

Pre-Feasibility Study

POTATO CHIPS MANUFACTURING UNIT



Small and Medium Enterprise Development Authority Government of Pakistan

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DISCLAIMER

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1 EXECUTIVE SUMMARY

The project involves setting up a Potato Chips Manufacturing unit in any big city of Pakistan. The unit will produce premium quality potato chips to be sold in the local market, competing with a few existing brands. The unit will be using modern automated machinery for all the processes, ensuring quality check through out the production process. After processing, the finished potato chips are packed in 3 different packet sizes.

The opportunity of the snack food business was almost unknown to the investors of Pakistan up to the mid-eighties and since then the investment in this sector has been fairly moderate. Even during that time, the Pakistani snacks market was represented by biscuits and corn-based products. Potato chips have recently appeared on the snacks market and taken up a major share. Over the past few years the demand for snacks in general and potato chips has been on the rise, causing a gap between demand and supply. This gap opens up an opportunity to set up units to produce good quality snacks at optimum production level. Most of the snack manufacturing units are set-up in Lahore and Karachi.

The total project cost for setting up this plant is estimated at Rs. 63.537 million. The project is financed through 50% debt and 50% equity. The project NPV is around Rs. 211.063 million, with an IRR of 45% and payback period of 4.18 years. The legal business status of this project is proposed as 'Sole Proprietorship'.

The overall proposed production capacity of the plant is 150 kg potato chips per hour. The plant will work in two shifts and operate at 50% capacity in the first year. The maximum capacity attained is 95% and the plant operates at this capacity sixth year onwards.

2 INTRODUCTION TO SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established with the objective to provide fresh impetus to the economy through the launch of an aggressive SME support program.

Since its inception in October 1998, SMEDA had adopted a sectoral SME development approach. A few priority sectors were selected on the criterion of SME presence. In depth research was conducted and comprehensive development plans were formulated after identification of impediments and retardants. The all-encompassing sectoral development strategy involved recommending changes in the regulatory environment by taking into consideration other important aspects including finance, marketing, technology and human resource development.

SMEDA has so far successfully formulated strategies for industries such as horticulture, including export of fruits and vegetables, marble and granite, gems and jewellery, marine fisheries, leather and footwear, textiles, surgical instruments, transport, dairy etc. Whereas the task of SME development at a broader scale still requires more coverage and enhanced reach in terms of SMEDA's areas of operation.

Along with the sectoral focus a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of viable business opportunities for potential SME investors. In order to facilitate these investors, SMEDA provides business guidance through its help desk services as well as development of project specific documents. These documents consist of information required to make well-researched investment decisions. Pre-feasibility studies and business plan development are some of the services provided to enhance the capacity of individual SMEs to exploit viable business opportunities in a better way.

This document is in the continuation of this effort to enable potential investors to make well-informed investment decisions.

3 PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, marketing, finance and business management. The document also provides sectoral information and international scenario, which have some bearing on the project itself.

The purpose of this document is to facilitate potential investors in potato chips manufacturing by providing them a macro and micro view of snacks business with the hope that the information provided herein will aid the potential investors in crucial investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater eminence as the research that precedes such reports reveal certain implications, best practices developed by existing enterprises through trial

and error, and certain industrial norms that become a guiding source concerning various aspects of business set-up and its successful management.

This particular Pre-feasibility is regarding “Chips Manufacturing Unit” which comes under the “Snacks Food” Sector. Before studying the whole document one must consider following critical aspects, which form the basis of any investment decision.

4 CRUCIAL FACTORS & STEPS IN DECISION MAKING FOR INVESTMENT

Below are some factors and variables that have a great bearing on setting up Potato Chips manufacturing unit:

4.1 SWOT Analysis

Before making the decision to invest in the Potato Chips Manufacturing unit one should carefully analyze the associated risk factors. A SWOT analysis can help in analyzing these factors, which play an important role in making the decision.

STRENGTHS

- Continuous availability of raw material, i.e. fresh potatoes
- Fully automated plant, hence less labour involved
- Availability of low cost labour.
- Tariff cuts under Trade Agreements are anticipated which may increase the Export Market of the Potato Chips.
- With satellite invasion and improvement in the living standards and changed life style of the people the demand for potato chips is bound to register a considerable boost.
- Product affordable to all income groups
- Wide range of target market

WEAKNESSES

- Strict controls over labour efficiency need to be observed to reduce the waste production to a minimum level.
- Expected loss at the initial stages of the operation as a result of sales return from the distributors.
- Inexperienced technical staff as compared to the units currently in operation.

OPPORTUNITIES

- Changes in the current eating habits of the people.
- About 40% of the Potato Chips Market share comprises of un-branded chips this share can be gained through heavy marketing campaign.
- Attraction of youngsters towards products identified with western lifestyles and tastes and general trend towards more snacking.

- A large number of people that are not brand loyal can be targeted through heavy marketing campaign.
- Export opportunity

THREATS

- Already established Multinationals currently in the business of Potato Chips Manufacturing.
- Fluctuation in the price of potatoes due to lack of storage facilities as a result of which large production of potatoes is wasted.
- Quality of the Potato Chips is to be monitored very closely as people are more directed towards health and safety issues.
- Low saving and low holding capacity of general public as a result of which there is increasing level of poverty.
- Strong competition and high promotional activity by the competitors
- Chances of price cut from the existing players of the Potato Chips Manufacturers to keep the new product out of market.

4.2 Key Success Factors / Practical Tips for Success

One of the key success factors for the proposed project would be to control and carefully monitor the entire production process as it involves high waste production in the form of Burnt and Chura Chips.

Another important aspect of this proposed feasibility is the Marketing and Promotion of Potato Chips in the local as well as Foreign Market. This involves allocating a heavy budget towards promotional activities.

The current Potato Chips (Crisps) market is already led by Super Crisps, Lays and Golden Crisps. The remaining 40% of the market share belongs to the unbranded potato chips. This market share can only be captured through an aggressive marketing campaign. Therefore, entering into the market needs heavy investment towards marketing and advertisement.

Key success factors will be:

- Utmost care should be taken while selecting potatoes. Only the best quality and carefully handled potatoes should be used.
- Waste Production should be kept at minimum and production process need to be monitored very carefully.
- Selected potatoes should be delicately sliced, quick fried in the finest vegetable oil and seasoned with delicious flavours.
- A variety of flavours should be introduced.
- Advance sale orders can ensure the success of the business.

- It is recommended to estimate the potato requirements for the year and this should be contracted for in advance with the suppliers so as to secure from the drastic changes in the prices of Potatoes.
- Quality maintenance will play an important role as it is evident from the behaviour of the general consumers that they are more specific towards health issues than ever before.
- Cost Accounting system should be strengthened so as to monitor the entire process and determine the reasons for major variances in the process such as Material, Labour and Factory Overhead Variances.

5 PROJECT PROFILE

5.1 Opportunity Rationale

With the advent of globalization, Asian eating habits are changing to emulate those of the West. In the recent years, consumption of western foods is on the rise. Due to this the potential market size of potato products is also increasing at an exponential growth rate.

Not very long ago, biscuits, corn-based and non-potato snacks represented the Pakistani snacks market. The business of premium quality and internationally recognised potato chips is yet to appear on the Pakistani snacks scenario. There are a very few local potato chips manufacturers in the market that the consumers are aware of and a single international player - Lays. The potato chips market is thus still in the growth stage and new players can enter the market. A new high-quality brand can capture considerable market share in the current growing market, depending on their marketing strategy and product quality.

