Pre-Feasibility Study
An Inflammable Coal Production Plant
Madaba

April, 2017

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Madaba Governorate

1. Executive Summary

This study aims at determining the Pre-Feasibility of establishing a coal production plant in Madaba. Additionally the plant will import different types of coal, especially charcoal made from coconut husks to be sold in the kingdom. The project will be established in the industrial zone that is currently being established in Leb area, as the nature of this area is suitable for this project in addition it provides its necessary services such as electricity, water, energy sources, roads, etc.

The project is based on using small coal residues resulting from the extraction process as well as wood residues. The residues will be grinded and adhesives and inflammable materials added and then mixed together and compressed in the form of special molds to produce forms easy to use clean for the environment and do not cause diffused dusts. The market witnesses a high demand for coal, especially Charcoal, because it is used in several uses, including roasting, bongs, incense and some are used in heating.

The following table shows the initial indicators of the project.

Table 1: Initial Indicators of the Project

Project Name	Inflammable coal production plant.
Sector	Industrial sector
Governorate	Madaba
Region	Industrial Zone - Lob
Products/Services	• Inflammable coal packages in various shapes. • Compressed coal in various sizes and forms including the cylinder, square, ring and others. • Bags in various sizes of other coal types (barbecue coal).
Project Description	A plant will be established for the production of flammable coal in Madaba Governorate in the Industrial Zone in Lob. The land will be leased and the buildings with an area of 800 m2 will be established as well as stores in an area of 500 m2. The plant will be equipped with all machines and equipment necessary for the production of flammable coal. In addition, the project will import other types of compressed coal made from the coconut and coal allocated for the barbecue from other countries and selling the same in the Jordanian market. The designed capacity of the plant will be 150 tons per annum and the production in the first year will be around 70 tons from the in flammable coal; i.e. 50% of the designed capacity to be increased annually to reach to 135 tons; i.e. 90% of the designed capacity. In addition, around 600 tons will be traded from the other types of coal in the first year to reach to 931 tons in the tenth year. The sale price of the in flammable coal will be around 4 JD/Kg and the

	sale price for the other types of coal will be 1.4 JD/Kg.
Target Market	• Wholesale and retail shops. • Restaurants and cafés. • Foreign markets.
Investment Cost	The investment cost of the project is JD 660 thousand.
The Average Return On Investment	Average return on investment during the ten years is around 19.7%.
Internal Rate Of Return	The internal Rate of Return the project is around 23.8%.
Average Added Value Of The Project	The Project Added Value within five years is around JD 439 thousand.
Risk Assessment	The Sensitivity Analysis indicates a low risk in case of 10% increase in investment cost, or 10% increase in operating costs, whereas a high risk in case of 10% decrease in revenues.
The Project Justifications	• Availability of the raw materials in Jordan. • Increase demand on coal in the local market; especially the compressed coal and inflammable coal. • Employing the national labor.
Partners/Stakeholders	• None

2. The Macroeconomic Environment

2.1 An Overview of the Hashemite Kingdom of Jordan

The Hashemite Kingdom of Jordan is a landlocked country surrounded by land except at its southern extremity at the port of Aqaba, where that area is the only sea exit area in Jordan. The Kingdom is bordered at its west side by Palestine and the Mediterranean Sea, at its south and east by the Kingdom of Saudi Arabia, at north east by Iraq and at north by Syria.

Figure 1: Map of the Hashemite Kingdom of Jordan

Jordan is marked by three climatic zones from west to east including the Jordan Valley, most of which lies below sea level and is considered subtropical, and upland areas to the east of the Jordan Valley, ranging in height from 100 to 1500 meters above sea level and this is one of the areas dominated by Mediterranean climate, and the desert areas stretching to the east of the highlands.

The total area of the Kingdom is approximately 89.3 thousand square kilometers, and the semi-desert conditions prevail in over 80% of this area where there are some wet lands settings like Azraq Basin.

The kingdom is divided administratively into twelve governorates distributed into three regions: the Northern Region (includes the governorates of Irbid, Mafraq, Jerash and Ajloun) while the Central Region (includes the governorates of the capital, Zarqa, Balqa, Madaba) and the Southern Region (includes the governorates of Karak, Tafila, Ma'an, Aqaba), and the major cities are Amman (the capital), Zarqa and Irbid.

2.2 Population

Based on the General Census of Population and Housing in 2015, the population in the kingdom amounted to about 9.5 million people with a population density of 107.3 inhabitants per km^2, where the Capital City knocked off other governorates by population amounting to about 4 million people and a population density of 538.8 inhabitants per km2, mainly because Amman is the most attractive governorate for Jordanians and for those coming to Jordan from other countries, followed by Irbid Governorate with a population of 1.8 million people, and then Zarqa Governorate with a population of 1.4 million. Tafila Governorate which is considered to be the least populous governorate whose population is about 96 thousand people.

Table 2: Number of population and population density in the Kingdom for 2015

Governorate	Population (people)	Area (Km^2)	Population density (people/ km^2)
Central Region			
Capital	4007526	7,579	528.8
Zarqa	1364878	4761	286.7
Balqa	491709	1120	439.0
Madaba	189192	940	201.3
North Region			
Irbid	1770158	1572	1126.1
Mafraq	549948	26551	20.7
Jerash	237059	410	578.2
Ajloun	176080	420	419.2
Southern Region			
Karak	316629	3495	90.6
Tafeileh	96291	2209	43.6
Maan	144082	32832	4.4
Aqaba	188160	6905	27.2
Total of Kingdom	9531712	88793.5	107.3

Source: Department of Statistics, Jordan General Population and Housing Census, 2015

On the other hand, the population growth rate has reached about 3% in 2010 and increased to 9% during the years 2013 and 2014 and then dropped a little during 2015 to reach about 8%, according to demographic surveys for the Department of Statistics. The reason for the high growth rates is attributed to the influx of large numbers of refugees from Syria to the Kingdom which resulted in a marked decline in per capita real GDP index by 5.4% to JD 1,197.4, based on the Statements of the Central Bank of Jordan.

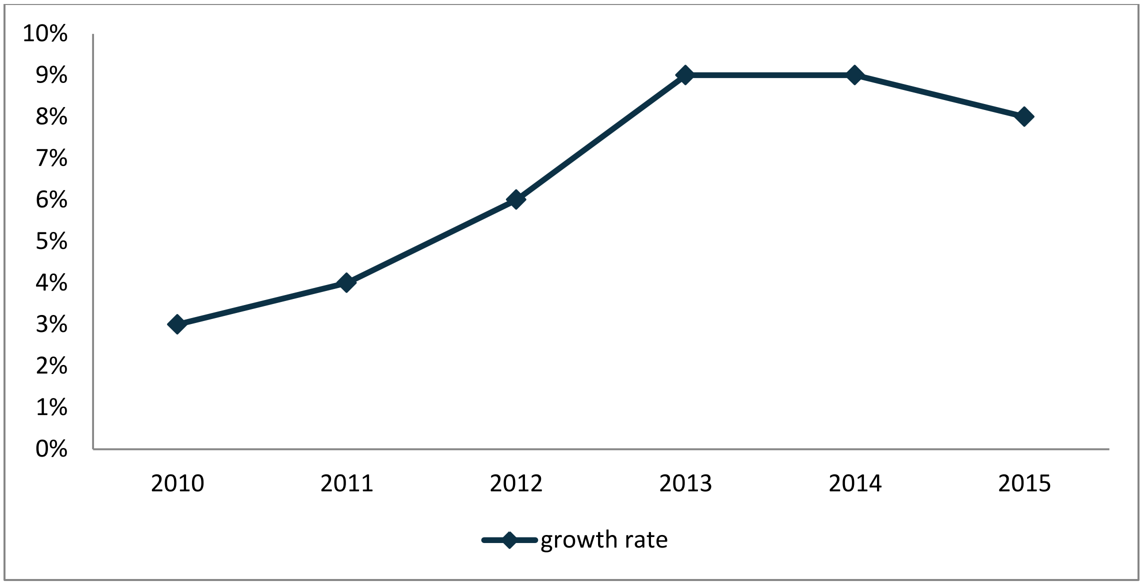
The unemployment rate among Jordanians also witnessed a rise by 1.1 percentage to reach to 13%, due to the structural imbalances that the labor market is suffering from and the acquisition of the low-paid foreign workers on a large number of new jobs in the economy, according to the Central Bank of Jordan.

Table 3: Number of population and population growth in the Kingdom, thousand

	2010	2011	2012	2013	2014	2015
population	6698.0	6993.0	7427.0	8114.0	8804.0	9531.7
growth rate	%3	%4	%6	%9	%9	%8

Source: Department of Statistics

Figure 2: population growth rate in the Kingdom



2.3 Economic Indicators in the Kingdom [1]

Countries across the Middle East are still suffering from instability and closure or partial closure of borders; including the borders of important markets for the Kingdom's products. These factors led to a decline in the performance of many of the economic sectors, including the external sector, national exports, touristic income, and Foreign Direct Investment (FDI), and they contributed to a slowdown in the economic growth to about 2.4% in 2015, compared to 3.1% in 2014. The growth achieved in 2015 came from growth across several economic sectors, especially in the finance, insurance, and real estate services; the transport, storage, and communications services; the mining industry; the manufacturing industry; and the agriculture sector. These sectors contributed a combined 1.8 percentage points (or 75%) of the growth rate achieved during 2015, reflecting the diversity of the economic growth sources in the Kingdom.

