

# Manufacture of Double Glazing Mannfacture of Donple Glazing

# **GUILAN FOREIGN INVESTMENT SERVICE CENTER**



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## **Project's Location:**

#### Province

Having an area of 14042 square kilometer, Guilan province is located in northern Iran, in the southern Caspian Sea. Its nature is covered with forests and has a temperate and humid climate. Guilan is an agricultural region, the most important products of which are rice, tea, olives, citrus, silk, caviar, chicken and fish, as well as a variety of pastries and muffins and so on. Rasht is the center of the province.

#### The County:

City of Rasht, which is located in the center of Guilan Province, is the largest industrial center in this province and has placed the various factories and industries to the extent that in the past, this city was considered one of the main production centers in the country. The area of this city is equal to 603/1427 square kilometers of predominantly plain. In addition, 32% of the total population of the province belongs to this city. An area of 75328 hectares of this city is under cultivation. In agriculture sector, this area is among the most suitable regions of the province and the whole country. This city is the most important region for rice production and cultivation due to geographic location, being situated in the central plains, its great extent, and soil and land fertility. This city has also meat poultry and animal products. Rasht city is considered one of the areas likely to attract tourists in terms of the tourist attractions and tourism.

Rasht has a distance of 325 km from Tehran and 30 km from Bandar Anzali, and is connected to these two cities with the asphalt road. Rasht has an airport that was built in 5 km northeast of the city.

#### About Anzali industry zone:

As the biggest port in the south of the Caspian Sea, Anzali Port has a long history in transporting goods between Iran and Europe.

Located forty kilometers away from Anzali Port, Anzali Free Zone is an appropriate place for storing, transiting, and re-shipping of the goods to Central Asia. Due to its geographical situation, Anzali Free Zone benefits from the cheap and skilled human resources working in agricultural industries and other production lines, and trading activities. Anzali Free Zone is located alongside the southern coastline of the Caspian Sea. In this area, shipping and fishery activities date back to 350 and 160 years ago respectively. Anzali was the first city in Iran to enjoy electricity in 1900 and two years before that it had the communicative network of telephone. Qazian Bridge, Mianposhte Palace, Clock Tower, Breakwater Structure, Lighthouse, Pier, Wild Life Sanctuary, Bander Anzali International Lagoon covering 18,000 hectares with sea birds and water lilies, many small and big Islands, weekly local Bazaar, and gorgeous sand beaches are among the tourist attractions and

historical monuments of Bandar Anzali. Among the five Caspian Sea states, Bandar Anzali is one of the busiest ports and it is the biggest port in the north of Iran. It is considered extremely important due to its location on the transit way of North-South, Southeast Asian countries, the Persian Gulf states, Republics of Central Asia, Russia, and Europe.

#### **Project's Location:**

This project is located in Rasht Industrial Park in Rasht. - Jirdeh Road – 3rd km of Rasht's Sefidrud Industrial Park. There are a few industrial cities in the country that act as an independent company and do not belong to the government. Rasht Industrial Park is among these towns.

At present, the Rasht Industrial Park has a variety of plants, including leather, chemical, pharmaceutical, pulp & paper, food, mineral and metal, wood, electricity and electronics, textile and steel industries. This country is important because of the communicative situation and being located on the roads of Tehran, Qazvin, Anzali, Astara on the one hand, and the main road of Guilan to Mazandaran and the eastern Guilan, as well as the economic boom and development of industrial cities and industrial plants, and consequently increase in agricultural-commercial activities. Residents of the park are mainly engaged in service, business and industrial jobs; and rice cultivation is among the major activities of the villagers in this region. In agriculture sector, this area is one of the park are Vishta Caspian Food Products.