5.2 Project Brief

The project describes setting up a Potato Chips Manufacturing Unit in any big city of Pakistan. The unit will produce a variety of flavoured, premium quality potato chips in three standard packet sizes: 20gms, 50gms and 120gms.

5.3 Proposed Business Legal Status

The business legal status of the proposed project can either be sole proprietorship or partnership. Additionally, it can also be registered under the Companies Ordinance, 1984 with the Securities & Exchange Commission of Pakistan. The selection depends upon the choice of the Entrepreneur. This Pre-feasibility assumes the Legal Status to be Sole Proprietorship.

5.4 Project Capacity and Rationale

Deciding the project capacity is a critical factor. After thorough market research, the production capacity of this particular pre-feasibility is decided to be 150 kg per plant hour of finished potato chips, which is the minimum viable size for a Chips Manufacturing Unit. There is huge demand of Potato Chips (Snacks Food Industry) in and outside Pakistan; therefore a sizeable production is required. The proposed project can also be started with production capacity of more than 150 kg per plant hour. The unit will be working in two shifts.

5.5 Project Investment

Total Initial Cost of the Project is worked out as follows:

Table 5-1: Project Cost

| | Rupees |
|---|-------------------|
| Capital Investment Requirement | 36,886,430 |
| Working Capital Requirements | 26,650,806 |
| Total Project Investment Requirement | 63,537,236 |

The proposed pre-feasibility is based on the assumption of 50% debt and 50% equity. However, this composition of debt and equity can be changed as per the requirement of the investor

Table 5-2: Project Financing

| | Percentage | Rupees |
|---------------------------------|-------------------|-------------------|
| Debt | 50% | 31,768,618 |
| Equity | 50% | 31,768,618 |
| Total Project Investment | | 63,537,236 |

Table 5-3: Project Returns

| | |
|-----------------|-----------------|
| IRR | 45 % |
| NPV @ 20 % | Rs. 211,063,976 |
| Pay Back Period | 4.18 years |

5.6 Proposed Location

The said project can be set up in any Industrial Area. It is recommended to establish the unit in an area where raw material is easily available. It may be any Industrial Area of Lahore, Karachi or Islamabad. The recommended location for this proposed project is Raiwind Road, Lahore.

6 MARKET INFORMATION ABOUT POTATOES

Pakistan is one of the largest potato producing countries, yet it has very limited adequate storage and processing facilities, due to which a substantial proportion of production is wasted. The combination of inadequate storage facilities and an under-developed processing industry leads to volatility in prices, given that not all of the excess production can be stored or processed for consumption during the off-season. The following analysis will illustrate the current state of the potato production in Pakistan.

6.1 Pakistan Potato Production¹

Potato is grown in Pakistan on about 145,000 hectares distributed over eight different Agro-ecological Zones. About 70 - 80% of the production is concentrated in the irrigated

¹ www.pakistan.gov.pk/divisions/food-division

plains of the Central Punjab and Southeast North West Frontier Province (NWFP). There are three seasons of potato cultivation: autumn, spring and summer.

Around 20% of the above production quantity is wasted against post harvest loss primarily due to improper handling and lack of proper cold storage facilities.

Table 6-1: Potato production in Pakistan²

| Year | Production (\$1000) | Production (MT) |
|------|---------------------|-----------------|
| 2007 | 338,387 | 2,581,500 |
| 2006 | 208,306 | 1,568,000 |
| 2005 | 276,668 | 2,024,900 |
| 2004 | 264,875 | 1,938,100 |
| 2003 | 266,398 | 1,946,300 |
| 2002 | 232,931 | 1,721,700 |
| 2001 | 226,341 | 1,665,660 |
| 2000 | 256,295 | 1,868,400 |
| 1999 | 246,569 | 1,810,400 |

Potatoes are improperly stored at temperatures negative 3-4 Degree Celsius mainly for seed storage purpose. These temperatures are maintained only to avoid sprouting since no humidity levels are administered, which is a vital factor for proper storage of Potatoes for consumption and processing. About 5% of total potato production is being exported and 18% of the production is stored for potato seeds.

Pakistan produces three potato crops per year. The major produce of the Potato Crop is harvested in the autumn season.

Table 6-2: Crop seasons

| Potato Crop Season | Sowing – Month | Harvesting - Month |
|--------------------|----------------|--------------------|
| Autumn Crop | October | January |
| Summer Crop | January | May – June |
| Spring Crop | April – May | August – September |

Table 6-3: Major Varieties and Characteristics of Potato Grown In Pakistan

| Variety | Shape | Colour of Flesh | Cooking Type | Utilization | Common Scab |
|----------|-----------|-----------------|--------------|-----------------------|------------------|
| Diamante | Oval | Light Yellow | Mealy + Firm | French Fries | Just Resistible |
| Cardinal | Oval | Light Yellow | Mealy + Firm | French Fries + Crisps | Quite Resistible |
| Desiree | Long Oval | Light Yellow | Mealy + Firm | French Fries | Just Resistible |
| Raja | Oval | Yellow | Mealy + | French Fries | Quite |

² FAO Statistics (<http://faostat.fao.org>)

| | | | | | |
|-------|------|--------------|------------------|--------|-----------------|
| | | | Firm | | Resistible |
| Sante | Oval | Light Yellow | Very Meal + Firm | Crisps | Just Resistible |

6.2 Potato Whole - Sale Price Trends³

In the absence of adequate storage facilities, at the time of harvest, there is a huge supply of potatoes, which drives prices down. If storage facilities are available price volatility could be stabilized through consistent supply year around.

6.3 World Potato Exports

The table below gives the quantity and value of potato exports worldwide, including Pakistan, for the year 2007.

Table 6-4: World Potato Export Stats 2007⁴

| Rank | Area | Quantity (tonne) | Value (1000 \$) | Unit value (\$/tonne) |
|------|--------------------------|------------------|-----------------|-----------------------|
| 1 | Netherlands | 1,552,730 | 718,850 | 463 |
| 2 | France | 1,962,429 | 682,552 | 348 |
| 3 | Germany | 1,542,572 | 294,970 | 191 |
| 4 | Belgium | 764,603 | 179,254 | 234 |
| 5 | Canada | 610,142 | 169,349 | 278 |
| 6 | United Kingdom | 253,976 | 163,192 | 643 |
| 7 | United States of America | 295,060 | 134,024 | 454 |
| 8 | Israel | 462,066 | 125,067 | 271 |
| 9 | Spain | 247,457 | 108,898 | 440 |
| 10 | Egypt | 389,698 | 108,092 | 277 |
| 11 | Italy | 197,041 | 101,571 | 515 |
| 12 | China | 364,578 | 80,578 | 221 |
| 13 | Cyprus | 112,219 | 77,022 | 686 |
| 14 | Denmark | 130,043 | 67,874 | 522 |
| 15 | Austria | 55,795 | 31,929 | 572 |
| 16 | Pakistan | 162,640 | 29,326 | 180 |
| 17 | Turkey | 239,747 | 27,540 | 115 |
| 18 | Portugal | 32,624 | 23,587 | 723 |
| 19 | Russian Federation | 116,742 | 18,168 | 156 |
| 20 | Morocco | 45,937 | 18,082 | 394 |

³ www.pakistan.gov.pk/divisions/food-division

⁴ *FAO Statistics* (<http://faostat.fao.org>)

7 MARKET INFORMATION ABOUT POTATO CHIPS

7.1 Potato Chips Manufacturing Plants Currently in Operation

For a very long time, the snacks market of Pakistan comprised mostly of biscuits, corn-based and other non-potato snacks. It is only recently, with the advent of globalisation and adoption of the western culture that potato crisps have become a major part of the snacks industry. The snacks market comprises of a few known local potato chips brands and a single international brand.