Additionally, the general price level registered a decline in the prices of oil, commodities, and other related services in the global markets. Therefore, the general price level, measured by the relative change in the average consumer price index deflated by 0.9% in 2015, compared to the inflation of 2.9% in 2014.

The budget deficit, after aid, increased by 1.2% to a record 3.5% of GDP, compared with 2.3% in the previous year. In addition, the Balance of Payments' Current Account recorded a deficit of 8.9% of GDP, compared with 7.3% in 2014. At the end of 2015, the net public debt amounted to 22,847.5 million Jordanian Dinars (85.8% of the GDP), with an increase of 5.0% of the GDP. However, the total public debt reached 24,876.5 million Jordanian Dinars (93.4% of GDP). This increase resulted from financing both the general budget deficit and the guarantees for loans for the National Electricity Company and the Water Authority, as well as the slowdown of economic growth during 2015. The indebtedness of the National Electricity Company and the Water Authority recorded 6.7 billion Jordanian Dinars at the end of 2015.

On the monetary and banking front, most monetary indicators experienced positive development in performance in 2015, primarily in the Central Bank's foreign reserves, which maintained comfortable levels that amounted to about $14.2 billion. The dollarisation rate decreased, which reflected positive demand for Jordanian Dinars in comparison to other major foreign currencies. With regards to the activities of licensed banks, the outstanding balance of credit increased by 9.5%, to reach 21,103.5 million Jordanian Dinars at the end of 2015. The total deposits registered with licensed banks increased by 7.7%, to reach 32,598.5 million Jordanian Dinars at the end of 2015. The increase in deposits came as a result of the high dinar deposits, which increased by 2,001.4 million Jordanian Dinars (8.3%), and higher foreign currency deposits, which increased by 336.1 million Jordanian Dinars (5.4%).

[1] The Central Bank of Jordan

Furthermore, many of the external sector indicators registered a drop in performance in 2015 due to the deepening instability in the region and almost full closure of the borders with Iraq and Syria. However, the drop in oil prices in the global markets contributed to the decline in the Kingdom's imports bill for energy, as it dropped by 40.6%, which in turn contributed to a decline in total imports and the trade deficit by 11.4% and 14.0%, respectively. Thus, the Current Account, excluding aid, declined to 11.9% of GDP, compared to 12.4% in 2014.

The Current Account deficit increased after aid, to reach 2,365.6 million Jordanian Dinars (8.9% of GDP) in 2015, compared with a deficit of 1,851.7 million Jordanian Dinars (7.3% of GDP) in 2014. This decline is due mainly to the decline in total exports by 6.6% and the decline in surplus in the services account by 27.7%, as touristic income decreased by 7.1%, and the decline in the surplus in the current transfers account decreased as a result of reduced foreign aid.

Capital and financial accounts resulted in a net inflow of 1,593.7 million Jordanian Dinars in 2015, compared to 909.0 million Jordanian Dinars in 2014; this was due to the Kingdom's higher net obligations towards the outside world. Foreign Direct Investment registered a net inflow of 909.4 million Jordanian Dinars, and the reserved investment registered an inflow of 918.4 million Jordanian Dinars due to the Kingdom issuing Eurobonds that are worth $2.0 billion in the global markets. The withdrawal of bank loans on behalf of the Central Bank increased the use of funds from the International and Arab Monetary Funds by 543.3 million Jordanian Dinars. This led to the registration of a surplus in the overall Balance of Payments of 328.7 million Jordanian Dinars during 2015, compared to a surplus of 1,550.7 million Jordanian Dinars during 2014.

According to the Central Bank of Jordan, the increased international investment at the end of 2015 showed an increase in the external net liabilities of the Kingdom, which reached 24,357.5 million Jordanian Dinars, compared with 22,578.8 million Jordanian Dinars at the end of 2014. This was due to an increase in the external balance of assets and financial liabilities for all of the economic sectors in the Kingdom, which reached to 18,657.9 million Jordanian Dinars and 43,015.5 million Jordanian Dinars, respectively, during 2015.

Table 4: main economic indicators 2011 to 2015 in millions of dinars

	2011	2012	2013	2014	2015
Population (millions)	6.993	7.427	8.114	8.804	9.532
Unemployment rate	12.9	12.2	12.6	11.9	13.0
Production and Prices					
GNP at current market prices	20,288.8	21,690.0	23,611.2	25,141.2	26,289.6
GDP at current market prices	20,476.6	21,965.5	23,851.6	25,437.1	26,637.4
The rate of growth in GDP at constant market prices (%)	2.6	2.7	2.8	3.1	2.4
The total national disposable income at current prices	23,743.5	24,774.9	28,424.5	30,302.1	30,234.7
The rate of growth in gross national disposable income at current prices (%)	4.7	–0.2	8.6	3.1	–2.4
Change in the index of consumer prices	4.2	4.5	4.8	2.9	–0.9

	2011	2012	2013	2014	2015
(%)					
The change in the GDP deflator (%)	6.4	4.5	5.6	3.4	2.3
Money and Banking					
Exchange rate of the Jordanian dinar to the US dollar	1.410	1.410	1.410	1.410	1.410
Money supply (P2)	24,118.9	24,945.2	27,363.4	29,240.4	31,605.5
Net foreign assets of the banking system	9,370.1	6,665.5	6,923.4	7,932.3	8,137.3
Net domestic assets of the banking system	14,748.8	18,279.7	20,440.0	21,308.1	23,468.2
Net debt of the government	6,701.4	9,461.3	10,494.8	10,473.9	11,386.4
Private sector debts (Residents)	14,925.0	15,953.6	17,222.5	17,852.8	18,704.5
Other factors (1)	–6,877.6	–7,135.2	–7,277.3	–7,018.5	–6,622.7
Deposits in dinars at licensed banks	19,119.1	17,711.1	21,003.0	24,013.1	26,014.5
Foreign currency deposits at licensed banks	5,258.8	7,258.6	6,590.2	6,247.9	6,584.0
Rediscount rate (%)	4.50	5.00	4.50	4.25	3.75
Treasury bills interest rate for 6 months (%)	3.232	3.788	-	-	-
Public Finance					
Total revenue and foreign aid	5,413.9	5,054.2	5,758.9	7,267.6	6,796.4
Ratio to GDP (%)	26.4	23.0	24.1	28.6	25.5
Total spending	6,796	6,878.2	7,077.1	7,851.1	7,722.9
Ratio to GDP (%)	33.2	31.3	29.7	30.9	29.0
Overall deficit/savings (on an accrual basis)	–1,382.7	–1,824.0	–1,318.2	–583.5	–926.5
Ratio to GDP (%)	–6.8	–8.3	–5.5	–2.3	–3.5
Net outstanding balance of the domestic public debt	8,915.0	11,648.0	11,863.0	12,525.0	13,457.0
Ratio to GDP (%)	43.5	53.0	49.7	49.2	50.5
Outstanding external public debt (2)	4,486.8	4,932.4	7,234.5	8,030.1	9,390.5
Ratio to GDP (%)	21.9	22.5	30.3	31.6	35.3
Foreign Trade and Balance of Payments					
Current account	–2,098.8	-3,344.9	-2,487.7	-1,851.7	-2,365.6
Ratio to GDP (%)	–10.2	–15.2	–10.4	–7.3	–8.9
Trade balance (Deficit)	–6,261.7	–7,486.6	–8,270.1	–8,495.6	–7,249.3
Ratio to GDP (%)	–30.6	–34.1	–34.7	–33.4	–27.2
Commodity exports	5,684.5	5,599.5	5,617.9	5,953.6	5,558.3
Imports of goods (FOB) (3)	11,946.2	13,086.1	13,888.0	14,449.2	12,807.6
Balance of services (net)	896.0	1,332.3	1,209.5	1,778.9	1,286.4
Income account (net)	–187.8	–275.5	–240.4	–295.9	–347.8
Current transfers (net)	3,454.7	3,084.9	4,813.3	5,160.9	3,945.1
Capital and financial account (net)	2,298.9	3,808.9	1,811.1	908.9	1,593.7
Direct foreign investment in Jordan (net)	1,055.0	1,074.3	1,281.2	1,426.7	905.1

Source: Monthly Statistical Bulletin, Central Bank of Jordan

1. Includes the debts of public and financial institutions and other factors, as shown in the Monetary Survey Agenda.
2. This represents the total balance of drawn loans, minus total repayments.
3. Does not include imports of non-resident entities.

2.4 The Jordanian Investment Environment

Investment Law No. 30 for 2014

Investment Law no. 30 for 2014 is considered an appropriate legislative framework to attract foreign investments and stimulate local investments. It is considered a competitor to other investment laws in the region because it contains many advantages, incentives, and guarantees, and it offers a range of incentives and benefits in and outside the Development and Free Zones. The law includes a series of public provisions, such as foreign investment guarantees (depositing and withdrawal of capital, investment management, and transfers) and the inadmissibility of the disbarment of investment property. The law offers provisions to settle investment disputes, protection, and encouragement of mutual investment agreements between the Kingdom and other countries.