Item	Infrastructure required	Distance to project location	Location of infrastructure Preparation	
1	Water	In the project site	Industrial Park	
2	Electricity	In the project site	Industrial Park	
3	Gas	In the project site	Industrial Park	
4	Telecommunication	In the project site	Industrial Park	
5	The main road	In the project site	Anzali-Rasht Road	
6	Airport	28 km	International Rasht Airport	
7	Harbor	60 km	Bandar Anzali - Anzali free zone	
8	Railway station	34km	Completed	

#### Access to Infrastructures:

# About the product:

Insulating glass (IG), more commonly known as double glazing (or double-pane, and increasingly triple and quadruple glazing/pane), consists of two or more glass window panes separated by a vacuum or gas filled space to reduce heat transfer across a part of

the building envelope. Insulating glass units (IGUs) are manufactured with glass in range of thickness from 3 to 10 mm (1/8" to 3/8") or more in special applications. Laminated or tempered glass may also be used as part of the construction. Most units are produced with the same thickness of glass used on both panes but special applications such as acoustic attenuation or security may require wide ranges of thicknesses to be incorporated in the same unit.

#### **10 Benefits of Double Glazing:**

1. Better Insulation: As we had said earlier, double glazing was developed to provide better insulation than the traditional glazing. The double glazed windows provide a better barrier, and therefore reduce the amount of heat transfer from your house to the cold outer air. This way your house is better placed to retain the heat gained from the sun during the day. During the hot summer months, the windows keep the extreme heat outside. The better insulation provided by double glazed windows ensures that you can now enjoy warmer winters and cooler summers.

2. Noise Reduction: Have you ever lived in a house where the windows seemed to let even the slightest noise in? Well with double glazing you will not have to worry about noise. They provide better insulation for noise compared to single glazing. They are great especially if you live in a noisy neighbourhood or near an airport. With double glazing, your house provides a quiet and peaceful environment away from the loud and busy world outside. In the same way, the windows keep any noise coming from your house inside. This keeps your conversations within the house. You can also comfortably put the music on and enjoy without disturbing your neighbours.

3. Increased Security: Double glazed windows are much harder to break compared to single glazed windows. It is also very difficult to force them to open from the outside. This makes it harder for burglars to get into your house. You can also increase the level of security by choosing laminated or toughened glass. Installing these windows allows you to rest easy in the knowledge that no one can break into your home easily

4. Reduced Energy Bills: Double glazing allows your house to retain most of the heat it gains from the sun during the day. The increased insulation also means that you need to turn on the heat far less often during the winter months. During the hot summer months, the cooler house means you do not need to use the air conditioner very often. This translates to much lower energy consumption and bills.

5. Increased Property Value: As you can see installing double glazing makes your house better and more comfortable to live in. This makes the house more attractive to potential buyers compared to a house with single glazed windows. If you find you ever

need to sell your house then you can be assured of getting a better deal than you would have with single glazing

6. Reduced Interior damage: As you may have noticed, your belongings especially those close to windows and doors are affected by sunlight. The UV rays in sunlight slowly cause damage to your furniture, decor and even carpets. Double glazing provides reduces the amount of UV radiation that gets into the house. The insulation provided by double glazing ensures that your interior decor and furniture will not experience as much damage from the great temperature fluctuations. You can increase the level of protection from UV light by adding a UV window film.

7. It is Eco-friendly: The last century has seen an incredible growth and development on the planet. This development has largely been fuelled by fossil fuels and their effect on the environment has been profound. It is very important that we find ways to reduce our impact on the environment. Double glazing reduces energy consumption and is therefore way better for the environment.

8. Little Condensation: Do you sometimes look at your window and see water droplets? Those droplets appear because the windows are cooler than the air inside the house. This causes the moisture on the window panes to condense. The temperature of the interior window pane is closer to the air temperature inside the house, therefore, avoiding condensation. While it may not look all that serious, condensation has farreaching consequences. The water droplets can lead to mould, mildew which can cause health problems. The humidity can also cause the wooden window frames to rot. The reduced levels of condensation help avoid the costly maintenance and repairs caused by water damage.