Lays has been the largest player in this segment since it entered the market in 2007. By introducing innovative and trendsetting potato chips flavours backed with international quality, Lays became the growth catalyst for the natural potato chips category. Following are the major and leading Producers of Potato Chips (Crisps) in Pakistan.

Table 7-1: Leading Potato Chips Companies in Pakistan

| Sr. No. | COMPANY NAME | BRAND NAME |
|---------|-------------------------------|--------------|
| 1 | Standard Foods (Pvt.) Limited | Golden Chips |
| 2 | Tripple EM (Pvt.) Limited | Super Crisps |
| 3 | Kohinoor Smith (Pvt.) Limited | Smiths |
| 4 | Consolidate | Kolson |
| 5 | Trading Enterprises | Krinclis |
| 6 | PepsiCo Inc | Lay's |

7.2 Market Research, Trend & Analysis

Pakistan's food sector is changing significantly as lifestyles and traditional eating habits are shifting. Retail sales of processed foods are expanding. Demand for international quality snacks is growing, particularly among educated, middle and upper income urban consumers due to changing lifestyles and change in the taste of the consumer, influence of foreign media and increasing awareness. Other factors influencing the demand are the growing population, increase in income level and improved living standards. . Advertising is also helping to stimulate demand for potato snacks. The only key factor currently impacting the Crisps and Savoury Snacks market is public inclination towards health issues.

8 PAKISTAN & SNACKS INDUSTRY

The Pakistan Snacks Industry is experiencing an annual growth rate of 20-30% per annum. Children, teenagers and young people are the target market of this product and given the changing eating habits of the target market, inclination is more towards having snacks. Potato and corn snacks are labelled as a meal replacement, and being a light fast food are becoming popular.

Another plus point for the investor is that in Pakistan the life style is improving with urbanization. Also, due to satellite invasion and influence of foreign media the demand for snacks is bound to register a considerable boost.

The potential market for the Snacks also exists in the Middle East, Gulf Countries and Central Asian States which has not yet been explored. Overall, export prospects for the next decade are very promising given the sustained and continued expansion of the Fast Food Industry abroad. Further Tariff cuts under Trade Agreements are anticipated.

8.1 Demand and Supply

According to the Industry findings carried out, the Market Segmentation with respect to age is as follows:

Table 8-1: Market Segmentation

| Age Group (Years) | Percentage Share |
|-------------------|------------------|
| 5 – 10 | 30 % |
| 11 – 20 | 35 % |
| 21 – 35 | 20 % |
| 36 – above | 15 % |

On the basis of data collected through market survey, the demand of the present market is met by the mix of branded and unbranded chips available in the market. Approximately, 60% of the population which is brand loyal and the remaining 40% of the un-branded market can be attracted through heavy advertisement campaign.

Table 8-2: Segmentation - Snacks Industry

| Segments | Share % |
|--------------|------------|
| Branded | 60 |
| Unbranded | 40 |
| Total | 100 |

Presently, Lays has the major market share, almost double the share of its closest competitor Triple Em. Good potential exists for a new brand to compete and entice a market share provided the product has:

- Good quality
- Unique Packaging
- Customers' preferred taste

Additionally the company should have:

- A wide distribution network
- Industry knowledge
- Financial soundness
- Market feedback system

The share of current market Competitors is given below:

Table 8-3: Major Competitors

| Market Competitors | Share (%) |
|----------------------------|------------|
| Lay's | 57.59 |
| Super Crisps | 19.80 |
| Golden | 9.95 |
| Smith / Kolson / Krinckles | 14.65 |
| | 100 |

8.2 Target Customers⁵

Children, teenagers and adults are the target market of potato chips. School, rather than home, is the most popular destination for eating crisps and savoury snacks, with seven in ten children (70%) consuming them at home, against around half (48%) that eats such snacks at school.

During school, when children tend to choose their own snacks, 70% select crisps and savoury snacks compared to lunchboxes, which mothers generally pack.

Some 44% of consumers prefer to buy children's snacks in multi-packs while nearly half of all consumers say they are price motivated in their snack purchasing.

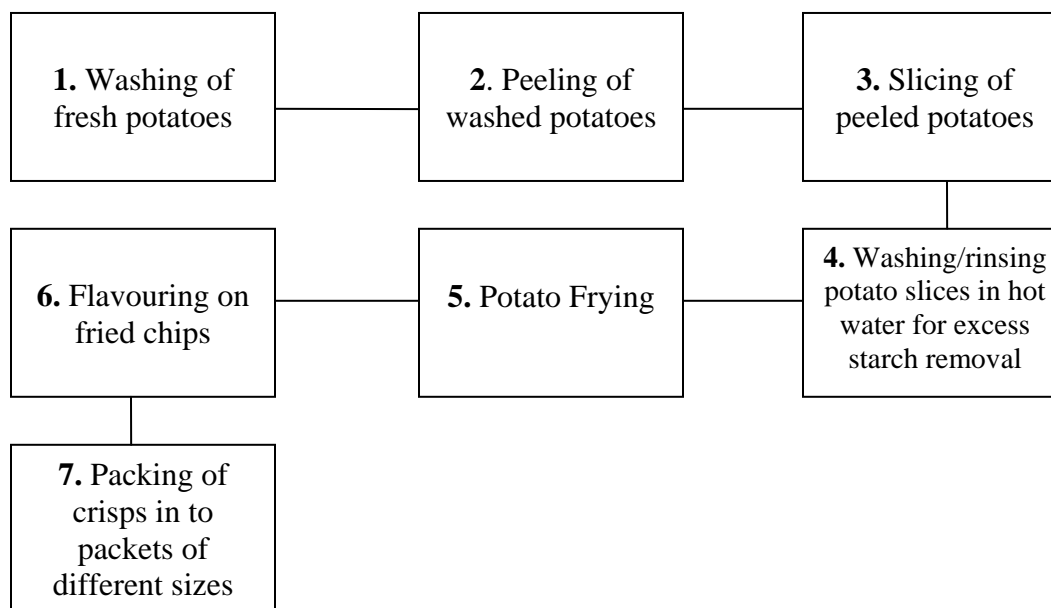
9 PRODUCTION PROCESS

9.1 Production Process Flow

The production process flow of Potato Chips Manufacturing Unit requires the following machinery:

1. **Washing & Shelling Machine** - For washing of Fresh Potatoes
2. **Peeling Machine** - For peeling of Potatoes
3. **Slicing Machine** - For slicing Potatoes into Chips
4. **Chips Washing Machine** - For washing and rinsing of Potato Chips in hot water for excessive starch removal before frying
5. **Flavouring Machine** - For flavouring fried chips
6. **Packing Machine** - For packing Finished Potato Chips in packets

⁵ <http://academic.mintel.com/sinatra/oxygen/display/id=114663>

Figure 9: Production Process Flow

9.2 Proposed Product Mix

The proposed project will be producing branded potato chips in different packet sizes. 50% of the production will be flavoured with salt, the remaining 50% will have other flavours. The product mix according to packet size is given in the table below.

Table 9-1: Product Mix

| Packet Size | Production Mix | Market selling price (Rs.) |
|-------------|----------------|----------------------------|
| 20 grams | 45% | 10 |
| 50 grams | 40% | 25 |
| 120 grams | 15% | 50 |

9.3 Machinery Requirement⁶

Following table shows the machinery & equipment requirement for setting up a Potato Chips Manufacturing Unit imported from China.