The following shows the major incentives granted by the law:

❖ **Incentives and Benefits outside the Development and Free Zones**

- The production inputs for the industrial and crafts sectors are exempted from customs duties.
- The return of the general sales tax on the production inputs for the industrial and crafts sectors within 30 days.
- Production inputs and fixed assets of the industrial and crafts sectors are exempted from customs duties and are granted a reduction in general sales tax to 0%.
- Returning to the sales tax on the services needed to practice economic activity within 30 days.
- The goods that are necessary for the economic activities of the following sectors are exempted from customs duties and are subject to 0% general sales tax:
  - Agriculture and livestock, hospitals and specialised medical centres, hotels and touristic facilities, touristic entertainment and recreation centres, call centres, scientific research centres and laboratories, art and media production, convention centres and exhibitions, transfers and/or distributions and/or extraction of water, gas and oil derivatives, air transport, maritime transport, and railways.

❖ **Incentives and Benefits inside the Development and Free Zones**

- 5% income tax on the income generated from economic activity within the Development Zone.
- 5% income tax on income generated from economic activity in the industrial sector.
- Tax exemptions that are granted in the Kingdom on goods and services exports.
- Reduction of sales tax to 0% on goods and services that are used by the establishment in order to exercise its activity inside the Development Zone.

- 7% sales tax on specific services provided by a registered company in the zone when these services are consumed in the zone.
- Exemptions from customs duties except for a specified number of goods.

❖ **The Reduction of Income Tax in the Least Developed Areas for Regulation No. 44 for 2016**

- The reduction of income tax in the least developed areas for Regulation No. 44 for 2016 was approved. It aims to create an attractive environment for investments that promote economic development through the reduction of income tax outside the Development Zones and in the least developed areas in the Kingdom. The regulation specified the areas that are considered least developed and identified the activities that are excluded from this reduction.
- Under the provisions of Articles 4 and 5 of this regulation, the areas that were categorised as least developed and enjoy the reduction in income tax are divided into four categories; each category enjoys a reduction in income tax on their activities for a period of 20 years.
- Category A includes the Northern Valley District, Deir Alla District, Shouneh Al-Janoubieh District, the Southern Valley District, Rweished District, the Northern Desert District, the North Western Desert District, Al-Azraq Province, Al-Jiza District except for the borders of the new Al-Jiza municipality, Al-Moakar District except for the borders of Al-Moakar municipality, and the Governorate of Aqaba except for the Aqaba Special Economic Zone. The reduction rate for this category is 100%.
- Category B includes the Governorates of Maan, Tafileh, Karak, and Ajloun. The reduction rate for this category is 80%.
- Category C includes the Governorates of Jarash, Mafraq, and Irbid except the borders of the Greater Irbid Municipality. The reduction rate for this category is 60%.
- Category D includes the Governorates of Madaba, Balqa, Amman except for the Greater Amman Municipality, and Zarqa except for the borders of Zarqa Municipality and Russaifeh Municipality. The reduction rate for this category is 40%.

❖ **Trade and Free Trade Agreements**

The most important agreements are:

- Jordan joining the World Trade Organisation in 2000, which led to the opening of the markets of 150 countries for Jordanian exports in goods and services, and provided new opportunities of access to other countries within a clear and transparent environment of laws, regulations, and procedures.
- A series of regional trade agreements, such as the Jordan Partnership Agreement with the European Union, Agadir Agreement, Free Trade Arab Agreement, the free trade agreement between Jordan and the European Free Trade Association, and the adoption of the Euro-Mediterranean simplification of the rules of the Origin System, which includes the decision

to simplify the rules of the origins of Jordanian products between Jordan and the European Union came into effect on July 19, 2016, and will remain in effect until December 31, 2026.

- A series of bilateral trade agreements with many countries, such as the free trade agreement between Jordan and the United States of America, the Qualified Industrial Zones Agreement, the free trade agreement between Jordan and Singapore, the free trade agreement with Turkey, the free trade agreement with Canada, and many other agreements.
- Jordan has signed more than 35 agreements with Arab and foreign countries in order to prevent double taxation between Jordan and these countries, thus protecting investors' rights.
- The Agreement of Promotion and Protection of Investments and the Movement of Capital between the Arab Countries was signed in 2000 with 11 Arab countries who are members of the Arab Economic Unity Council, in order to establish an appropriate environment for investments and economic cooperation between investors in the Arab countries, thus pushing and stimulating investment activities by providing encouragement and mutual protection for Arab investments.

Human Development Report for 2015

The Human Development Report that was issued by the United Nations Development Program in 2015 showed that Jordan fell 3 points to number 80. Please note that Jordan's place on the Human Development Report index value has improved slightly.

Global Competitiveness Report

The Kingdom's rank has improved by one point in the Global Competitiveness Report for the year 2016/2017, at 63 out of 138 countries compared to 64 out of 140 countries in the 2015/2016 report. It is considered an insignificant improvement, especially because of the reduction in the number of countries participating in this year's report. Amongst the Arab countries, Jordan was ranked after the United Arab Emirates, Qatar, the Kingdom of Saudi Arabia, Kuwait, and Bahrain, who were ranked 16, 18, 29, 34, and 39, respectively.

Doing Business Report

In the Doing Business Report that was issued by the World Bank Group, Jordan is still ranked 118, up one rank from the 2016 report, because of the variation in the performance of the different sub-indicators. Jordan ranked ninth among the Arab countries; the United Arab Emirates was ranked first among the Arab countries at 26, followed by Bahrain at 63 and Oman at 66.

2.5 The Economic Environment in the short and medium term

Risks analysis implemented by BMI indicates that the Jordan's political and economic risks in the short and medium term are less than the overall average of the world and the Middle East. The state's risks and the operational risk are estimated to be within the acceptable levels. The international institutions' forecasts point out that the economic and foreign trade indicators are expected to achieve acceptable rates of growth with the exception of the continued increase in internal and external indebtedness.

Table 5: Assessment of short and long-term risks

	Long term		Short term		Operational risks	State risks
	political	Economic	political	economic		
Jordan	63.1	39.2	66.6	46.2	58.7	55.4
Turkey	60.2	49.4	58.4	56.9	55.9	56.1
Egypt	53.3	45	52.4	48.7	42.9	47.5
Lebanon	45.8	54	55.4	53.5	44.2	49.5
West Bank and Gaza	33.1	38.1	32.2	36.5	32.5	34.3
Syria	22.9	24.4	22.4	23.6	29.3	26.1
Regional average	49.4	46.9	51.2	48.7	46.6	48.3
global average	64.1	50.7	61.3	51.9	49.8	54.6

Source: the economy and state risks, IHS, 15/09/2016

Table 6: The most important key economic indicators 2016-2020

Indicator	2016	2017	2018	2019	2020
The growth rate of GDP	2.6	2.7	2.8	3.2	3.1
GDP (in USD billions)	39.6	42.1	44.8	47.8	50.9
Population (In millions)	9.8	10.1	10.4	10.7	11.0
Consumer Price Index (% change)	-0.7	1.8	3.3	4	3.2
Exports (in USD billions)	7.3	7.6	8.2	8.8	9.6
Imports (in USD billions)	18.3	19.2	20.1	21.3	22.8
Foreign direct investment, the net value (in USD billions)	1.5	1.5	1.6	1.6	1.7
Foreign direct investment, the net value (% of GDP)	3.7	3.7	3.6	3.4	3.3
Foreign exchange reserves (in USD billions)	13.9	14.9	15.7	16.8	17.7
Total external debt (in USD billions)	24.4	27.8	30.7	33.7	36
Total external debt (% of GDP)	61.6	66	68.6	70.4	70.6
Total external debt (% of foreign currency earnings)	127.3	138.3	143.6	147.5	147.8

Source: the economy and state risks, IHS, 15/09/2016

3. Market Study

3.1 Project Description

The project is an inflammable coal production plant that produces different types of coal in different shapes and sizes. In addition, the plant imports all types of coal to be sold in the local market, especially charcoal produced from coconut husks and charcoal used in barbecue. The project will be established in Madaba in the industrial zone currently being established, which has the necessary services such as electricity, water, roads, information technology, energy sources, etc.

The idea of the project has emerged because of the remarkable demand for coal, especially charcoal and inflammable coal, which is highly used in many processes, including bongs and barbecue. It is also used in incense and heating. The process of inflammable coal manufacture depends on the collection of coal residues, that is first grinded then some adhesives, water and in flammable materials are added and then mixed, compressed, dried and molded in the form of shapes in various forms, and then packaged and packed in containers for sale in the local market or export.

Inflammable coal has several advantages, including:

- Inflammable
- Remains on fire for a long time
- Helps the surrounding environment to dispose waste, where it is made from wood sawdust, unused coal parts and plant's flakes.

Charcoal, especially made of coconut husks, has several advantages, including:

- Inflammable
- remains on fire for a long time (up to two hours)
- No chemicals are added to it, therefore it is not harmful to the environment
- It does not smell or smoke, that can be used indoor and indoors

3.2 Expected Products and Services

The project expected products include the following:

- Inflammable coal packages in various shapes
- charcoal coal in various sizes and shapes including cylindrical, square, ring, etc
- Bags in various sizes of other coal types (barbecue coal)

3.3 Analysis of Market Size

To create a clear and comprehensive picture of the market size of coal of all types used in the local market which includes inflammable coal, charcoal and other types used for roast and other uses, a series of field interviews were conducted with those with expertise and knowledge in this field, in addition to performing the necessary disk research related to quantities of imports and exports. As a result of these interviews and research, it has been found that there are no factories producing coal of all kinds, either charcoal or inflammable coal in the Kingdom, but the market needs are met by importing from other countries.