9. Easy Maintenance: Many people assume that double glazing leads to difficulties with cleaning and maintaining your windows. However, this is just a misconception. Ensure that you clean the windows on a regular basis as the buildup of dust can cause discolouration. Wipe off the condensation to avoid rotting of the window frames and avoid abrasive means of cleaning. Do this and you can be sure that your double glazed windows will serve you for a long time. Today manufacturers equip their products with easy clean technology which not only makes it easy to clean but also breaks down dirt. This way you can always be proud of your clean and shiny windows.

10. Aesthetics: Double glazing has a great way of increasing the curb appeal of your house. Today all architectural profiles can be fitted with double glazing without compromising on the original look and feel of the house. By employing the services of

an experienced and qualified contractor to install your double glazing, you can be sure of a great look.

### **Technical specifications of project:**

#### **Product:**

Double glazing system is a 2 layers between pane glass placed in equal distances to each other and paralleled lines and separated by spacer surrounded it. There is a space between glasses which is full of air or specific gases (humidless) with nearly equal pressure to the outside. Aluminum spacers are mostly used in double glazings which are filled by a hygroscopic material that absorbs the air in between and is totally caulked by suitable seals. The hydroscopic materials are applied inside the standard distances. Different kinds of ordinary, colorful, reflex, laminate and safety glasses also can be used in double glazing.

Decreasing the waste of energy and noises, preventing from moistening the glass and keeping much more security in comparison with single glazing are of the characteristics of double glazing. By using double glazing or insulated windows, nearly 40 cubic meters of gas consumption can be saved in a year in lieu of applying double glazing in every square meter. In addition to the decrease in noises and waste of energy, using such glasses secure a clean environment, because the requirement for the thermal energy and consumption of less electricity greatly decrease the rate of fuel consumption and naturally the amount of pollutant gas.

According to the double glazing's characteristics, they can be widely applied in the windows of buildings located in the airports, hotels, hospitals, libraries, and museums and those situated beside the high traffic streets. The windows of public vehicles such as train wagons and intercity buses have been also recently equipped with double glazing in order to keep more safety and comfort.

#### **Project's requirements:**

#### Space and Infrastructure required:

- Land (1500 square meters)
- Office, service, and general buildings (276 square meters)
- Warehouses (130 square meters)
- Production halls (960 square meters)
- Landscaping (134 square meters)

#### **Equipment and machinery:**

Item	Description	Quantity
1	Vertical double glazing washing and pressing machine with six washing press	1
	for a glass with 2500 mm height	
2	Polysulfide two-part adhesive machine	1

3	Butyl adhesive sealant	1
4	Glue freezer and heater	1
5	Hygroscopic filler	1
6	Rotary table	2
7	Spacer	1
8	Gas filler	1
9	Manual spacer	1
10	CNC Single Glass cutting table with 3 specified works possible for cutting	1
	laminate and sandblast as well as laser scanning	

#### Daw material and intermediate parts



### **Ownership and legal permission:**

#### Land ownership:

To receive land, which is owned by Industrial Parks Company; the following actions should be taken:

- Referring to the province's Industrial Parks Company, and receiving information related to the industrial Parks of the province from the Unit of Planning and Production Affairs).

- Reviewing the establishment and environmental issues by the province's Industrial Parks Company

- Selecting industrial Park, and selecting piece of land.
- Concluding contract to profit from industrial facilities.
- Delivery of the land to the project's executive or his representative.

- Providing the building drawings by the executive to the province's Industrial Parks Company.

- Starting executive operation for the construction of industrial unit.

- receiving free-of-charge construction completion certificate from the province's Industrial Parks Company.

#### Intellectual Property and privileges:

Intellectual property (IP) rights refer to the legal rights that give owners the right to exploit the intellectual activities and initiatives of humans and have economic value and ability to trade, with a subject that is not a specific material object. The rights of creators of literary or artistic works or literary and artistic property (known as the copyright), patent, rights of the client (including goodwill), rights of the trade names, trademarks and industrial marks as well as trade secrets (known as commercial and industrial property) for the traders and craftsmen are among the types of intellectual property.

