of the country's needs, there is no need to worry about the construction of this Abattoir. From the provincial point of view, considering that there are no Abattoirs in Maneh & Samalghan cities and the livestock of this city is moved the province for slaughter, so it is necessary to build a Abattoir in this city and also considering the existence of about 12,000 cows and 260,000 sheep and goats In this city, there is no problem in supplying 2,000 cows and 29,000 sheep, which is the annual capacity of this Abattoir. Therefore, the construction of this Abattoir with a capacity of 1,000 tons of livestock meat is the minimum need of the province, especially the city of Maneh & Samalghan, which from the point of view of the authors of the plan, this capacity can be more than this.

### **3.2 Project's Requirements**

Because some livestock diseases can be transmitted to humans, the meat consumed should only be prepared from healthy livestock, which is why pre-slaughter and post-slaughter inspections are essential to identify and remove defective meat. In order to perform quality control, the necessary controls must be performed from the beginning of the import of raw materials. Among the characteristics of raw materials required for production, quality control during production and quality control of the product. The raw materials used in this industrial unit have a direct impact on the quality of the final product, so first of all, a relative knowledge of the quality factors of each raw material seems necessary. In order to control the raw materials during production and the final product, various tests must be performed. These tests are performed in two ways, tests in which the material and product are visually controlled and tests in which the material and product are examined for physical and chemical properties.

### 3.3 Space and Infrastructure Required

Table 7: Land Purchase Costs (Million Rial)

Specifications	Area (m <sup>2</sup> )	Price per m <sup>2</sup>	Cost		
			Paid Cost	Needed Fund	Total
A piece of land in Maneh & Samalghan	10,000	0.0003	0	3	3

Table 8: Site Preparation and Development Costs (Million Rial)

Description	Working Capacity	Unit	Unit Price	Paid Cost	Needed Fund	Total
Excavation	3,000	cm	0.3	0	900	900
Wall construction and door	800	Sm	9	0	7,200	7,200
Street construction (5% of the amount of land)	500	Sm	7	0	3,500	3,500
Green space and Lighting (1% of the amount of land)	100	No	8	0	800	800
<b>Total</b>				<b>0</b>	<b>12,400</b>	<b>12,400</b>

Table 9: Civil Works, Structures and Buildings Costs (Million Rial)

Description	Area (m <sup>2</sup> )	Unit Price	Paid Cost	Needed Fund	Total
Production Hall	3,000	25	0	75,000	75,000
Raw Material Warehouse	500	30	0	15,000	15,000
Product Warehouse	600	25	0	15,000	15,000
Office Building	300	45	0	13,500	13,500
Welfare and Guardroom	400	45	0	18,000	18,000
<b>Total</b>			<b>0</b>	<b>136,500</b>	<b>136,500</b>

Table 10: Infrastructures

No	Description	Unit	Annual Consumption	Unit Cost (Rial)	Total (Million Rial)
1	Water Consumption	$m^3$	42,500	7,000	297.5
2	Electricity Consumption	$Kw$	310,000	1,100	341
3	Gas Consumption	$m^3$	100,000	1,200	120
4	Gasoline	$Litr$	10800	3,000	32.4
<b>Total</b>					<b>952.9</b>

### 3.3.1 Equipment and Machinery

Table 11: Plant Machinery and Equipment Costs (Million Rial)

Description	Unit Cost	Costs Required				Total
		Local Costs	Costs of Currency		Cost to Complete	
			Rate	(Million Euro)		
Heavy slaughter line for heavy livestock (cattle)	10,420	10,420	240,000	0.04	0	10,420
Gravity slaughter line for light livestock (sheep and goats)	5,599	5,599		0.02	0	5,599
Suspicious and injured livestock killing machinery and equipment	2,717	2,717		0.01	0	2,717
Rail system and required equipment	10,232	10,232		0.04	0	10,232
Meat processing machines and equipment	2,340	2,340		0	0	2,340
Bowel and rumen processing machines and equipment	3,553	3,553		0.01	0	3,553
Red meat slicing and packing line	5,135	5,135		0.02	0	5,135
Waste conversion plant machinery and equipment	11,466	11,466		0.04	0	11,466
Furnace (with a capacity of 300 kg of carcasses per shift)	1,589	1,589		0	0	1,589
Blood transfusion system with 3 rows of machines	490	490		0	0	490
Abattoir wastewater treatment system	2,037	2,037		0	0	2,037
Optional equipment for cattle slaughter line	4,135	4,135		0.01	0	4,135
Optional sheep slaughter line equipment	1,185	1,185	0	0	1,185	