Based on the interviews conducted with experts in the field estimates of the coal market of various types used in the Jordanian market has been reached. The total market size of various types of coal was estimated at 17,250 tons distributed at inflammable coal, compressed coal and other coal types such as barbecue coal.

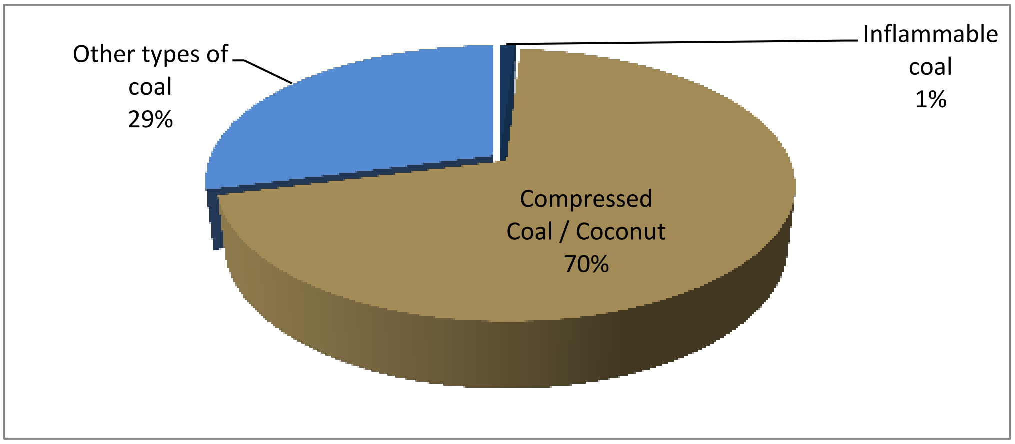
The inflammable coal market size in the kingdom is estimated at about 250 tons per year, which constitutes 1% of the total market of coal. This percentage is due to the fact that this coal type has been only recently used in the Jordanian market, but the demand is increasing significantly. The charcoal market size is estimated at 70%of the total market size with an estimated amount of 12,000 tons annually, most of the charcoal available in the Jordanian market is imported from East Asian countries and is made from coconut husks for its advantages of speed of inflammation and the long period of staying burning, in addition to the lack The emission of any gases or odors.

As for other types of coal, such as coal packed in large bags, the market size was estimated at about 5,000 tons, or 29% of the total market size.

Table 7: Market size for various type of coal:

Coal Type	Quantity (ton)	Year
Inflammable coal	250	%1
Compressed/Coconut Coal	12,000	%70
Other types of coal	5000	%29
Total	17,250	%100

Figure 3: Distribution of market size for various type of coal:



Based on the above, the main competitor for the project's products is inflammable coal, compressed coal and others products imported from other countries and are available in Jordanian market in large quantities.

3.4 Price Analysis

A field study was conducted on the coal price in the Jordanian market, where the consumer price was collected for the various types of coal available in the Jordanian market, including charcoal/compressed coal made from coconut husks, inflammable coal and other coal types packed in large bags.

The table below shows the prices of these coal types which collected through the field study. It is noted that the average price of coconut charcoal is about 3.25 dinars / kg, and the average price of the inflammable coal pack of 70 gm. is about JD 0.60. Coal used for barbecue is about JD 0.5 for a bag weighing 350 gm.

Table 8: Price of Coal Types

Statement	Weight (gm)	Price (JD)
Inflammable coal	70	0.7 -0.5
Compressed/Coconut Coal	1000	3.5 -3
Other type (for Barbecue)	350	0.5

3.5 Marketing Strategy

Target Market

The project targets the following categories:

- Wholesale and retail stores
- Restaurants and cafés
- Foreign markets

Expected products

Expected project products include:

- Inflammable coal packages in various shapes
- charcoal coal in various sizes and shapes including cylindrical, square, ring, etc
- Bags in various sizes of other coal types (barbecue coal)

Expected prices

- The average selling price of inflammable coal in the first year is JD 4 per kg
- The average selling price of compressed coal is JD 1.4 per kg

Promotion

The project's promotional strategy includes:

- Plant website
- Project Brochure
- Advertisements via websites
- Advertisements in local newspapers
- Marketing to retail outlets, restaurants and cafés through a sales representative

Sale

The project's sales strategy includes:

- Direct sales to retail and wholesale shops
- Direct sales to restaurants and cafés
- Export to foreign markets

Service

- Project service delivery strategy includes:
- Focus on the quality of the materials used in the production of inflammable coal where the remains dust of coal and wood will be cleaned
- Maintain permanent and continuous cleanliness of the plant and storage areas

- Maintain the cleanliness of used tools, furniture and various facilities and equipment
- Respect the rules of hygiene, security and public safety
- Maintenance of equipment continuously
- Commitment to deadlines with customers
- Credibility in dealing with customers

3.6 Expected Market Share

The following table shows the project expected market share, according to the following assumptions:

- Operation of on the proposed project is expected to start in 2018
- 50% of the plant's production from inflammable coal will be exported.
- The growth rate of the inflammable coal market was estimated at 4% per year from 2015 to 2018. The expected market size is as follows:

	2015	2016	2017	2018
Expected market size for the inflammable coal – ton.	250	260	270	281
Expected market size for other coal types – ton.	17,000	17,680	18,387	19,123

Table 9: Market share of the project

Statement	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Production of inflammable coal – ton	75	83	90	98	105	113	120	128	135	135
Sales in local market – ton	38	41	45	49	53	56	60	64	68	68
Market size (ton)	281	292	304	316	329	342	356	370	385	400
Market share from sales in the local market	%13	%14	%15	%15	%16	%16	%17	%17	%18	%17
Trading in other types of coal - ton	600	630	662	695	729	766	804	844	886	931
Market size from other coal types	19,123	19,888	20,683	21,510	22,371	23,266	24,196	25,164	26,171	27,218
Market share from other coal types	%3	%3	%3	%3	%3	%3	%3	%3	%3	%3

4. Technical Study

4.1 The Designed Capacity

The following table shows the project designed capacity. The plant is designed to produce about 150 tons of inflammable coal.

Table 10: Designed Capacity of the Project

Quantity (tons)	Statement
150	Inflammable coal

The following table shows the areas required for the project. In order to access the designed capacity, a plot will be leased in the industrial area, and buildings with an area of 800 m^2 and stores of 500 m^2 will be established.

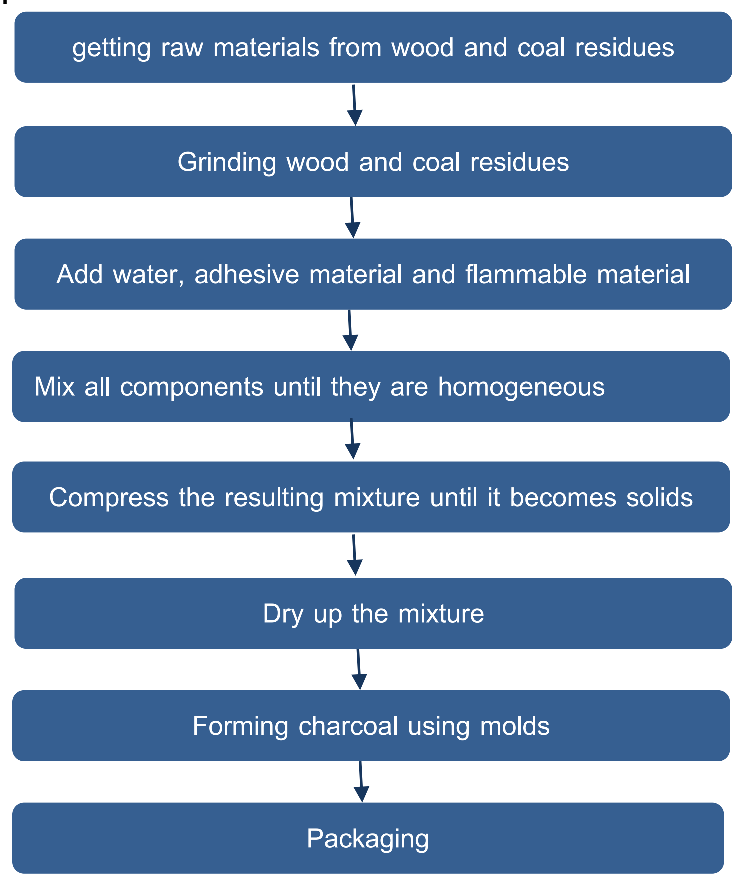
Table 11: Areas required for the project

Unit	Item
800	Buildings m^2
500	Stores m^2

4.2 Production Process

The following diagram shows the production process to convert coal and wood residues into inflammable coal. At first, coal and wood residues will be brought to ensure that there is no dust between the residues so as not to affect the quality of the coal to be produced. After that, these residues will be grinded and adhesives, water and material are added to accelerate the inflammable process, and then they are mixed and compressed, then the mixture is ventilated to dry up and formed with special molds.

Figure 4: Production process of inflammable coal manufacture



The following machines and equipment are needed to produce inflammable coal:

- Grinding machine.
- Mixing machine.
- Pressing machine.
- Drying machine.
- Formation and clipping molds.
- Packaging and packing machine.

4.3 Required Material Resources

The following table shows the material resource required for the project.