In this project, the intellectual property rights are the very right to exploit and brand of project owners.

**Trademark or brand** includes any color, image and symbol indicating a certain product or service, which is used to distinguish the product or service from other similar products and services.

If registered, the trademark will be legally validated and protected under law.

#### Legal permission:

Place of the project implementation is Anzali Industrial Park. Process of obtaining the necessary permits for construction and operation of project in industrial Park is as follows: - After the study and selection of project, referring to the province's Industries and Mines Organization to obtain the form of the establishment permit.

- For the units with separate production lines, issuing operation license is permitted for the lines, providing that only one or more production lines are ready for operation.

- considering the Law on How to Prevent Air pollution, issuing operation license is necessarily subject to the approval of the Environment Protection Organization.; For food, hygienic and pharmaceutical industries, it will be subject to making inquiry and obtaining the approval of the Ministry of Health and Medical Education according to the Edible, Drinkable, Cosmetic and Hygienic products

Law; and for pharmaceutical and food industries special for livestock and poultry, it should be also coordinated with the country's Veterinary Organization or their provincial units.

Other required legal permits are business license, license of Ministry of Health and Medical Sciences, license of the Institute of Standard, and the Vice-Chancellor of Food and Drug, and license of Industrial Research Department.

#### Market Study and competition:

## Asia-Pacific Low-E Glass Market Industry Trends Forecast to 2026: Market Definition

Low- E glass is made by coating metallic particles to the glass. The most efficient type is "soft coat Low-E". This market has most of its application in flexible packaging of different materials. Low-E literally means low emissivity that means a surface emitting low levels of radiant heat. All surfaces reflect, transmit and absorb heat, so, it reduces the amount of heat that is transferred. It is not only used to reduce heat transfer but also to stop UV radiation waves in visible light.

Low-E glass is used to improve a window's performance by creating "thermal barrier" for the prevention of energy loss. It is used for improving energy efficiency, less UV damage and reduces condensation also.

The usage of low-E glass is increasing due to the rising awareness regarding its beneficial properties such as reduced heating and cooling expense in commercial and residential spaces. In commercial buildings, low-E coatings used to get more solar control benefits. Low-E coatings can be applied to both tinted and clear glass. Low-E glass is mostly used for the building construction purpose which could be residential, commercial or institutional. Commercial buildings have been facing more heat and energy loss due the use of regular glass.

Thus, the reduced heating and cooling expense offered by the usage of low-E glass is considered as the major driver for the market growth, during the forecast period of 2019-2026.

#### **Market Segmentation**

Asia-Pacific low-e glass market is segmented into six segments such as type, coating type, coating material, glazing, technology and end-user.

On the basis of type, the market is segmented into two notable segments hard coat low-E glass and soft coat low-E glass.

On the basis of coating type, the market is segmented into two notable segments passive low-E coating and solar control low-E coating.

On the basis of coating material, the market is segmented into two notable segments metallic and semi-conductive coating. Metallic is sub-segmented into silver, gold and others. Semi-conductive is sub-segmented into zinc oxide, indium tin oxide, fluorine-doped tin oxide, tin oxide and others.

On the basis of glazing, the market is segmented into three notable segments single low-E glazing, double low-E glazing and triple low-E glazing.

On the basis of technology, the market is segmented into two notable segments

pyrolytic process (on-line) and sputtered process (off-line).