Table 9-2 Machinery Details

| Machine Description | Made | Unit | Rupees |
|-----------------------|-------|------|---------|
| Washing Machine | China | 1 | 267,580 |
| Peeling Machine | China | 1 | 256,700 |
| Slicing Machine | China | 1 | 187,000 |
| Chips Washing Machine | China | 1 | 574,600 |

⁶ Kasmac Industries Co. Ltd, 2F, # 96, SEC. 3, Chung Haiao E.Road, Taipei Taiwan: 886-22-7717299
FAX: 886-22-7781105

| | | | |
|--|-------|---|-------------------|
| Frying Machine | China | 1 | 1,044,650 |
| Flavouring Machine | China | 1 | 483,480 |
| Chips Cooling Machine | China | 1 | 318,750 |
| Packing Machine | China | 1 | 419,900 |
| Gas Burning Boiler | China | 1 | 1,803,020 |
| Frozen Machine | China | 1 | 4,094,025 |
| Total | | | 9,449,705 |
| Other charges | | | |
| Income Tax (6%) | | | 566,982 |
| Freight & Handling Charges (5% of CIF price) | | | 472,485 |
| Installation Charges (1% of Price) | | | 94,497 |
| Cost of Imported Machinery | | | 7,870,260 |
| Electrical Installations and Charges | | | 300,000 |
| TOTAL | | | 18,753,930 |

9.4 Other Fixed Assets Requirement

Following additional fixed assets are required for the factory and management offices.

Table 9-3 Office Equipment and Furniture

| Items | No. | Cost/Item (Rs.) | Total Cost (Rs.) |
|-------------------------------------|-----|-----------------|------------------|
| Office Equipments | | | |
| Computers | 14 | 25,000 | 350,000 |
| Printers | 3 | 15,000 | 45,000 |
| UPS | 14 | 7,500 | 105,000 |
| Networking | | 25,000 | 25,000 |
| Photocopy Machine | 1 | 100,000 | 100,000 |
| Fax Machine | 1 | 15,000 | 15,000 |
| Telephone Sets | 14 | 750 | 10,500 |
| | | | 650,500 |
| Fittings & Installations | | | |
| Air Conditioners | 6 | 40,000 | 240,000 |
| Generator (120KVA) | 1 | 500,000 | 500,000 |
| | | | 740,000 |
| Furniture & Fixtures | | | |
| Office Furniture – miscellaneous | | 100,000 | 100,000 |
| Table | 14 | 10,000 | 140,000 |
| Chairs | 42 | 3,000 | 126,000 |
| Shelves | 16 | 10,000 | 160,000 |
| | | | 526,000 |
| TOTAL | | | 1,916,500 |

9.5 Motor Vehicles

The proposed project will be using the vehicles one pool car, costing around Rs.750,000 and depreciation on the vehicle will be charged at the rate of 20% on written down value basis.

9.6 Raw Material Requirement

Pakistan is a Potato growing country and has a major advantage of availability and lower prices. Potatoes produced in Pakistan are appropriate and ideal to produce Quality Potato Chips. Potatoes will be procured twice a year directly from farms and transported to the rented cold storage facility for the storage.

Raw material used in Potato Chips Manufacturing includes:

- Potatoes
- Vegetable Ghee / Cooking Oil
- Flavours
- Packing/Packaging material

10 LAND & BUILDING REQUIREMENT

10.1 Land Requirement

Total land required for the Potato Chips Manufacturing Unit is approximately 20,600 Sq. ft or 5 kanals. Land price per kanal is taken at Rs. 1.0 million (Raiwind Road, Lahore). The total cost of purchasing the land is estimated at Rs. 5.0 million.

10.2 Building Requirement

The break up of the required area and construction cost of the building is given in the table below:

Table 10-1: Building and Civil works

| Building & Civil works | Space Req'd. (Sq. ft) | Cost/Sq. Ft. (Rs.) | Total Cost (Rs.) |
|--|--------------------------|-----------------------|---------------------|
| Plant Area | 4,000 | 900 | 3,600,000 |
| Generator Area | 600 | 400 | 240,000 |
| Air Compressor Room | 600 | 400 | 240,000 |
| Management Office | 500 | 1200 | 600,000 |
| Accessories Store | 600 | 500 | 300,000 |
| Potato Store | 750 | 500 | 375,000 |
| Finished Goods Store | 1,000 | 500 | 500,000 |
| Toilets | 600 | 500 | 300,000 |
| Loading, unloading bay | 1,800 | 300 | 540,000 |
| Grounds | 9,000 | 60 | 540,000 |
| Water Tank | | - | 400,000 |
| Total Space Requirement (sq ft) | 20,600 | | 7,635,000 |

| | | | |
|----------------------------------|-------|-----|------------------|
| Boundary wall | 6,000 | 150 | 900,000 |
| Total Infrastructure Cost | | | 8,535,000 |

10.3 Utilities Requirement

Utilities required for a Chips Manufacturing Unit are Electricity, Gas, Water and Telephone.

11 HUMAN RESOURCE REQUIREMENT

11.1 Human Resource Requirements

Following table shows the requirements of Human Resources in the Potato Chips Manufacturing unit. Salaries and wages are assumed to grow at 10% per annum.

Table 11-1: Human Resource Requirement

| Employees | Number | Salary/Month | Annual |
|-----------------------------|-----------|--------------|-------------------|
| Chief Executive Officer | 1 | 75,000 | 900,000 |
| Administrative Staff | | | |
| Admin and Finance Manager | 1 | 50,000 | 600,000 |
| Accounts Officer | 2 | 20,000 | 480,000 |
| Assistant Purchase Manager | 1 | 30,000 | 360,000 |
| Purchase Officers | 2 | 15,000 | 360,000 |
| Office boys | 2 | 7,500 | 180,000 |
| Driver | 1 | 8,500 | 102,000 |
| Security Guard | 3 | 8,500 | 306,000 |
| Sweeper | 2 | 7,500 | 180,000 |
| Marketing Staff | | | |
| Marketing Manager | 1 | 50,000 | 600,000 |
| Assistant Manager Sales | 1 | 30,000 | 360,000 |
| Sales Supervisor | 1 | 20,000 | 240,000 |
| Sales Representatives | 10 | 15,000 | 1,800,000 |
| Production Staff | | | |
| Production Manager | 1 | 50,000 | 600,000 |
| Technical Supervisor | 1 | 30,000 | 360,000 |
| Quality In-charge | 1 | 30,000 | 360,000 |
| Store Supervisor | 1 | 20,000 | 240,000 |
| Machine Operator | 1 | 10,000 | 120,000 |
| Fryer Supervisor | 2 | 12,000 | 120,000 |
| Skilled Labour | 10 | 9,000 | 1,080,000 |
| Unskilled Labour | 20 | 7,500 | 1,800,000 |
| Total | 65 | | 11,316,000 |

12 FINANCIAL ANALYSIS

12.1 Project Detail

| Initial Investment | | |
|--------------------------------|---------------|-----------------------|
| Capital Investment | | Rs. in actuals |
| Land | | 5,000,000 |
| Building/Infrastructure | | 8,535,000 |
| Machinery & equipment | | 18,753,930 |
| Furniture & fixtures | | 1,266,000 |
| Office vehicles | | 765,000 |
| Office equipment | | 650,500 |
| Pre-operating costs | | 1,866,000 |
| Legal/Licensing costs | | 50,000 |
| Total Capital Costs | | 36,886,430 |
| Working Capital | | Rs. in actuals |
| Equipment spare part inventory | | 187,539 |
| Raw material inventory | | 18,763,321 |
| Cold storage rental | | 5,616,000 |
| Raw material transport costs | | 108,000 |
| Upfront insurance payment | | 975,946 |
| Cash | | 1,000,000 |
| Total Working Capital | | 26,650,807 |
| Total Investment | | 63,537,236 |
| Initial Financing | | Rs. in actuals |
| Debt | 50% | 31,768,618 |
| Equity | 50% | 31,768,618 |
| Project Returns | | |
| | EQUITY | PROJECT |
| Net Present Value | 175,711,106 | 211,063,976 |
| Internal Rate of Return | 65% | 45% |
| Payback Period (Yrs) | 3.55 | 4.18 |