Description	Unit Cost	Costs Required				Total
		Local Costs	Costs of Currency		Cost to Complete	
			Rate	(Million Euro)		
Optional wastewater treatment equipment	6,049	6,049		0.02	0	6,049
<b>Total cost of machinery</b>		<b>66,947</b>		<b>0.28</b>	<b>0</b>	<b>66,947</b>

The exchange rate is: 1 € = 240,000 Rial

### 3.3.2 Raw Material and Intermediate Components

*Table 12: Raw Material and Intermediate Components (Million Rial)*

Description	Unit	Total Consumption of the Raw Material	Price per Unit of Raw Material	Annual Cost of Providing Material
Raw material & Packaging	ton	-	-	226,151.25
Salary	Rial	-	-	7,560
Energy costs (fuel, electricity and water)	L/KW/CM	-	-	959.2
Repair & maintenance	Rial	-	-	11,214.08
<b>Total</b>				<b>245,885</b>

### 3.3.3 Management and Human Resources

*Table 13: Salary of Administrative Staff (Million Rial)*

No.	Position	Number of Shifts	Personnel per Shift (No.)	Total Staff (People)	Monthly Salary (per Person)	Annual Salary
1	manpower (in Administrative sector)	-	-	23	50.87	14,040
2	manpower (in Production sector)	-	-	53	49.24	31,320
<b>Total</b>				<b>76</b>		<b>45,360</b>

- Number of skilled personnel required: 34
- Number of non- skilled personnel required: 42
- Total number of personnel required: 76

## 4 Market Study and Competition

### 4.1 Examining Supply And Demand Trends

The amount of domestic supply or production red meat of livestock abattoirs based on production licenses (according to the information of the ministry of industry, mine and trade) from 2015 to 2020 is as follows.

*Table 14: The Amount of Red Meat Domestic Supply*

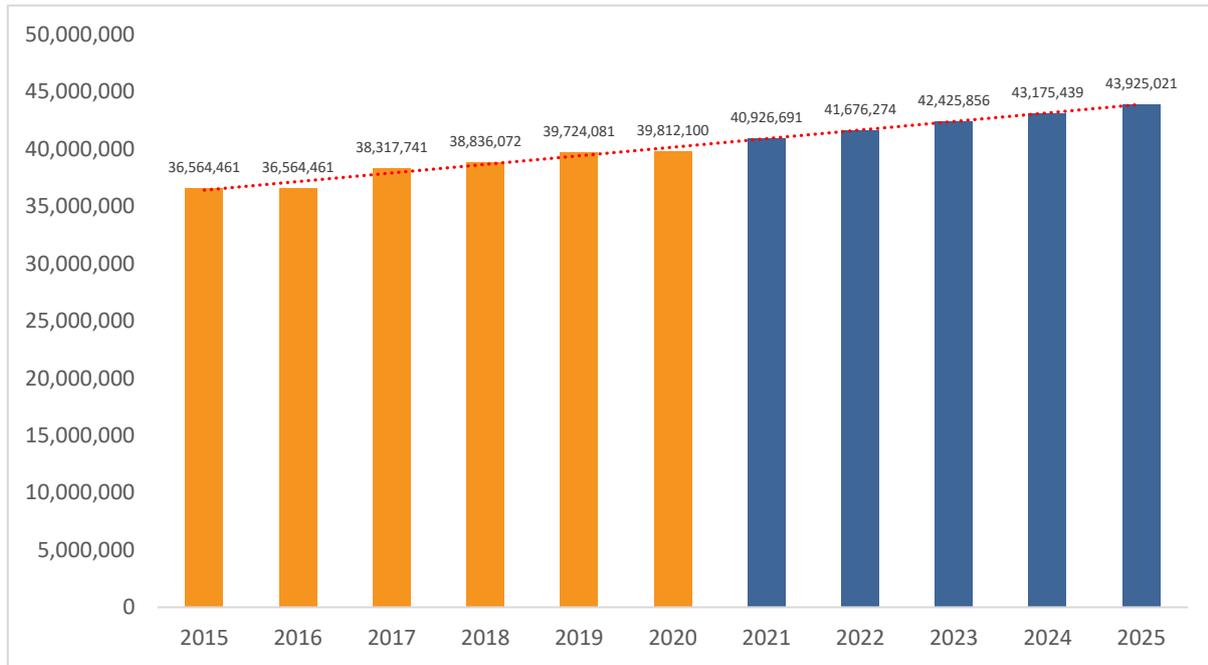
Year	Nominal Capacity (No.)
2015	37,387,600
2016	37,387,600
2017	39,180,350
2018	39,710,350
2019	40,618,350
2020	40,708,350