On the basis of end-user, the market is segmented into two notable segments construction and transportation. Construction is sub segmented into residential, commercial and industrial. Transportation is sub segmented into automotive, railways, buses and trucks and others. Automotive is sub segmented into passenger cars, buses and trucks and others. Asia Pacific low-e glass market is expected to reach at a CAGR of 11.5% in the forecast period of 2019 to 2026. The market report contains data for the historic year 2017, the base year of calculation is 2018 and the forecast period is 2019 to 2026 Market Segmentation By Type (Hard Coat Low-E Glass, Soft Coat Low-E Glass), Coating Type (Passive Low-E Coating, Solar Control Low-E Coating), Coating Material (Metallic, Semi-Conductive Coating), Glazing (Single low-E Glazing, Double Low-E Glazing, Triple Low-E Glazing), Technology (Pyrolytic Process (On-Line), Sputtered Process (Off-Line)), End-User (Construction, Transportation), Country (China, Japan, Australia, South Korea, India, Singapore, Malaysia, Thailand, Indonesia, Philippines, Rest of APAC) Major growing sectors under the market segmentation are as follows: • On the basis of type, the hard coat low-e insulated glass dominated the market in 2018. This is majorly due to the low price and durability of the hard coat low-e insulated glass, as compared to the soft coat low-e insulated glass. However, the hard coat low-e insulated glass is anticipated to record the fastest growth during the forecast period of 2019-2026 • On the basis of coating type, passive low-e coating dominated the market in 2018. This is majorly due to the high demand for the hard coat low-e insulated glass, in the region, as hard coat low-e insulated glass is produced by passive low-e coating. Passive low-e coating is also anticipated to record the fastest growth during the forecast period of 2019-2026 • On the basis of coating material, metallic segment is anticipated to record the fastest growth during the forecast period of 2019-2026. This is majorly attributed to its economical production and superior performance when compared to other coating materials. • On the basis of glazing, double low-e glazing is anticipated to record the fastest growth during the forecast period of 2019-2026. This is majorly due to the low price and durability of the double low-e glazing glass, as compared to the single and triple low-e glazing glass • On the basis of technology, pyrolytic process is anticipated to record the fastest growth during the forecast period of 2019-2026, as this process is cheap and produces more durable grade of products.

#### **Glass production in Iran**

At present, Saudi Arabia, Iraq, Afghanistan, the Persian Gulf, Central Asia, Turkey, India and Europe are Iranian glass buyers, with daily production of glass and mirrors in the country of 4,000 square meters, with 8% of the industry's exports being the most

important. Part of it is atomic glass. A survey of statistics shows that in the first 11 months of the year 97,000 tons of glass industry related products were exported to other countries. Also according to the preliminary data of the Customs Administration of the Islamic Republic of Iran from the first four months of foreign trade 97 over 167 587 tons of glass including flute glass, insulated glass, glass mirrors have been exported to different countries of the world. The countries of the world have received \$ 42.25 million and \$ 250.25 million respectively. Among buyers of glass from Iran, Iraq has become the biggest customer of the product by buying more than 38,000 tonnes in the same period, earning \$ 10 million and 610 thousand and 738 dollars respectively. Afghanistan has also purchased more than 24,000 tons of glass from Iran, earning \$ 6 million and 461 thousand 896 dollars.

#### Forecast of the Glass Industry Production by 1404:

Iran's glass industry production volume is expected to reach nearly three million tonnes a year in the future. The per capita consumption of glass in the country is 2 kg. Given this per capita, the bulk of surplus production is needed and it is projected that by 1404 the country's glass industry will reach 2.5 million tonnes per year, at least one million tonnes.

#### Iran is the third largest glass producer in the West Asia region

The Islamic Republic of Iran is the third largest glass producer in the West Asian region. The Iranian glass industry did not make much progress before the victory of the Islamic Revolution, but today the glass industry has become indigenous. Iran's glass and crystal exports amount to around 3,000 tonnes a year, valued at \$ 5 million. It is also important to note that the production capacity of all types of glass and crystal in Iran has reached one and a half thousand tons per year which has made the US anti-Iranian sanctions not affect the Iranian glass industry. Iran is also the third-largest producer of 19mm glass in the world after China and the United States. Currently, 4% of the world glass is produced in Iran, which is a significant figure for the country's industry. Also in 1397, the newest and most advanced production unit of the region's flute, called Flute Kavian, responds to the need of yesterday's and today's domestic and foreign customers.