12.2 Projected Income Statement

| Income Statement | | | | | | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| Revenue | 143,775,000 | 195,772,500 | 251,460,990 | 316,329,453 | 391,656,999 | 455,731,651 | 502,269,432 | 552,496,375 | 607,746,012 | 668,520,613 |
| <i>Cost of sales</i> | | | | | | | | | | |
| Raw material costs (Potatoes) | 24,480,000 | 30,844,800 | 37,784,880 | 45,341,856 | 53,560,067 | 59,362,408 | 62,330,528 | 65,447,055 | 68,719,408 | 72,155,378 |
| Cold storage rental | 11,232,000 | 14,826,240 | 19,027,008 | 23,919,667 | 29,600,588 | 34,369,572 | 37,806,529 | 41,587,182 | 45,745,900 | 50,320,490 |
| Transportation costs | 2,160,000 | 2,851,200 | 3,659,040 | 4,599,936 | 5,692,421 | 6,609,533 | 7,270,486 | 7,997,535 | 8,797,288 | 9,677,017 |
| Other raw material cost | 65,233,208 | 81,628,462 | 99,335,256 | 118,448,467 | 139,069,182 | 153,239,825 | 160,006,631 | 167,111,777 | 174,572,181 | 182,405,605 |
| Direct Labour costs | 4,848,000 | 5,332,800 | 5,866,080 | 6,452,688 | 7,097,957 | 7,807,752 | 8,588,528 | 9,447,381 | 10,392,119 | 11,431,330 |
| Machinery maintenance expense | 375,079 | 393,833 | 413,524 | 434,200 | 455,910 | 478,706 | 502,641 | 527,773 | 554,162 | 581,870 |
| Direct electricity expense | 987,525 | 1,086,278 | 1,194,905 | 1,314,396 | 1,445,835 | 1,590,419 | 1,749,461 | 1,924,407 | 2,116,848 | 2,328,532 |
| Direct gas expense | 1,188,000 | 1,425,600 | 1,663,200 | 1,900,800 | 2,138,400 | 2,257,200 | 2,257,200 | 2,257,200 | 2,257,200 | 2,257,200 |
| Freight charges | 652,332 | 816,285 | 993,353 | 1,184,485 | 1,390,692 | 1,532,398 | 1,600,066 | 1,671,118 | 1,745,722 | 1,824,056 |
| Total cost of sales | 111,156,143 | 139,205,496 | 169,937,246 | 203,596,495 | 240,451,052 | 267,247,813 | 282,112,071 | 297,971,427 | 314,900,827 | 332,981,479 |
| Gross Profit | 32,618,857 | 56,567,004 | 81,523,744 | 112,732,958 | 151,205,946 | 188,483,839 | 220,157,361 | 254,524,947 | 292,845,185 | 335,539,134 |
| <i>General administration & selling expenses</i> | | | | | | | | | | |
| Administration expense | 6,468,000 | 7,114,800 | 7,826,280 | 8,608,908 | 9,469,799 | 10,416,779 | 11,458,457 | 12,604,302 | 13,864,732 | 15,251,206 |
| Administration benefits expense | 323,400 | 355,740 | 391,314 | 430,445 | 473,490 | 520,839 | 572,923 | 630,215 | 693,237 | 762,560 |
| Deisel expense | 1,814,400 | 1,905,120 | 2,000,376 | 2,100,395 | 2,205,415 | 2,315,685 | 2,431,470 | 2,553,043 | 2,680,695 | 2,814,730 |
| Electricity expense | 429,000 | 471,900 | 519,090 | 570,999 | 628,099 | 690,909 | 760,000 | 836,000 | 919,600 | 1,011,560 |
| Travelling expense | 646,800 | 711,480 | 782,628 | 860,891 | 946,980 | 1,041,678 | 1,145,846 | 1,260,430 | 1,386,473 | 1,525,121 |
| Communications expense (phone, fax, mail, internet, etc.) | 646,800 | 711,480 | 782,628 | 860,891 | 946,980 | 1,041,678 | 1,145,846 | 1,260,430 | 1,386,473 | 1,525,121 |
| Office expenses (stationary, entertainment, janitorial etc.) | 646,800 | 711,480 | 782,628 | 860,891 | 946,980 | 1,041,678 | 1,145,846 | 1,260,430 | 1,386,473 | 1,525,121 |
| Promotional expense | 4,313,250 | 5,873,175 | 7,543,830 | 9,489,884 | 11,749,710 | 13,671,950 | 15,068,083 | 16,574,891 | 18,232,380 | 20,055,618 |
| Insurance expense | 975,946 | 874,527 | 773,107 | 671,688 | 570,268 | 530,450 | 424,360 | 318,270 | 212,180 | 106,090 |
| Professional fees (legal, audit, consultants, etc.) | 718,875 | 978,863 | 1,257,305 | 1,581,647 | 1,958,285 | 2,278,658 | 2,511,347 | 2,762,482 | 3,038,730 | 3,342,603 |
| Depreciation expense | 2,798,576 | 2,798,576 | 2,798,576 | 2,870,348 | 2,870,348 | 2,963,756 | 3,059,284 | 3,059,284 | 3,059,284 | 3,186,433 |
| Amortization of pre-operating costs | 373,200 | 373,200 | 373,200 | 373,200 | 373,200 | - | - | - | - | - |
| Amortization of legal, licensing, and training costs | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | - | - | - | - | - |
| Bad debt expense | 3,594,375 | 4,894,313 | 6,286,525 | 7,908,236 | 9,791,425 | 11,393,291 | 12,556,736 | 13,812,409 | 15,193,650 | 16,713,015 |
| Subtotal | 23,759,423 | 27,784,653 | 32,127,487 | 37,198,422 | 42,940,978 | 47,907,351 | 52,280,196 | 56,932,188 | 62,053,909 | 67,819,177 |
| Operating Income | 8,859,434 | 28,782,350 | 49,396,257 | 75,534,536 | 108,264,969 | 140,576,488 | 167,877,165 | 197,592,760 | 230,791,276 | 267,719,957 |
| Other income (interest on cash) | 50,000 | - | 421,108 | 3,000,127 | 8,761,241 | 17,897,668 | 30,534,156 | 46,470,284 | 66,045,994 | 94,103,943 |
| Gain / (loss) on sale of office equipment | - | - | 390,300 | - | - | 714,639 | - | - | 1,048,760 | 1,227,076 |
| Gain / (loss) on sale of office vehicles | - | - | - | - | 306,000 | - | - | - | - | 569,316 |
| Earnings Before Interest & Taxes | 8,909,434 | 28,782,350 | 50,207,666 | 78,534,663 | 117,332,209 | 159,188,795 | 198,411,321 | 244,063,044 | 297,886,030 | 363,620,292 |
| Interest on short term debt | 1,868,537 | 2,937,445 | 1,068,909 | - | - | - | - | - | - | - |
| Interest expense on long term debt (Project Loan) | 2,950,914 | 2,521,824 | 2,024,079 | 1,515,959 | 836,122 | 47,510 | 33,957 | 18,236 | - | - |
| Interest expense on long term debt (Working Capital Loan) | 1,031,991 | - | - | - | - | - | - | - | - | - |
| Subtotal | 5,851,442 | 5,459,269 | 3,092,987 | 1,515,959 | 836,122 | 47,510 | 33,957 | 18,236 | - | - |
| Earnings Before Tax | 3,057,992 | 23,323,082 | 47,114,679 | 77,018,703 | 116,496,087 | 159,141,285 | 198,377,363 | 244,044,807 | 297,886,030 | 363,620,292 |
| Tax | 764,498 | 5,830,770 | 11,778,670 | 19,254,676 | 29,124,022 | 39,785,321 | 49,594,341 | 61,011,202 | 74,471,508 | 90,905,073 |
| NET PROFIT/(LOSS) AFTER TAX | 2,293,494 | 17,492,311 | 35,336,009 | 57,764,027 | 87,372,066 | 119,355,964 | 148,783,022 | 183,033,605 | 223,414,523 | 272,715,219 |