Table 12: required material resources

Item	Unit	Price (JD)	Value (JD)
Buildings	800	200	160,000
Stores	500	150	75,000
Machines and equipment	-	-	75,000
Transportation vehicles	3	25,000	75,000
IT	-	10,000	10,000
Labs and other assets	-	-	10,000
Total	405,000		

The figures are estimated according to the market study.
The land, where the project will be established, is leased and the full rent will be mentioned in the operating cost.

4.4 Required Human Resources

The following table shows the human resources required for project. The required employees are approximately 22 with total salaries of 146,000 JD/year.

Table 13: Human Resources Required for the project

Item	Employee	Salary (JD/monthly)	Total Salary (JD/annually)	Operative (JD/annually)	Administrative (JD/annually)
Director General	1	3,000	36,000	-	36,000
Supervisors and engineers	2	1,000	24,000	24,000	-
Technicians	3	500	18,000	18,000	-
Administrative, Accountants, Marketing, Procurement	10	400	48,000	-	48,000
Labor	6	280	20,160	20,160	-
Total	22	-	146,160	62,160	84,000

The following table shows the general job description for the required jobs in project.

Table 14: General job description for required jobs in the project

Job	Job Description
General Manager	• Planning, organizing, directing and managing all operations in plant. • Following up affairs and performance of all departments in plant and giving them required instructions. • Following up affairs and performance of all plant sections and divisions and implementation of instructions.

Job	Job Description
	• Preparing plans and operations that enable the reduce of cost and defining plant needs of human cadres, equipment, utilities, etc. • Modernization of equipment and devices regularly to enhance plant productivity and setting developed plans to increase production and quality measures. • Supervision of development and implementation of plans and occupational and health safety measures and providing their requirements. • Supervision of studies and collection of data for preparing budget estimates.
Supervisor	• Direct supervision of labors • Ensuring labor daily productivity • Ensuring continuous work flow by supervision. • Making daily inspection tours.
Engineer	• Identifying needs of raw material and preparing orders related to production inputs in co-operation with specialized divisions and submitting them to procurement department. • Following up maintenance works in production floor by specialists and submitting reports about maintenance and replacing non-working equipment. • Submitting reports about all matter related to the production process, achievements, failure and reasons. • Working on setting and implementing production plan including quantities, quality standards and work schedules. • Reducing waste quantity during production process, studying reasons and providing suitable solutions. • Setting systems and quality control measures to examine raw material batches arrived to storehouse. • Following up quality policy implementation as part of following corrective and preventive actions and making regular reports there to. • Supervision of maintenance and repairing of machines used in the production process. • Working on documentation of maintenance process and making file for each machine separately to know its cost. • Supervision of implementation occupational and health safety measure for all staff.
Technician	• Implementing electrical, protective and corrective maintenance for machines, equipment and production lines in plant according to approved plan and instructions.

Job	Job Description
	• Monitoring machines and equipment efficiency, informing supervisor of production shift about any misuse of these machines. • Identifying electrical malfunction, which happen in machines and production lines. • Installing required power supplies for all plant's section and departments. • Implementing required electrical modifications and connections for equipment and machines after being studied and approved by maintenance engineer. • Supervision of main transformers and breakers, reading load, volt and temperature according to specified times. • Examining main and sub Electrical distribution panels for all plant's buildings and utilities according to programs made to ensure their readiness and efficiency.
Marketing officer	• Understanding client needs and informing general manager/owner about. • Setting and implementing plans of expansion and sales increase. • Documenting all contact details of clients and their addresses. • Submitting offers and negotiating with clients
Administrative officer	• Making procedures and policies to ensure staff check-in and check-out, pay financial dues accordingly and registering vacations. • Helping in all works related to administrative system and coordination between departments and working units. • Scheduling and arranging meetings, events and other similar activities. • Sending/receiving mail and parcels and preparing correspondences • Keeping and updating personnel files.
Accountant	• Proofing accounting operations registration and preparing monthly account statements sent to both clients and suppliers. • Revision and matching bank account balances in statements with statements of these banks. • Preparing staff payroll.
labor	• Preparing materials used in production. • Operating equipment and machines in plant. • Standing in front of production line and executing required tasks. • Implementing production and quality plans in all production process. • Implementing Occupational and health safety measures in plant. • Informing maintenance technician about any machine failure.

4.5 Special Requirements

The following table indicates the main requirements to establish the plant.

Table 15: Requirements and specifications

Item	Requirements and specifications
Locations	• If the plant will be establish in industrial zone, it must be built 500m away from food and pharmaceutical industries and any industry related to food and beverage. • If the plant will be built out of planning zone, it must be built 1000 m away from settlements. • Land classification must not be agricultural or less than second grade. • The wind direction must be taken into consideration when constructing plant.

4.6 Required Licenses

The following table shows the required licenses from different authorities to implement the project

Table 16: Required licenses for project.

Item	Clarification
Company registration	• Ministry of industry and trade • Chamber of industry
Plant construction and licensing	• Ministry of Environment • Municipality / concerned industrial zone/ electricity authority /water …etc.
Plant operation	• Sales and Income Tax Department • Social security corporation

4.7 Project Timetable

The following table shows the time required to execute project, which is 18 months as follows:

Phase	First year (in months)												Second year (in months)					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Studies																		
Approvals, company registration and license																		
Preparing location and building																		
Bringing Equipment, furniture and buying machines																		
Installing and commissioning																		
Total period	18 months																	

5. Financial Study

5.1 Financial Assumptions

The following table illustrates the financial assumptions of the project.

Table 17: The Financial Assumptions of the Project

Item	Assumption
Inflation Rate	3%
Financing Structure	Equity constitutes 75% of the investment and loans constitute 25%
Interest Rate	9%
Working Capital	3 months of annual cost
Pre-Operating Expenses	2% of total investment
Tax Rate	15%
Exemptions	Fixed assets are exempted from customs
Raw materials cost	40% of the inflammable coal revenue, and 70% of the revenues of trading other coal types
Staff Benefits	25% of salaries
Annual Salaries Increase	5% annually
Marketing Expenses	4% of total revenues
Assets Depreciation Rate	4%-20% of the asset value
Maintenance Cost	1% of fixed assets value with 5% annual increase
Electricity Cost	3% of inflammable coal revenues
Rents	10 thousand
Other operating costs	5 thousand in the first year with 5% annual increase
Accounts Receivable	One month of total revenues
Inventory	4 months of raw materials cost
Asset Dividends	60% of profit
Reserves	40% of profit

5.2 Investment Cost

The project's Investment cost is estimated at JD 660 thousand distributed among fixed assets of JD 405 thousand, pre-operating expenses of JD 7 thousand, and working capital of JD 248 thousand.

The following table shows the project's Investment cost.

Table 18: the project's investment cost

Item	Value (in thousand JD)
Fixed assets	405
Pre-operating expenses	7
Working capital	248
Total	660

5.3 Financing

The project will be financed with the shareholders by 75% which is estimated at about JD 495 thousand, while the other 25% of the project investment cost will be financed through bank loans of about JD 165 thousand.

The following table shows the financing structure for financing the project, where:

- The interest rate is 9%.
- The loan will be paid during 5 years.

Table 19: Project financing schedule

Item	Value (in thousand JD)	%
Equity	494.7	75%
Loan	164.9	25%
Total	660	100%

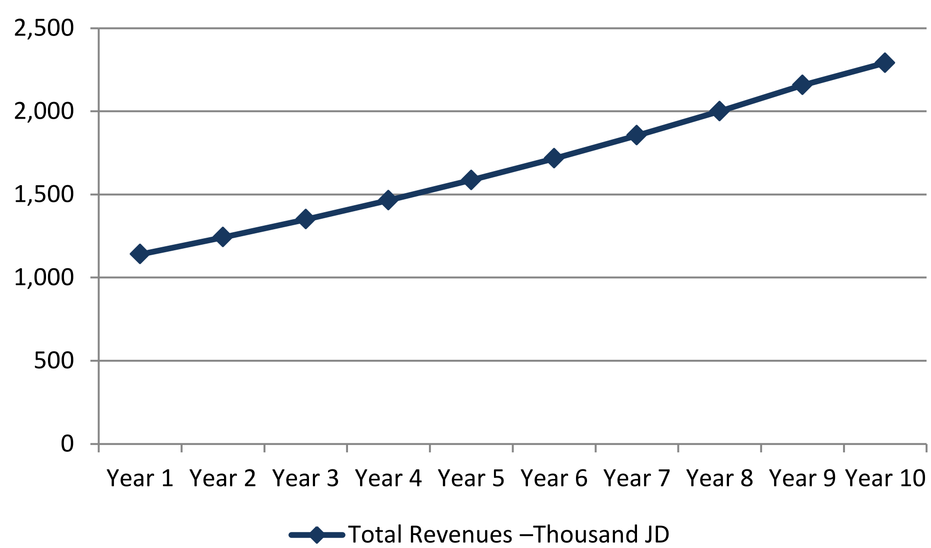
5.4 Revenues

The following table shows the total revenues of the project, where it is noted that the revenues in the first year amounts to about JD 1.1 million, and increased to reach up to JD 2.3 million in the tenth year due to growth and increase in sales.