#### Introduction of the target market:

As double glazing was not currently used and the number of its users increased through recent years, its industry is still developing. Italy and Germany are the most important manufacturers of double glazing while applying the advanced technologies and observing the global standards. That's why most of manufacturing units in Iran apply the technology of these two countries. Some domestic manufacturers of double glazing are as follows:

Imen Energy Shargh (Mashad), Abdideh (Saveh), Arman Jam (Semnan), Butia Sana'at Complex (Kerman) and Behine Sazi Shams (Shahre-e-Kord). Since there is a high necessity of this product, most of countries are considered as its consumers. Therefore, it seems that these products always have a suitable market if they are produced with high quality and observing required standards.

With regard to the force on observing building standards rule implied by Fuel Consumption Optimizing Organization and inadequacy of domestic manufacturing and high rate of its import, there is a high necessity for producing such a product. Nearly all the country's provinces have the capacity to create new projects, particularly those locating in cold and warm regions. Furthermore, it is possible to create new projects in small provinces since less investment have been done in this field through past years. It is predicted that the provinces with the highest demand are respectively as follows: Fars, Hamadan, Zanjan, Yazd, Kerman, Ardebil, Ilam, Chahar Mahah Bakhtiari, Lorestan, Khorasan Shomali, Hormozgan, Guilan, Golestan, Kermanshah, Sistan Balouchestan.

Whereas its usage is very high in most of countries and since Iran is rich in supplying its raw materials and because of the possibility of manufacturing high quality glass in Iran, a suitable situation is created to export this product. But as the domestic market requires it very much and it is imported in a large amount, therefore, by growing its production, saturating the domestic market, and observing the national and global standards, we can hope to its export and regard the national and international markets as the target market of this product.

According to the statistics, the domestic simple double glazing costs about 2000000-3000000 Rials and its price will be varied based upon other features such as its reflexivity or the colors variety.

### Physical progress of project so far: None

Considering the fact that the suggested project is raised as an investment opportunity, the investment made includes feasibility studies.

#### Action plan and implementation schedule:

Considering the steps taken to implement the plan (including preliminary studies, design of basic and detailed engineering, equipment manufacture and supply, installation and setting up, control, experimental production and commissioning), the stages are estimated to take a year considering the overlapping period; and the duration of operation will be 10 years.

Schedule Table of Project Implementation

Manufacture of Double Glazing														
Step		Implement ation duration	Months 1	Months 2	Months 3	Months 4	Months 5	Months 6	Months 7	Months 8	Months 9	Months 10	Months 11	Months 12
	1Levelling													
1st phase	2.Fencing													
	3.Foundation	hths												
	4-Orders of warehouse	2Months												
2nd phase	<ol> <li>Orders of machinery</li> <li>installation warehouse pillar</li> <li>warehouse construction</li> <li>waking wall</li> </ol>													
	5. Flooring 6. Parquetry	9 Months												
	1. Installation													
3rd	2.official & guard building													
phase	3. Landscaping	iths												
	4.installation of machinery	3 Months												

# Financial plan of the project: Cost estimate:

Cost Estimate

Item	Subject	Cost (million Rials)
1	Fixed investment	55170
2	Operating costs (working capital)	267310

Estimate of Fixed Investment (capital expenditures)

Item	Subject	Cost (million Rials)

1	Cost of purchasing land	2100
2	Landscaping and land	
	improvements	2535
3	Construction operation and	
	construction of buildings	14260
4	Machinery and equipment of	
	production	24500
5	Service and accessory	
	equipment	7800
6	Pre-production costs	2110
7	Unforeseen expenses	1865
Total	55170	

Estimate of Working Capital (production costs)

Item	Subject		Cost (million Rials)
Current costs		78820	
1	Raw materials		73500
2	Manpower		2555
3	Other current	costs	2765
Fixed costs		188485	
4	Raw materials		171495
5	Manpower		5965
6	Depreciation e	expense	4570
7	Other fixed costs		6455
Total sum		267310	

#### **Estimating Revenues:**

The project revenue in the first 5 years after operation (million Rials)

Item	Subject	Total 1 <sub>st</sub> year	2nd year	3rd year	4th year	5th year
1	Sales revenue	297500	327250	359975	395975	435570

#### **Operation period of project:**

Operation period of project is estimated at 10 years.

