

Pre-Feasibility Study

POTATO CHIPS MANUFACTURING UNIT



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DISCLAIMER

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1 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, production, marketing, finance and business management. The document also provides sectoral information, brief on government policies 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 as well as a micro view of snacks business with the hope that such information as 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 imminence as the research that precedes such reports reveal certain thumbs of rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding 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 forms basis of any Investment Decision.

2 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:

2.1 SWOT Analysis

Before making the decision, whether to invest in the Potato Chips Manufacturing or not, one should carefully analyze the associated risk factors. A SWOT analysis can help in analyzing these factors, which can play important role in making the decision.

STRENGTHS

- Continuous availability of Raw Material in the form of Fresh Potatoes.
- Totally automated plant and hence require the involvement of less local labor.
- Availability of Cheaper Labor.
- Tariff cuts under Trade Agreements are anticipated which may result in increase in the Export Market of the Potato Chips.
- The life style of the people is improving and going to be changed and also because of satellite invasion the demand is bound to register a considerable boost.

WEAKNESSES

- Strict controls over the Labor efficiency need to be observed to reduce the Waste Production at the minimum level.
- Expected loss at the initial stages of the operation as a result of Sales return from the distributors.
- In -experienced 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 comprise un-branded chips which can be attracted through Heavy marketing Campaign.
- Attraction amongst the Younger consumers to products identified with Western Lifestyles and Tastes and general trend towards more Snacking.
- A large number of people which are not Brand Loyal can be attracted through heavy Marketing Campaign.
- Low per Capita consumption of Fries in overseas market is a strong indication of future demand.

THREATS

- Monopoly of Multinationals currently in the business of Potato Chips Manufacturing.
- Imbalanced Prices of Potatoes due to lack of adequate Storage Facilities as a result of which large Production is wasted.
- Quality of the Potato Chips need to be considered very closely as the 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.
- High Promotional activity by the Competitors and increased competition.
- Chances of price cut from the existing players of the Potato Chips Manufacturers to keep the new product out of market.

2.2 Key Success Factors / Practical Tips for Success

Potato Chips Manufacturing is the process that involves the use of Fresh Potatoes, Frying Oil and Flavors. After passing through different manufacturing processes it transforms the Potato into Crisps. One of the key success factors for the success of this proposed project is to control and carefully monitor the entire production process as it involves the high waste production in the form of Burnt and Chura Chips.

Another important aspect of this proposed feasibility is the Marketing and Promotion of the Potato Chips in the local as well as Foreign Market. This involves the dedication and hard work from the marketing personnel's to supervise the work of Wall Pasting, Banner affixing and a detailed advertising on the Media along with the use of other marketing techniques such as Display Stands, Posters and use of Mobiles.

The current Potato Chips (Crisps) Market is already led by Super Crisps and Golden Chips. Entering into the market needs heavy investment on the marketing campaign of the product in order to capture the share. Moreover 40% of the unbranded market can also be attracted through use of heavy Marketing Campaign.

There are many units existing which are in the business of Potato Chips Manufacturing but still they are not successful in catering the demand. So there is a potential for new entrepreneurs to enter the market. Key success factors will be:

- Waste Production should be kept at minimum and production process need to be monitored very carefully.
- Advance Orders for sale can ensure the success of the Business.
- Strong controls on the Purchase Price of Raw Material need to be observed as it is evident that due to lack of Storage Facilities, supply of Potato is not stable throughout the year as a result of which there is huge variation in the prices of the Potatoes. It is therefore 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 behavior 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, Labor and Factory Overhead Variances.

3 PROJECT PROFILE

3.1 Opportunity Rationale

With the advent of globalization, Asian eating habits are changing to emulate those of the West. This means that consumption of Western style Fast Foods is on the rise. Due to this reason the potential market size of Fast Food products is increasing at an exponential growth rate. This is also evident from the entry of world famous Fast Food Chains entering Pakistan, such as McDonalds, KFC, Pizzeria Uno, Pizza Hut, etc. Along with international chains there are large numbers of local restaurants, which also deal in similar kinds of Fast Food. There is a huge business opportunity in this area of the Fast Food Value Chain.

3.2 Project Brief

This particular Pre-feasibility is regarding “Potato Chips Manufacturing Unit” which comes under the “Snacks Food” Sector. The objective of the Pre-feasibility study is primarily to provide an overview about the Potato Chips Manufacturing business. The proposed Pre-feasibility defines the criteria on which the investment decision is based. This document covers various aspects of Chips Manufacturing business concept development, Start-up, Production, Marketing, Finance and Business Management.

3.3 Market Entry Timing

Various Products and Services have high dependence on their commercialization timing and delivery to the Customers but the Chips Manufacturing Unit can be started at any time during the year due to the availability of Raw Material (Fresh Potatoes) throughout the year.

3.4 Proposed Business Legal Status

The said project can be a proprietorship or a partnership and even it can be registered under the Companies Ordinance, 1984 with the Securities & Exchange Commission of Pakistan. The selection totally depends upon the choice of the Entrepreneur. This Pre-feasibility assumes the Legal Status of a Sole Proprietorship.

3.5 Project Capacity and Rationale

Selection of Project Size is really critical. After doing thorough Market Research, it is decided that the proposed Pre-feasibility will be based upon the Finished Potato Chips Production Capacity of 150 Kgs per Plant Hour. As it is evident from rise in the Western Style Food Consumption that there is huge demand of Potato Chips (Snacks Food Industry) in and outside Pakistan, a sizeable production is required. The proposed project can always be started with Machine having Production Capacity of more than 150 Kgs per Plant hour. However this particular Pre-feasibility study is based on 150 Kgs per Plant Hour which is the minimum viable size for a Chips Manufacturing Unit. The project will be working on Two Shift basis.