Table 20: The Expected Revenues

Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Designed capacity – tons	150	150	150	150	150	150	150	150	150	150
Operating Ratio	%50	%55	%60	%65	%70	%75	%80	%85	%90	%90
Production quantities – tons	75	83	90	98	105	113	120	128	135	135
Price per ton	4,000	4,040	4,080	4,121	4,162	4,204	4,246	4,289	4,331	4,375
Revenues of production - thousand JD	300	333	367	402	437	473	510	547	585	591
Quantity of traded coal – tons	600	630	662	695	729	766	804	844	886	931
Selling price	1,400	1,442	1,485	1,530	1,576	1,623	1,672	1,722	1,773	1,827
Coal sales - thousand JD	840	908	982	1,063	1,149	1,243	1,344	1,454	1,572	1,700
Total Revenues – Thousand JD	1,140	1,242	1,350	1,464	1,586	1,716	1,854	2,000	2,157	2,291

Figure 5: Total Expected Revenues



5.5 The Projected Costs

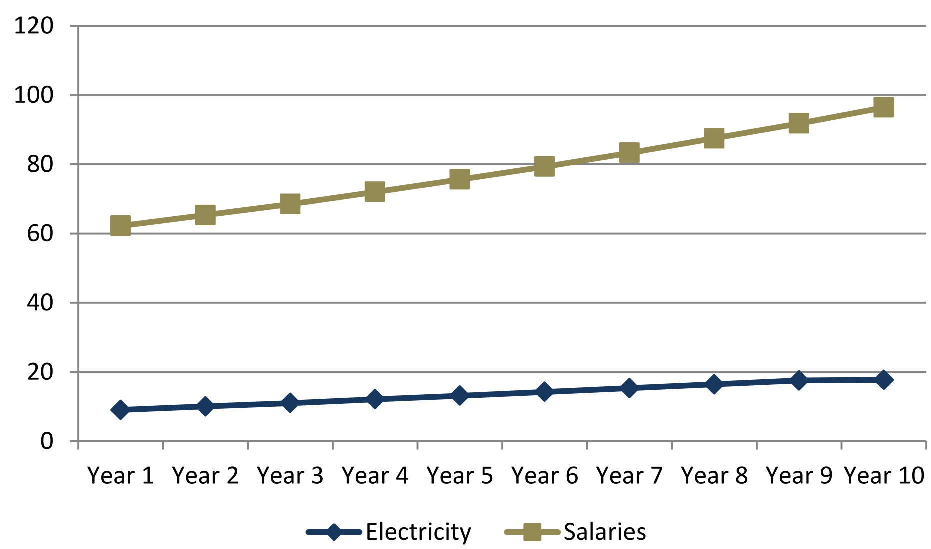
Operating Costs

The following table shows the project's operating costs over ten years. The cost of purchasing raw materials in year 1 amounted to JD 708 thousand which increase to reach JD 1.4 million in year 10. Moreover, the Electricity cost amount to JD 9 thousand in Year 1 which increases to JD 17.7 in year 10.

Table 21: Operating Costs

Operating Costs (in thousand JD)										
Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Raw material	708.0	769.2	834.6	904.5	979.2	1059.2	1144.7	1236.3	1334.4	1426.4
Electricity	9.0	10.0	11.0	12.1	13.1	14.2	15.3	16.4	17.5	17.7
Salaries	62.2	65.3	68.5	72.0	75.6	79.3	83.3	87.5	91.8	96.4
Staff Benefits	15.5	16.3	17.1	18.0	18.9	19.8	20.8	21.9	23.0	24.1
IT Expenses	5.0	5.3	5.5	5.8	6.1	6.4	6.7	7.0	7.4	7.8
Depreciation	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9	35.9
Maintenance	4.1	4.3	4.5	4.7	4.9	5.2	5.4	5.7	6.0	6.3
Rents	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Other	5.0	5.3	5.5	5.8	6.1	6.4	6.7	7.0	7.4	7.8
Total	854.7	921.5	992.7	1068.7	1149.8	1236.4	1328.8	1427.7	1533.4	1632.4

Figure 6: Projected Operating Costs of the Project



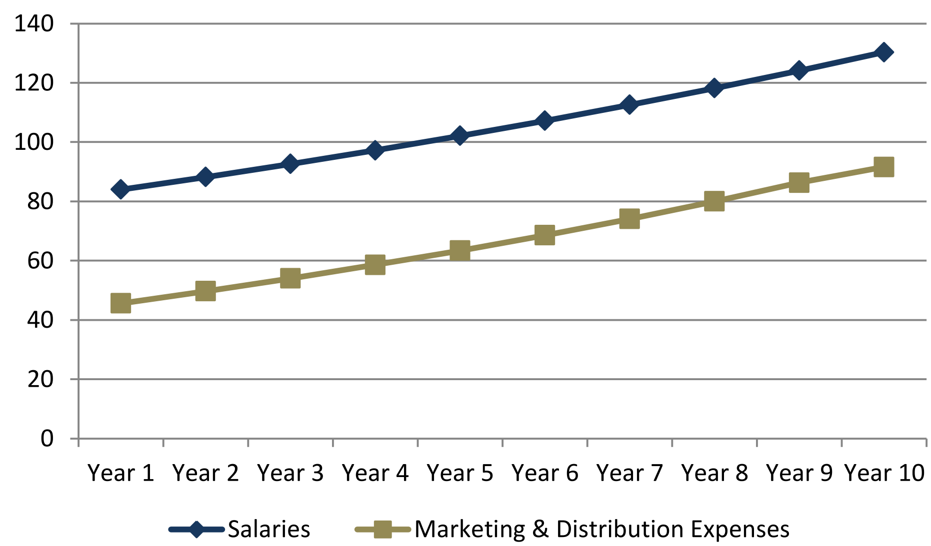
Administrative Expenses

The following table shows the projected administrative expenses of the project. The salaries of administrative staff reach JD 84 thousand in the first year and increase to JD 130 thousand in the tenth year. The marketing expenses are about JD 45.6 thousand in the first year and increase to reach JD 91.6 thousand in the tenth year.

Table 22: General and Administrative Expenses

General and Administrative Expenses (in thousand JD)										
Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Salaries	84.0	88.2	92.6	97.2	102.1	107.2	112.6	118.2	124.1	130.3
Staff Benefits	21.0	22.1	23.2	24.3	25.5	26.8	28.1	29.5	31.0	32.6
Stationery	8.0	8.4	8.8	9.3	9.7	10.2	10.7	11.3	11.8	12.4
Professional Fees	3.0	3.2	3.3	3.5	3.6	3.8	4.0	4.2	4.4	4.7
Marketing & Distribution Expenses	45.6	49.7	54.0	58.6	63.4	68.6	74.1	80.0	86.3	91.6
Other Expenses	5.0	5.3	5.5	5.8	6.1	6.4	6.7	7.0	7.4	7.8
Pre-operating costs amortization	7	-	-	-	-	-	-	-	-	-
Total	173.2	176.7	187.4	198.6	210.5	223.1	236.3	250.3	265.0	279.3

Figure 7: General and Administrative Expenses



5.6 Projected Financial Statements

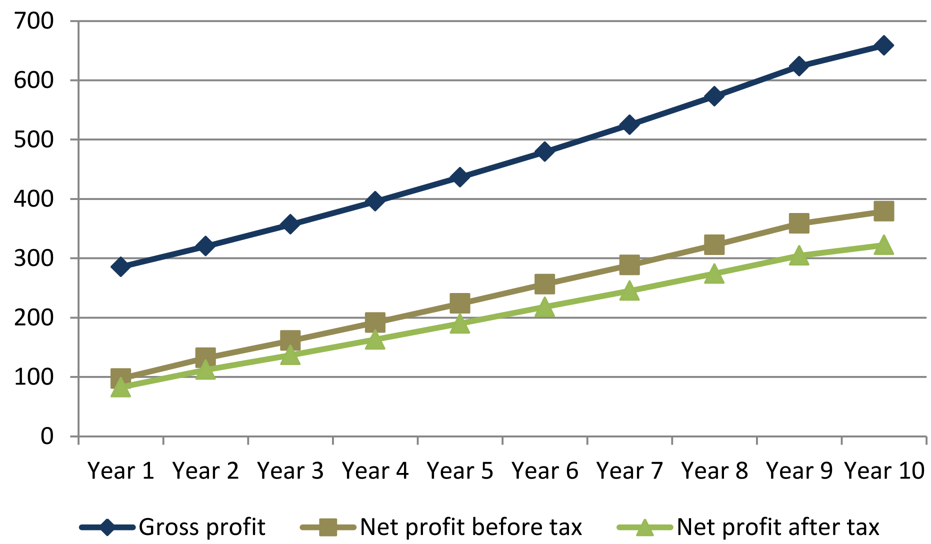
Income Statement

The following table shows the projected income statement of the project. It indicates that gross profit will increase from JD 285 thousand in the first year to JD 658 thousand in the tenth year. Also the net profit after tax will increase from JD 83 thousand in the first year to JD 322 thousand in the tenth year.