#### **Break-even point analysis:**

The analysis of break-even point actually shows the level of production that compensates production costs and the level that firm starts to obtain profit. This analysis is important because it shows the capacity in which the firm faces losses and the level in which it

should stop its activities. The break-even point of the firm is calculated using the following formula.

#### Percentage of break-even point= Fixed cost ÷ (Income - operating expenses)

Average break-even point after 10-year operation of the intended project is equal to 86 percent. It means that the firm will be profitable as long as it continues to operate with capacity of 86 percent and higher and that it faces losses in lower capacity.

#### **Cost-benefit Analysis:**

#### Table of Output Indicators of Project

Present value of total cost during implementation and operation period	1475115
(million Rials)	
Present value of total income during implementation and operation period	1875840
(million Rials)	
Net present value or NPV (million Rials)	114580
Benefit to cost ratio (B/C)	1.27
Internal rate of return (IRR)	64%

### Sensitivity analysis of the project:

Sensitivity Analysis Table

Percentage of changes	Modified Internal Rate of return as a result of change in revenues		
-%20	%3	%200	
-%10	%10	%125	
%0	%64	%64	
%10	%119	%5	
%20	%173	%1	

#### **Conclusion:**

"Summary of Project's Economic Issues"

Activity	Accurate title of activity	Product name	Nominal capacity and its unit
Productive	Manufacture of Double glazing	Double glazing	25000 sqm
Commissioning period	Total fixed investment (million Rials)	Annual working capital (million Rials)	Manpower required
1 year	55170	267310	20
Internal rate of return IRR	Net present value or NPV (million Rials)	Contribution of applicant (million Rials)	Benefit to cost ratio (B/C)*
64%	114580	30% of total investment	1.27

#### Methods of participation and supply of the required capital:

To supply the capital needed in the present project, participation of foreign investment will be used to supply 90 percent of fixed capital needs and 90 percent of working capital requirements.

#### Capital payback period:

Normal payback is about 2 years and 9 months.

## Incentives, features and advantages of the project:

This project will be constructed in industrial Parks. Activities in the industrial Parks generally have the following benefits and incentives

- Providing suitable land for industrial projects according to the location and design done, in accordance with the engineering principles and the latest method of town-building

- No need to obtain separate permits from various agencies and organizations such as Environment, Natural Resources, Agriculture, Water, Electricity and Land Affairs, Cultural Heritage, Soil Science, Registration, Road and Transportation, Labor and Social Affairs, and so on .

- Being excluded from the Act on Municipalities.

- creating the conditions necessary for synergy of industries based in industrial Parks and areas.

- Providing the perfect platform to build networks and clusters related to an industry within the industrial towns and areas.

- Quick and easy access to facilities, such as roads, water, electricity, gas, industrial sewage, telecommunications, Internet, etc.

- Use of software services (such as technical, engineering, management consulting) and business and technological service centers.

- Providing free services in the field of issuing construction permits and the construction completion certificate for industrial units.

- Reducing the investment costs, due to the use of common services organized.

- Possibility of rental and purchase of small prepared and precast workshops in order to accelerate the utilization and job creation.

- Transfer of the administration of companies and industrial areas to the board of trustees elected by the owners of industries.

- If the applicants provide the schedule for construction of industrial units, they will be subject to a relief of 5% up to 12 months.

If the applicants receive and provide operation license up to 12 months from the time of contract with the relevant agencies (in accordance with capacity of the products contained in the offered establishment permit) and provide the insurance of employees from the Social Security Organization for each job created, they will be subject to half

percent of relief in the price of land and facility operation up to 50 people (maximum of 25%).

- If the applicants are involved in production activities with at least 85% of production capacity during two consecutive years, they will be subject to a 15% discount on the price of land and facility operation compared to the original contract amount after the approval of the Board of Directors.