12.3 Projected Cash-flow Statement

| Cash Flow Statement | | | | | | | | | | | |
|---|---------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| <i>Operating activities</i> | | | | | | | | | | | |
| Net profit | | 2,293,494 | 17,492,311 | 35,336,009 | 57,764,027 | 87,372,066 | 119,355,964 | 148,783,022 | 183,033,605 | 223,414,523 | 272,715,219 |
| Add: depreciation expense | | 2,798,576 | 2,798,576 | 2,798,576 | 2,870,348 | 2,870,348 | 2,963,756 | 3,059,284 | 3,059,284 | 3,059,284 | 3,186,433 |
| amortization of pre-operating costs | | 373,200 | 373,200 | 373,200 | 373,200 | 373,200 | - | - | - | - | - |
| amortization of training costs | | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | - | - | - | - | - |
| Deferred income tax | | 764,498 | 1,579,743 | - | (0) | 0 | (468,848) | (468,848) | (468,848) | (468,848) | (468,848) |
| Accounts receivable | | (14,377,500) | (2,599,875) | (5,384,300) | (6,027,848) | (7,009,800) | (6,970,110) | (5,530,622) | (4,838,236) | (5,273,829) | (5,801,212) |
| Finished goods inventory | | (5,850,323) | (1,168,441) | (1,539,226) | (1,685,858) | (1,845,869) | (1,307,930) | (707,956) | (792,968) | (846,470) | (904,033) |
| Equipment inventory | (187,539) | (9,377) | (9,846) | (10,338) | (10,855) | (11,398) | (11,968) | (12,566) | (13,194) | (13,854) | (14,547) |
| Raw material inventory potato | (12,240,000) | (3,182,400) | (3,470,040) | (3,778,488) | (4,109,106) | (2,901,170) | (1,484,060) | (1,558,263) | (1,636,176) | (1,717,985) | 36,077,689 |
| Raw material inventory (others) | (6,523,321) | (1,639,525) | (1,770,679) | (1,911,321) | (2,062,071) | (1,417,064) | (676,681) | (710,515) | (746,040) | (783,342) | 18,240,561 |
| Cold Storage rental | (5,616,000) | (1,797,120) | (2,100,384) | (2,446,330) | (2,840,460) | (2,384,492) | (1,718,479) | (1,890,326) | (2,079,359) | (2,287,295) | 25,160,245 |
| Raw material transport cost | (108,000) | (34,560) | (40,392) | (47,045) | (54,624) | (45,856) | (33,048) | (36,352) | (39,988) | (43,986) | 483,851 |
| Advance insurance premium | (975,946) | 101,420 | 101,420 | 101,420 | 101,420 | 39,818 | 106,090 | 106,090 | 106,090 | 106,090 | 106,090 |
| Accounts payable | | 10,533,252 | 2,623,994 | 2,843,570 | 3,079,015 | 3,175,149 | 2,146,901 | 1,130,576 | 1,187,104 | 1,246,460 | (2,479,375) |
| Cash provided by operations | (25,650,807) | (10,016,366) | 13,819,587 | 26,345,728 | 47,407,187 | 78,224,932 | 111,901,588 | 142,163,524 | 176,771,274 | 216,390,746 | 346,302,073 |
| <i>Financing activities</i> | | | | | | | | | | | |
| Project Loan - principal repayment | | (2,681,816) | (3,110,907) | (3,608,652) | (4,248,985) | (4,928,823) | (84,704) | (98,257) | (113,978) | - | - |
| Working Capital Loan - principal repayment | | (13,325,403) | - | - | - | - | - | - | - | - | - |
| Short term debt principal repayment | | - | (25,023,586) | (14,314,906) | - | - | - | - | - | - | - |
| Additions to Project Loan | 18,443,215 | - | - | 432,908 | - | - | - | - | - | - | - |
| Additions to Working Capital Loan | 13,325,403 | - | - | - | - | - | - | - | - | - | - |
| Issuance of shares | 31,768,618 | - | - | 432,908 | - | - | - | - | - | - | - |
| Cash provided by / (used for) financing activities | 63,537,236 | (16,007,220) | (28,134,493) | (17,057,742) | (4,248,985) | (4,928,823) | (84,704) | (98,257) | (113,978) | - | - |
| <i>Investing activities</i> | | | | | | | | | | | |
| Capital expenditure | (36,886,430) | - | - | (865,816) | - | (1,232,040) | (1,152,400) | - | - | (1,533,845) | - |
| Cash (used for) / provided by investing activities | (36,886,430) | - | - | (865,816) | - | (1,232,040) | (1,152,400) | - | - | (1,533,845) | - |
| NET CASH | 1,000,000 | (26,023,586) | (14,314,906) | 8,422,170 | 43,158,202 | 72,064,068 | 110,664,484 | 142,065,267 | 176,657,297 | 214,856,901 | 346,302,073 |