Table 23: The Projected Income Statement

Income Statement (in thousand JD)										
Item	Year 1	Year 2	Year 3	Year4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenues	1,140	1,242	1,350	1,464	1,586	1,716	1,854	2,000	2,157	2,291
Operating costs (cost of sales)	854.7	921.5	992.7	1,068.7	1,149.8	1,236.4	1,328.8	1,427.7	1,533.4	1,632.4
Gross profit	285.4	320.3	357.0	395.7	436.4	479.4	524.8	572.8	623.5	658.5
Administrative expenses	173.2	176.7	187.4	198.6	210.5	223.1	236.3	250.3	265.0	279.3
Net profit	112.2	143.6	169.6	197.0	225.9	256.4	288.5	322.5	358.4	379.1
financial expenses	14.8	11.7	8.5	5.4	2.2	-	-	-	-	-
Net profit before tax	97.3	131.9	161.1	191.7	223.7	256.4	288.5	322.5	358.4	379.1
Tax	14.6	19.8	24.2	28.7	33.6	38.5	43.3	48.4	53.8	56.9
Net profit after tax	82.7	112.1	136.9	162.9	190.1	217.9	245.2	274.1	304.7	322.3

Figure 8: Projected Income Statement



Projected Balance Sheet

The following table shows the projected balance sheet of the project during the first ten years. It indicates that total assets will increase from JD 660 thousand in the year of incorporation to JD 1.5 million in the tenth year. The Total liabilities will decrease from JD 215 thousand in the first year to JD 163 thousand in the tenth year. The Shareholders' Equity will increase from JD 495 thousand in the year of incorporation to JD 1.3 million in the tenth year.

Table 24: Projected Balance Sheet

Projected Balance Sheet (in thousand JD)											
Statement	Year of incorporation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
Cash	248	20	42	72	110	63	164	265	375	494	624
Receivables		95	103	112	122	132	143	154	167	180	191
Inventory		236	256	278	302	326	353	382	412	445	475
Other	-	23	25	27	29	32	34	37	40	43	46
Total Current Assets	248	374	426	489	563	553	695	838	993	1,162	1,337
Fixed Assets	412	412	412	412	412	507	507	507	507	507	507
Cumulative Depreciation	-	42	78	114	150	186	222	258	294	330	366
Net Fixed Assets	412	369	333	297	261	321	285	249	213	177	141
Total Assets	660	743	760	787	824	873	979	1,087	1,206	1,339	1,478
Shareholders Equity and Liabilities											
Payables	-	85	92	99	107	115	124	133	143	153	163
Long Term Loans	165	130	95	60	25	(10)	-	-	-	-	-
Total Liabilities	-	215	187	159	132	105	124	133	143	153	163
Shareholders Contributions	495	495	495	495	495	495	495	495	495	495	495
Retained Earnings		33	78	133	198	274	361	459	569	691	820
Shareholders' Equity	495	528	573	627	693	769	856	954	1,064	1,185	1,314
Shareholders Equity and Liabilities	660	743	760	787	824	873	979	1,087	1,206	1,339	1,478

Cash Flow Statement

The following table shows the projected cash flow statement of the project during the first ten years. It indicates that the cash flow from operating will increase from JD 124 thousand in the second year to JD 324 thousand in the tenth year; while the Cash at the ending period will increase from JD 248 thousand in the year of incorporation to JD 624 thousand in the tenth year.

Table 25: The Expected Cash Flows Statement

Cash Flow Statement (in thousand JD)											
Statement	Year of incorporation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Operation Activities											
Net Profit	-	83	112	137	163	190	218	245	274	305	322
Depreciation	-	42	36	36	36	36	36	36	36	36	36
Change In Working Capital	-	(268)	(24)	(26)	(28)	(29)	(31)	(34)	(36)	(38)	(35)
Cash Flow From Operation	-	(143)	124	147	171	197	222	248	274	302	324
Investing Activities											
Fixed Assets	(412)	-	-	-	-	(95)	-	-	-	-	-
Cash From Investing Activities	(412)	-	-	-	-	(95)	-	-	-	-	-
Financing Activities											
Capital (Equity)	495	-									
Loan	165	(35)	(35)	(35)	(35)	(35)	10	-	-	-	-
Dividends		(50)	(67)	(82)	(98)	(114)	(131)	(147)	(164)	(183)	(193)
Cash Flow From Financing Activities	660	(85)	(102)	(117)	(133)	(149)	(121)	(147)	(164)	(183)	(193)
Net Cash Flow	248	(228)	21	30	39	(47)	102	100	110	119	130
Cash At The Beginning Period	0	248	20	42	72	110	63	164	265	375	494
Cash At The Ending Period	248	20	42	72	110	63	164	265	375	494	624

5.7 Financial, Economic and Social Analysis

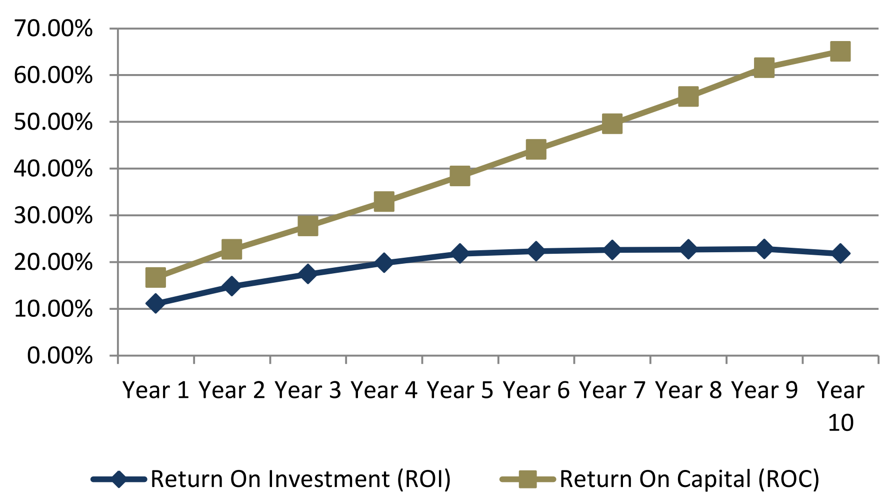
Financial Analysis

The following table shows the financial analysis of the project. It indicates that the net profit ratio will increase from 7.3% in the first year to 14.1% in the tenth year, and the return on investment will increase from 1.11% in the first year to 21.8% in the tenth year.

Table 26: Financial Analysis

Financial Analysis (In Thousand JD)										
Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets	743	760	787	824	873	979	1,087	1,206	1,339	1,478
Revenues	1,140	1,242	1,350	1,464	1,586	1,716	1,854	2,000	2,157	2,291
Profits	83	112	137	163	190	218	245	274	305	322
Capital (Equity)	495	495	495	495	495	495	495	495	495	495
Net Profit %	%7.3	%9.0	%10.1	%11.1	%12.0	%12.7	%13.2	%13.7	%14.1	%14.1
Return On Investment (ROI)	%11.1	%14.8	%17.4	%19.8	%21.8	%22.3	%22.6	%22.7	%22.8	%21.8
Return On Capital (ROC)	%16.7	%22.7	%27.7	%32.9	%38.4	%44.1	%49.6	%55.4	%61.6	%65.1
Net Profit On Revenues	%7.3	%9.0	%10.1	%11.1	%12.0	%12.7	%13.2	%13.7	%14.1	%14.1
Assets Turnover (Time)	1.53	1.64	1.72	1.78	1.82	1.75	1.71	1.66	1.61	1.55

Figure 9: The Financial Analysis



Economic Analysis

The following table shows the economic analysis of the project during the first ten years, we conclude that:

- The Internal rate of return is 23.8%. It exceeded six times the return on assets, which means the economic feasibility of the project
- The present value of the project reached about JD 1.1 million. It exceeds the net present value with JD 495 million, which means the economic feasibility of the project.
- The profitability index of the project reached 2.15 times, which means that the expected value of the project will increase by double the investment value, which proves that the project is feasible.
- The project payback period is 6 years.

Table 27: the Economic Analysis

Economic Analysis (in Thousand JD)											
Statement	Year of incorporation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Net cash flow from operating and investing activities	(495)	(178)	89	112	136	162	233	248	274	302	324
terminal value	-	-	-	-	-	-	-	-	-	-	1,314
Net Cash flow	(495)	(178)	89	112	136	162	233	248	274	302	1,638
Internal Rate of Return (IRR)	%23.8										
present Value	1,064										
Net present value	569										
Profitability Index (Time)	2.15										
Payback period (Year)	6.00										

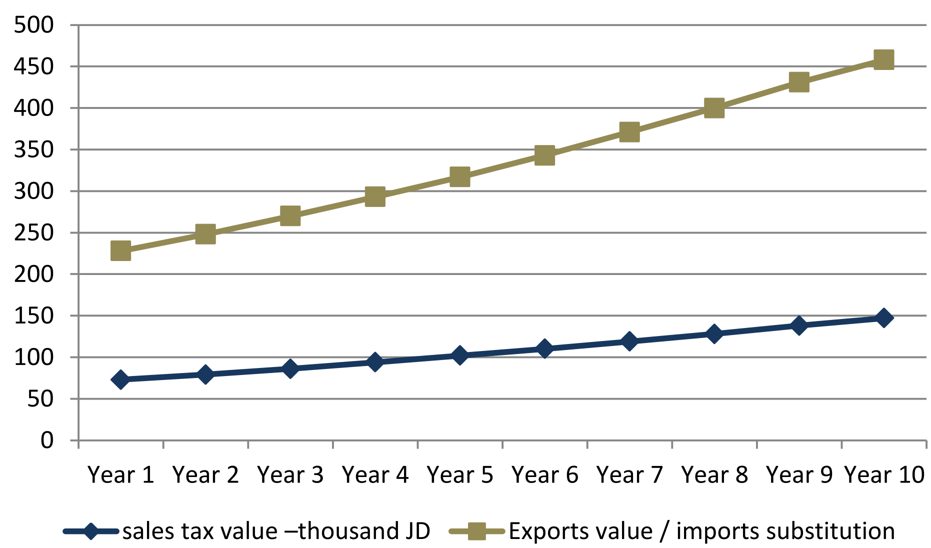
Social Analysis

The following table shows the social analysis of the project. It is noticed that the number of staff required for the project will increase from 22 employees in the first year to 26 employees in the tenth year. All employees will be Jordanian. The added value of the project will also increase from JD 228 thousand in the first year to JD 458 thousand in the tenth year.