The real production capacity of active units in 2015 up to 2019 is shown in Table 15.

*Table 15: The Real Production Capacity of Active Units in 2015 up to 2020*

Year	Nominal Capacity (No.)
2015	36,564,461
2016	36,564,461
2017	38,317,741
2018	38,836,072
2019	39,724,081
2020	39,812,100

The following chart shows the prediction of production according to the Table 15 based on linear regression.



*Figure 1: The Prediction of Production*

As the Figure 1 shows, the amount of production is increasing. So there is capacity to build new factories

Since the livestock abattoirs is a service, it does not have a customs tariff, so the analysis of imports and exports is eliminated.

In Table 19, the information of the units that have obtained a license is provided based on the amount of progress according to the information of the ministry of Industry, Mine and Trade.

*Table 16: The Amount of Progress of Units that have License*

Progress Percent	Capacity (No.)
0% - 25%	810,600
25% - 50%	264,344
50% - 75%	1,258,000
75% - 100%	319,000

It is worth mentioning that this livestock abattoirs will be established in Maneh and Samolghan, which is currently without livestock abattoirs.

## 5 Financial Projection

### 5.1 The Cost Estimate

Table 17: Total Investment (Million Rial)

No.	Subject	Cost
1	Fixed Capital	346,371
2	Working Capital	234,218.2
<b>Total Investment</b>		<b>580,589.2</b>

Table 18: Fixed Capital (Million Rial)

Subject	Paid Cost	Cost Required				Total cost
		local Cost	Foreign Exchange Cost		Needed Fund	
			Rate	(€)		
land purchase	0	3	240,000	0	0	3
Landscaping	0	12,400		0.05	0	12,400
Building	0	136,500		0.5	0	136,500
equipment and machinery	0	66,947		0.27	0	66,947
Laboratory and workshop supplies and equipment	0	5,850		0.02	0	5,850
Facilities	0	14,796		0.06	0	14,796
Transportation	0	16,250		0.06	0	16,250
Office and services equipment	0	2,436		0.01	0	2,436
Pre-operation costs	0	59,701.2		0.25	0	59,701.2
Unforeseen (10% of the above items)	0	31,488		0.13	0	31,488
<b>Total Fixed investment</b>	<b>0</b>	<b>346,371</b>		<b>1.44</b>	<b>0</b>	<b>346,371</b>

*Table 19: Working Capital (Million Rial)*

Subject	Day	Total
Packaging material (2 months raw materials and packaging)	60	226,151.25
Salary (2months salary)	60	7,560
Imprest fund (15 days of water, electricity, fuel and repair costs)	15	506.95
<b>Total</b>		<b>234,218.2</b>

*Table 20: Fixed and Variable Costs*

No.	Production Cost	Fixed Cost		Variable Cost	
		%	Cost	%	Cost
1	Raw material	0	0	100	1,356,908
2	Energy & utility	20	191	80	633
3	Repair & Maintenance	20	2,243	80	8,971
4	Production salary	70	31,752	30	13,608
5	Depreciation	100	29,541	0	0
<b>Total production costs</b>			<b>63,727</b>		<b>1,380,120</b>