12.4 Projected Balance Sheet

| Balance Sheet | | | | | | | | | | | |
|---|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----------------------|
| | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| Assets | | | | | | | | | | | |
| <i>Current assets</i> | | | | | | | | | | | |
| Cash & Bank | 1,000,000 | - | - | 8,422,170 | 51,580,372 | 123,644,440 | 234,308,924 | 376,374,192 | 553,031,488 | 767,888,389 | 1,114,190,462 |
| Accounts receivable | | 14,377,500 | 16,977,375 | 22,361,675 | 28,389,522 | 35,399,323 | 42,369,433 | 47,900,054 | 52,738,290 | 58,012,119 | 63,813,331 |
| Finished goods inventory | | 5,850,323 | 7,018,765 | 8,557,991 | 10,243,849 | 12,089,718 | 13,397,648 | 14,105,604 | 14,898,571 | 15,745,041 | 16,649,074 |
| Equipment spare part inventory | 187,539 | 196,916 | 206,762 | 217,100 | 227,955 | 239,353 | 251,321 | 263,887 | 277,081 | 290,935 | 305,482 |
| Raw material inventory (Potato) | 12,240,000 | 15,422,400 | 18,892,440 | 22,670,928 | 26,780,034 | 29,681,204 | 31,165,264 | 32,723,527 | 34,359,704 | 36,077,689 | - |
| Other raw material inventory | 6,523,321 | 8,162,846 | 9,933,526 | 11,844,847 | 13,906,918 | 15,323,982 | 16,000,663 | 16,711,178 | 17,457,218 | 18,240,561 | - |
| Cold Storage rental | 5,616,000 | 7,413,120 | 9,513,504 | 11,959,834 | 14,800,294 | 17,184,786 | 18,903,264 | 20,793,591 | 22,872,950 | 25,160,245 | - |
| Raw material transport cost | 108,000 | 142,560 | 182,952 | 229,997 | 284,621 | 330,477 | 363,524 | 399,877 | 439,864 | 483,851 | - |
| Pre-paid insurance | 975,946 | 874,527 | 773,107 | 671,688 | 570,268 | 530,450 | 424,360 | 318,270 | 212,180 | 106,090 | - |
| Total Current Assets | 26,650,807 | 52,440,193 | 63,498,430 | 86,936,228 | 146,783,833 | 234,423,733 | 357,184,401 | 509,590,179 | 696,287,347 | 922,004,921 | 1,194,958,349 |
| <i>Fixed assets</i> | | | | | | | | | | | |
| Land | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 |
| Building/Infrastructure | 8,535,000 | 8,108,250 | 7,681,500 | 7,254,750 | 6,828,000 | 6,401,250 | 5,974,500 | 5,547,750 | 5,121,000 | 4,694,250 | 4,267,500 |
| Machinery & equipment | 18,753,930 | 16,878,537 | 15,003,144 | 13,127,751 | 11,252,358 | 9,376,965 | 7,501,572 | 5,626,179 | 3,750,786 | 1,875,393 | (0) |
| Furniture & fixtures | 1,266,000 | 1,139,400 | 1,012,800 | 886,200 | 759,600 | 633,000 | 506,400 | 379,800 | 253,200 | 126,600 | - |
| Office vehicles | 765,000 | 612,000 | 459,000 | 306,000 | 153,000 | 1,232,040 | 985,632 | 739,224 | 492,816 | 246,408 | - |
| Office equipment | 650,500 | 433,667 | 216,833 | 865,816 | 577,210 | 288,605 | 1,152,400 | 768,267 | 384,133 | 1,533,845 | 1,022,563 |
| Total Fixed Assets | 34,970,430 | 32,171,853 | 29,373,277 | 27,440,516 | 24,570,168 | 22,931,860 | 21,120,504 | 18,061,220 | 15,001,935 | 13,476,496 | 10,290,063 |
| <i>Intangible assets</i> | | | | | | | | | | | |
| Pre-operation costs | 1,866,000 | 1,492,800 | 1,119,600 | 746,400 | 373,200 | - | - | - | - | - | - |
| Legal, licensing, & training costs | 50,000 | 40,000 | 30,000 | 20,000 | 10,000 | - | - | - | - | - | - |
| Total Intangible Assets | 1,916,000 | 1,532,800 | 1,149,600 | 766,400 | 383,200 | - | - | - | - | - | - |
| TOTAL ASSETS | 63,537,236 | 86,144,846 | 94,021,307 | 115,143,144 | 171,737,201 | 257,355,593 | 378,304,906 | 527,651,399 | 711,289,283 | 935,481,417 | 1,205,248,413 |
| Liabilities & Shareholders' Equity | | | | | | | | | | | |
| <i>Current liabilities</i> | | | | | | | | | | | |
| Accounts payable | | 10,533,252 | 13,157,246 | 16,000,816 | 19,079,831 | 22,254,981 | 24,401,882 | 25,532,457 | 26,719,562 | 27,966,021 | 25,486,646 |
| Short term debt | - | 25,023,586 | 14,314,906 | - | - | - | - | - | - | - | - |
| Total Current Liabilities | - | 35,556,838 | 27,472,152 | 16,000,816 | 19,079,831 | 22,254,981 | 24,401,882 | 25,532,457 | 26,719,562 | 27,966,021 | 25,486,646 |
| <i>Other liabilities</i> | | | | | | | | | | | |
| Deferred tax | | 764,498 | 2,344,241 | 2,344,241 | 2,344,241 | 2,344,241 | 1,875,393 | 1,406,545 | 937,696 | 468,848 | (0) |
| Long term debt (Project Loan) | 18,443,215 | 15,761,398 | 12,650,491 | 9,474,747 | 5,225,761 | 296,938 | 212,234 | 113,978 | - | - | - |
| Long term debt (Working Capital Loan) | 13,325,403 | - | - | - | - | - | - | - | - | - | - |
| Total Long Term Liabilities | 31,768,618 | 16,525,896 | 14,994,732 | 11,818,988 | 7,570,003 | 2,641,179 | 2,087,627 | 1,520,522 | 937,696 | 468,848 | (0) |
| <i>Shareholders' equity</i> | | | | | | | | | | | |
| Paid-up capital | 31,768,618 | 31,768,618 | 31,768,618 | 32,201,526 | 32,201,526 | 32,201,526 | 32,201,526 | 32,201,526 | 32,201,526 | 32,201,526 | 32,201,526 |
| Retained earnings | | 2,293,494 | 19,785,805 | 55,121,814 | 112,885,841 | 200,257,907 | 319,613,871 | 468,396,893 | 651,430,499 | 874,845,021 | 1,147,560,240 |
| Total Equity | 31,768,618 | 34,062,112 | 51,554,423 | 87,323,340 | 145,087,367 | 232,459,433 | 351,815,397 | 500,598,419 | 683,632,025 | 907,046,547 | 1,179,761,766 |
| TOTAL CAPITAL AND LIABILITIES | 63,537,236 | 86,144,846 | 94,021,307 | 115,143,144 | 171,737,201 | 257,355,593 | 378,304,906 | 527,651,399 | 711,289,283 | 935,481,417 | 1,205,248,413 |

12.5 Year-wise production

| FINISHED POTATO CHIPS - PRODUCTION QUANTITATIVE & MIX | | | | | | | | | | |
|--|--------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| POTATO CHIPS PLANT INSTALLED CAPACITY - AT 100% UTILIZATION | | | | | | | | | | |
| Number of Shifts worked | 1.00 | 1.20 | 1.40 | 1.60 | 1.80 | 1.90 | 1.90 | 1.90 | 1.90 | 1.90 |
| Total Labor Shift Time in Hours | 8.00 | 9.60 | 11.20 | 12.80 | 14.40 | 15.20 | 15.20 | 15.20 | 15.20 | 15.20 |
| Plant Operational Time In Hours | 8.00 | 9.60 | 11.20 | 12.80 | 14.40 | 15.20 | 15.20 | 15.20 | 15.20 | 15.20 |
| Production Line Capacity in Kgs per Plant Hour | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| POTATO CHIPS PLANT INSTALLED CAPACITY - AT ACTUAL UTILIZATION | | | | | | | | | | |
| Expected Annual Growth Rate | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 50% |
| Capacity Utilization Rate | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Utilized Production Line Capacity in Kgs per Plant Hour | 50.00% | 60.00% | 70.00% | 80.00% | 90.00% | 95.00% | 95.00% | 95.00% | 95.00% | 95.00% |
| Expected per day Production in Kgs | 75 | 90 | 105 | 120 | 135 | 143 | 143 | 143 | 143 | 143 |
| | 1,200 | 1,440 | 1,680 | 1,920 | 2,160 | 2,280 | 2,280 | 2,280 | 2,280 | 2,280 |
| PRODUCTION YIELD IN %-AGE | | | | | | | | | | |
| Potatoes in KG/per day (Raw material requirement) | 600 | 4,800 | 5,760 | 6,720 | 7,680 | 8,640 | 9,120 | 9,120 | 9,120 | 9,120 |
| Potato Chips | | 25% | 25% | 25% | 25% | 25% | 25% | 25% | 25% | 25% |
| Waste Production | | | | | | | | | | |
| Burnt Chips & Under-fried | | 55% | 55% | 55% | 55% | 55% | 55% | 55% | 55% | 55% |
| Chura Chips | | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% |
| DAILY PRODUCTION YIELD IN KGS | | | | | | | | | | |
| Finished Production | | | | | | | | | | |
| Potato Chips | | 1,200 | 1,440 | 1,680 | 1,920 | 2,160 | 2,280 | 2,280 | 2,280 | 2,280 |
| Waste Production | | | | | | | | | | |
| Burnt Chips/Under-fried chips | | 2,640 | 3,168 | 3,696 | 4,224 | 4,752 | 5,016 | 5,016 | 5,016 | 5,016 |
| Chura Chips | | 960 | 1,152 | 1,344 | 1,536 | 1,728 | 1,824 | 1,824 | 1,824 | 1,824 |
| ANNUAL POTATO CHIPS PLANT PRODUCTION CAPACITY - AT ACTUAL UTILIZATION BASED ON 300 WORKING DAYS | | | | | | | | | | |
| Finished Production in kgs | | | | | | | | | | |
| Potato Chips | | 360,000 | 432,000 | 504,000 | 576,000 | 648,000 | 684,000 | 684,000 | 684,000 | 684,000 |
| Waste Production in kgs | | | | | | | | | | |
| Burnt Chips | | 792,000 | 950,400 | 1,108,800 | 1,267,200 | 1,425,600 | 1,504,800 | 1,504,800 | 1,504,800 | 1,504,800 |
| Chura Chips | | 288,000 | 345,600 | 403,200 | 460,800 | 518,400 | 547,200 | 547,200 | 547,200 | 547,200 |
| POTATO CHIPS PRODUCTION WEIGHT & MIX | | | | | | | | | | |
| 20 grams | | 45% | 45% | 45% | 45% | 45% | 45% | 45% | 45% | 45% |
| 50 grams | | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% |
| 120 grams | | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% |