Table 28: the Social Analysis of the Project

Social Analysis										
Statement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Number of Employees	22	22	23	23	24	24	25	25	26	26
Jordanian employees	22	22	23	23	24	24	25	25	26	26
The added value –thousand JD	280	316	347	380	414	451	490	531	575	606
Income tax –thousand JD	15	20	24	29	34	38	43	48	54	57
sales tax value –thousand JD	73	79	86	94	102	110	119	128	138	147
Exports value / imports substitution	228	248	270	293	317	343	371	400	431	458

Figure 10: The Social Analysis



6. Risk and Sensitivity Analysis

6.1 Risk Analysis

The following table shows the risk matrix analysis that may face the project.

Table 29: Project Risk Matrix

Risks	Type of Risks	Risk Assessment
Financial Risks	▪ **Credit Risk** Credit risk represents the risk of the company's financial loss as a result of the customer's default of the contractual obligation or that of the party dealing with the company through a financial instrument. These risks are mainly caused by trade receivables and others. ▪ **Liquidity Risk** Liquidity risk is the risk resulting from the company's inability to meet its financial obligations at time. The company's liquidity management is to ensure as much as possible that the company always maintain enough liquidity to meet its obligations as they become due and payable in normal and emergency conditions without incurring unacceptable losses or risks that affect the company's reputation. ▪ **risk of currency fluctuation** Currency risk is the risk of the fluctuation of the value of	▪ The financial risks that may face the company are low, because the company payment method is cash ▪ There is no risk of currency exchange, because the company sales and purchases by local currency ▪ There is no risk of inflation because the company's pricing is based on a periodic basis

Risks	Type of Risks	Risk Assessment
	financial instrument, due to fluctuations in foreign currency exchange rates. ▪ **inflation risk** It is the risk associated with the possibility that the inflation or the rise in the cost of living might lead to the decrease the real value of the investment.	
Business risk (sector risk)	▪ **Strategic Risk** It is the risk resulting from taking bad decisions by the company's management, or implementing the decisions in a wrong way, or not taking the decisions at the right time; which leads to losses or causes loss of alternative opportunities. ▪ **Legal and Regulatory Risks** These risks are reflected as a result of non-compliance with laws, guidelines and instructions governing the work. Legal risks are caused by the company's break of the laws governing the work in the state in which the company operates. While regulatory risks arise from the company's violation of laws and standards issued by the regulatory authorities. ▪ **Reputation Risk** Reputation risk arises from influential negative public	▪ The risks are considered moderate before the company’s establishment, because of getting the approval of the official authorities such as municipality and tourism ▪ Reputational risk is low ▪ Market risk in the short term will be low because of the low competition from other companies in the governorate ▪ Import risk is moderate because of the large number of external producers

Risks	Type of Risks	Risk Assessment
	views which result in great losses of customers or money. It includes the actions of the company's management or its employees which project a negative image of the company, its performance and its relationships with customers and other stakeholders. Reputation risk also results from circulating rumors about the company and its activities. ▪ **Competition Risk** Competition risk results from domestic and external competitors and reduces sales and profits.	
Operational Risk	Operational risk involves losses resulting from the failure of internal operations, human resources and systems. It includes: ▪ **IT Risks** They are losses arising from downtime or systems failure due to the infrastructure, information technology, or the lack of systems, and any failure or malfunction in the systems. They include: the crash of computer systems, breakdowns in communication systems, programming errors, computer viruses and opportunities losses due to breakdown.	▪ Operational risks are very low, for the company will contract with specialized technical bodies to develop the required information systems, in order to manage operations ▪ Competitive salaries will be paid ▪ Information security plan will be put in place to safely keep the company information

Risks	Type of Risks	Risk Assessment
	▪ **Human Resources Risk** Losses caused by employees or related to them (intentionally or unintentionally). It also includes acts that are intended as methods of cheating, abusing property or circumvent the law, regulations or company policy by officials or employees, as well as losses arising from the relationship with the customer, shareholders, regulators and any third party.	
State Risk	State Risk includes politicians' interference, civil unrest, wars, financial and monetary policies and high level of debts.	▪ State Risk is considered to be low, due to security and political stability; international reports indicate that State Risk is low both in medium and long terms

6.2 Sensitivity Analysis

First: Increase of Investment Cost By 10%

The following table shows the results of the sensitivity analysis when investment cost increases by 10%.

Table 30: Investment Increase by 10%

Index	Base	Impact	Change
Internal Rate of Return (IRR)	%23.8	22.3%	%1.5
The Present Value at a discount rate of 13% (in Thousand JD)	1064.0	1065.5	1.5-
Net Present Value at a discount rate of 13% (in Thousand JD)	569.3	520.7	48.6
Profitability Index (Time)	2.2	2.0	0.2
Payback period (Year)	6.0	6.1	0.1-
The Net Profit Ratio – an average of 10 years	%11.7	%11.7	%0.0
Return on Investment - an average of 10 years	%19.7	%18.6	%1.1
Return on Capital – an average of 10 years	%41.4	%37.5	%3.9
Net Profit On Revenues - an average of 10 years	%11.7	%11.7	%0.0
Assets Turnover (Time) – an average of 10 years	1.7	1.6	0.1
The added value - an average of 10 years (in thousand JD)	439.0	439.0	0.0
income tax - an average of 5 (in thousand JD)	36.2	36.0	0.2
sales tax - an average of 10 years (in thousand JD)	107.5	107.5	0.0

The above analysis refers to the feasibility of investment in the project, in light of the high cost of the total investment of the project, which increased by 10%. It is noted that:

- The internal rate of return reaches 22.3%, which is considered high for investment purposes
- The new payback period is 6.1 years, and it is reasonable for recovery purposes
- The return on capital is 37.5%, which is suitable for investment purposes

Second: Reducing Revenues by 10%

The following table shows the results of the sensitivity analysis when reducing revenues by 10%.

Table 31: Reducing Revenues 10%

Index	Base	Impact	Change
Internal Rate of Return (IRR)	%23.8	%6.3	%17.5
The Present Value at a discount rate of 13% (in Thousand JD)	1064.0	195.1	868.9
Net Present Value at a discount rate of 13% (in Thousand JD)	569.3	299.6-	868.9
Profitability Index (Time)	2.2	0.4	1.8
Payback period (Year)	6.0	11.4	5.4-
The Net Profit Ratio – an average of 10 years	%11.7	%3.6	%8.1
Return on Investment - an average of 10 years	%19.7	%8.1	%11.6
Return on Capital – an average of 10 years	%41.4	%12.6	%28.8
Net Profit On Revenues - an average of 10 years	%11.7	%3.6	%8.1
Assets Turnover (Time) – an average of 10 years	1.7	2.1	0.4-
The added value - an average of 10 years (in thousand JD)	439.0	296.2	142.8
income tax - an average of 5 (in thousand JD)	36.2	11.0	25.2
sales tax - an average of 10 years (in thousand JD)	107.5	96.8	10.7

The above analysis shows the low sensitivity of the project in case of reducing the revenues or demand by 10%. It indicates that:

- The internal rate of return is 6.3%, which is slight for investment purposes
- The new payback period is 11.4 years, and it is long for recovery purposes
- The return on capital reaches 12.6%, which is suitable for investment purposes

Third: Increasing the Operating Costs by 10%

The following table shows the results of the sensitivity analysis when increasing the operating costs by 10%.

Table 32: Increasing the Operating Costs by 10%

Index	Base	Impact	Change
Internal Rate of Return (IRR)	%23.8	%11.7	%12.1
The Present Value at a discount rate of 13% (in Thousand JD)	1064.0	432.4	631.6
Net Present Value at a discount rate of 13% (in Thousand JD)	569.3	62.3-	631.6
Profitability Index (Time)	2.2	0.9	1.3
Payback period (Year)	6.0	7.0	1.0-
The Net Profit Ratio – an average of 10 years	%11.7	%5.6	%6.1
Return on Investment - an average of 10 years	%19.7	%11.8	%7.9
Return on Capital – an average of 10 years	%41.4	%20.5	%20.9
Net Profit On Revenues - an average of 10 years	%11.7	%5.6	%6.1
Assets Turnover (Time) – an average of 10 years	1.7	2.0	0.3-
The added value - an average of 10 years (in thousand JD)	439.0	335.7	103.3
income tax - an average of 5 (in thousand JD)	36.2	17.9	18.3
sales tax - an average of 10 years (in thousand JD)	107.5	107.5	0.0

The above analysis shows the feasibility of the project in light of increasing the operating costs of the project by 10%. It indicates that:

- The internal rate of return is 11.7%, which is considered high for investment purposes
- The new payback period is 7 years, and it is reasonable for recovery purposes
- The return on capital is 20.5%, which is suitable for investment purposes