## 5.2 Break-Even Analysis

*Table 21: Break-even Analysis*

Period	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Break-even ratio (%)	23.82	22.82	21.91	21.08	20.18	18.83	18.28	17.78	17.33	16.91

### 5.3 Sensitivity Analysis of IRR

Table 22: Sensitivity Analysis of IRR

Variation (%)	Sales Revenue	Increase in Fixed Assets	Operating Costs
-20.00%	-68.13%	73.72%	138.15%
-16.00%	-25.85%	70.91%	122.64%
-12.00%	8.47%	68.32%	107.23%
-8.00%	27.13%	65.95%	91.92%
-4.00%	44.41%	63.75%	76.74%
0.00%	61.71%	61.71%	61.71%
4.00%	79.23%	59.82%	46.85%
8.00%	96.96%	58.05%	32.06%
12.00%	114.84%	56.39%	16.79%
16.00%	132.86%	54.84%	-1.70%
20.00%	151.00%	53.39%	-42.14%

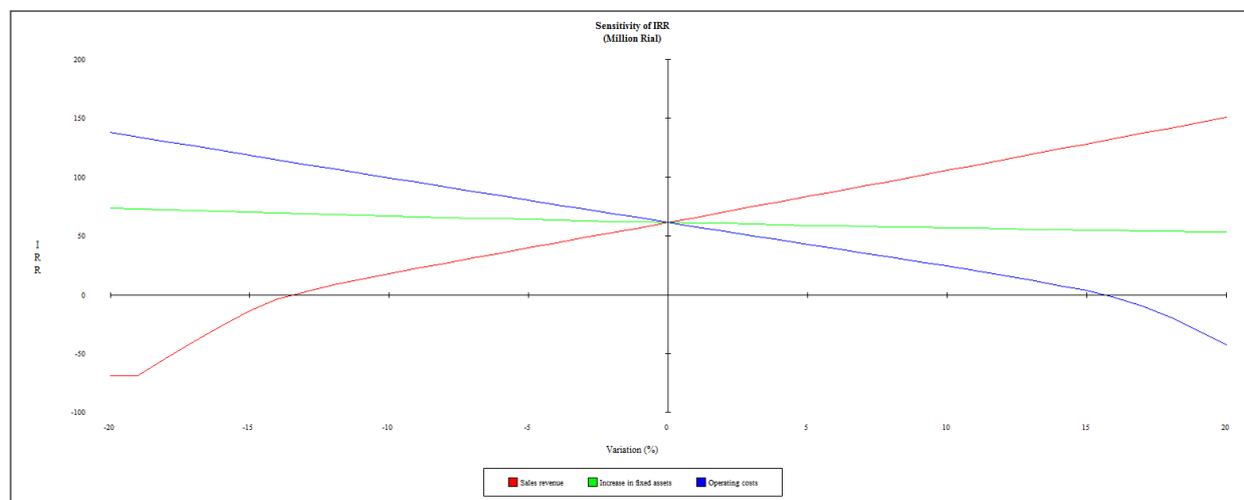


Figure 2: Sensitivity Analysis of IRR

## 6 Duration of Project Operation

The time of doing early stages and completing its process is about 12 months.

Table 23: Action Plan and Implementaion Schedule

Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Land Purchase	■																							
Constructing Buildings		■	■	■	■	■	■	■	■															
Execution of Facilities								■	■	■	■													
Order, Purchase of Machinery										■	■	■												
Landscaping										■	■	■												
Machinery Strat-up and Trial Production												■												

## 7 Incentives, Features And Advantages of Project

North Khorasan Province is a province located in northeastern Iran. Bojnord is the capital of the province. This province contains many historical and natural attractions, such as mineral water springs, small lakes, recreational areas, caves and protected regions, and various hiking areas. Advantages of the agriculture of this province involves favorable and diverse climatic conditions and other parameters affecting growth.