13 KEY ASSUMPTIONS

13.1 Machinery Assumptions

| | |
|---|-----|
| Capacity of processing plant (Kg/Hour) | 150 |
| Potato chips production (% of potatoes) | 25% |
| Burnt and under-fried chips (% of potatoes) | 55% |
| Chura Chips (% of potatoes) | 20% |
| First Year Production (Increasing @ 7.5% each successive Year) | 50% |
| Machine maintenance expense (% of machine cost) | 2% |
| Machine maintenance growth rate | 5% |
| Equipment spare part inventory (% machinery cost) | 1% |

13.2 Operating Assumptions

| | |
|--|-------|
| Seasonal production at 100% capacity (Kg) | 2,400 |
| Daily production in Year 1, excluding burnt and chura chips (Kg) | 1,200 |
| First year capacity utilization | 50% |
| Capacity growth rate | 10% |
| Tenth year capacity utilization | 95% |
| Shifts operational per day | 2 |
| Hours per shift | 8 |
| Days operational per month | 25 |
| Day operational per year | 300 |

13.3 Economy Related Assumptions

| | |
|---|-----|
| Electricity growth rate | 10% |
| Diesel expense growth rate | 5% |
| Wage growth rate | 10% |
| Office equipment price growth rate | 10% |
| Office vehicles price growth rate | 10% |
| Raw material price growth rate | 5% |
| Transportation/Travelling expense growth rate | 10% |
| Cold storage rent growth rate | 10% |
| Sales price growth rate | 10% |
| Insurance rate | 5% |

13.4 Cash Flow Assumptions

| | |
|-------------------------------------|----|
| Accounts receivable cycle (in days) | 30 |
| Accounts payable cycle (in days) | 30 |

| | |
|--|-----|
| Raw material inventory – Potatoes (in days) | 150 |
| Other raw material inventory (in days) | 30 |
| Raw material closing stock inventory (in days) | 15 |
| Finished goods inventory (in days) | 15 |

13.5 Revenue Assumptions

| | |
|--|------------|
| Distribution Price to retailer per packet | Rs. |
| 20 gm packet | 6 |
| 50 gm packet | 15 |
| 120 gm packet | 38 |
| Chura chips per kg | 140 |
| Potato Chips sales price growth rate | 10% |
| Chura chips sales price growth rate | 10% |

13.6 Raw material Assumptions

| | |
|--|------------|
| Raw Material Mix | |
| Potatoes in kg per kg potato chips | 4 |
| Frying oil in litres per kg potato chips | 0.3 |
| Flavours in kg per kg potato chips | 0.06 |
| Raw material cost | Rs. |
| Potatoes per kg | 17 |
| Frying Oil per litre | 108 |
| Flavours per kg – Salt | 14 |
| Other flavours per kg | 248 |
| Cost storage rent per kg potatoes | 7.8 |
| Transportation cost per kg potatoes | 0.75 |
| Packing Material cost per packet | Rs. |
| 20 gm packet | 0.73 |
| 50 gm packet | 1.00 |
| 120 gm packet | 1.40 |
| Carton cost per unit | 18.70 |
| Gum tape cost per roll | 45 |

13.7 Financial Assumptions

| | |
|----------------------|-----|
| Project life (Years) | 10 |
| Debt | 50% |
| Equity | 50% |

| | |
|---|-----------|
| Interest rate on long-term debt | 16% |
| Interest rate on short term debt | 14% |
| Interest on cash in bank | 10% |
| Debt tenure (Years) | 5 |
| Debt payments per year | 1 |
| Discount rate (weighted avg. cost of capital for NPV) | 20% |
| Minimum Cash Balance | 1,000,000 |

13.8 Expense Assumptions

| | |
|--|------|
| Administration benefits (% of Admin expense) | 5% |
| Travelling expense (% of Admin expense) | 10% |
| Communication expense (% of Admin expense) | 10% |
| Freight charges (% of Raw material costs) | 1% |
| Office expense (% of Admin expense) | 10% |
| Promotional expense (% of revenue) | 3% |
| Insurance expense (% of cost of machinery/vehicle) | 5% |
| Professional fee (% of revenue) | 0.5% |
| Depreciation expense | |
| Building | 5% |
| Machinery and Equipment | 10% |
| Furniture and Fixture | 10% |
| Vehicles | 20% |
| IT Equipment | 33% |
| Bad debt expense (% of revenue) | 2.5% |

14 ANNEXURE

Following is the list of major Potato Chips Machinery suppliers and Cold Storage rental facilities.

14.1 Major Machinery Suppliers

| No. | Suppliers | Web Address |
|-----|-----------------------------------|--|
| 1 | Alisha Machines (Private) Limited | www.alishamachines.com |
| 2 | Campbell Wrapper Machinery | www.campbellwrapper.com |
| 3 | Xuzhi Equipment Co. Limited | www.lucy.168.com |
| 4 | Seoju Engineering Co. Ltd. | www.ec21.net/foodmachinery.com |
| 5 | Mundra Engineering works | www.mundraengineering.com |

14.2 Major Cold Storage Facility in Lahore and surrounding areas

| No. | Cold Storage Facilities | Contact Number |
|-----|--|----------------------------|
| 1 | Iqra Cold Storage, Lahore | (92 42) 36814885, 6819943 |
| 2 | Malik combine cold storage, Lahore | (92 42) 36546049, 36542445 |
| 3 | Saudagar Thermopole Industries, Lahore | (92 42) 7227652, 7221868 |
| 4 | Tahir ice & cold storage, Lahore | (92 42) 7280705, 7280704 |
| 5 | Kisan cold storage, Mandi Bahauddin | (92 546) 507802 |
| 6 | Zamindar Cold Storage, Daska | (92 52) 6442767 |
| 7 | Rafiq Cold Storage, Sahiwal | (92 40) 4450457, 4452711 |