3.6 Project Investment

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

Table 1-1: Project Cost

	Rupees
Capital Investment Requirement	33,730,170
Working Capital Requirements	14,283,349
Total Project Investment Requirement	48,013,509

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 1-2: Project Financing

	Rupees
Debt @ 50 %	24,006,754
Equity @ 50 %	24,006,754
Total Project Investment Requirement	48,013,509

Table 1-3: Project Viability

IRR % - age	23.41 %
NPV @ 20 %	Rs. 4,662,111
Pay Back Period	4-Years

3.7 Proposed Location

The said project can be started in any Industrial Area. It is recommended to establish the Project in an area where Raw Material is easily available. It may have any Industrial Area of Lahore, Karachi or Islamabad. The location of this proposed Pre-feasibility recommended at Raiwind Road, Lahore.

4 MARKET INFORMATION ABOUT POTATOES

Pakistan is a large Potato producing Country yet it has very limited adequate Storage and Processing facilities. Due to the lack of adequate Storage facilities a substantial proportion of Production is wasted. The combination of inadequate Storage facilities and an under-developed Processing Industry leads to volatility in prices as not all 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 along with the potential that exists in both Farming and Processing of Potatoes.

4.1 Pakistan Potato Production ¹

Potato is grown in Pakistan on about 111,000 Hectares distributed over eight different Agro-ecological Zones. About 70 - 80% of the production is concentrated in the Irrigated Plains of the Central Punjab and Southeast North West Frontier Province (NWFP). There are three seasons of Potato cultivation, Autumn, Spring and Summer.

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

20% of above Production Quantity is wasted against Post Harvest Loses primarily due to improper handling and lack of proper Cold Storage facilities. Potatoes are improperly stored at Temperatures negative 3-4 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 Table Consumption and Processing. About 5% of Total Potato Production is being exported. About 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 2-1: Crop seasons

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

Table 2-2: Major Varieties and Characteristics of Potato Grown In Pakistan

Variety	Shape	Color 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 + Firm	French Fries	Quite Resistible
Sante	Oval	Light Yellow	Very Meal + rather Firm	Crisps	Just Resistible

4.2 Potato Whole - Sale Price Trends²

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. The following Graph shows

² www.pakistan.gov.pk/divisions/food-division

prices begin to fall as Harvesting begins, which is January and continue to fall to the lowest level until April after which they begin to rise again.

	January	February	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Average
Lahore Prices per 40 Kgs of Potato													
1986	48.00	45.00	44.00	44.00	51.00	77.00	78.00	103.00	98.00	93.00	90.00	58.00	69.08
1987	47.00	44.00	46.00	74.00	116.00	115.00	145.00	156.00	135.00	142.00	156.00	78.00	104.50
1988	74.00	68.00	88.00	140.00	140.00	168.00	192.00	205.00	174.00	199.00	231.00	122.00	150.08
1989	98.00	84.00	80.00	72.00	67.00	65.00	122.00	125.00	110.00	97.00	94.00	51.00	88.75
1990	55.00	53.00	44.00	55.00	70.00	94.00	117.00	108.00	92.00	124.00	125.00	134.00	89.25
1991	63.00	53.00	99.00	171.00	221.00	228.00	184.00	250.00	264.00	243.00	188.00	86.00	170.83
1992	71.00	83.00	76.00	81.00	80.00	120.00	195.00	176.00	157.00	165.00	224.00	107.00	127.92
1993	77.00	69.00	75.00	88.00	99.00	153.00	193.00	204.00	194.00	178.00	176.00	82.00	132.33
1994	75.00	81.00	79.00	70.00	90.00	105.00	201.00	298.00	268.00	177.00	154.00	74.00	139.33
1995	75.00	80.00	92.00	137.00	195.00	211.00	273.00	319.00	271.00	303.00	399.00	204.00	213.25
1996	199.00	227.00	231.00	264.00	357.00	391.00	416.00	367.00	271.00	369.00	383.00	288.00	313.58
1997	289.00	272.00	242.00	282.00	293.00	255.00	304.00	412.00	395.00	364.00	464.00	254.00	318.83
1998	158.00	122.00	103.00	97.00	89.00	109.00	238.00	277.00	240.00	253.00	284.00	149.00	176.58
1999	126.00	91.00	90.00	102.00	115.00	250.00	304.00	314.00	291.00	255.00	262.00	159.00	196.58
2000	299.00	90.00	112.00	155.00	238.00	240.00	360.00	263.00	244.00	228.00	311.00	222.00	230.17
2001	159.00	159.00	212.00	225.00	243.00	317.00	376.00	354.00	383.00	473.00	548.00	318.00	313.92
2002	177.00	214.00	230.00	233.00	259.00	353.00	392.00	389.00	390.00	398.00	404.00	181.00	301.67
2003	150.00	129.00	123.00	98.00	141.00	186.00	275.00	268.00	278.00	281.00	263.00	166.00	196.50

4.3 Potato Exports From Pakistan

Table 2-3: Exports Stats

Year	Quantity	Value
	In "000" kgs	in "000" \$
2000-2001	58,450	6,656
2001-2002	56,987	6,091
2002-2003	69,348	6,818
2003-2004	56,042	5,807
2004-2005	20,762	3,100

5 MARKET INFORMATION ABOUT POTATO CHIPS

5.1 Chips Manufacturing Plants Currently in Operation

Following are the major and leading Producers of Potato Chips (Crisps) in Pakistan. The Crisps are being produced by direct Potato Cuts/slices and also by Extrusion Process. However, there is not a single Frozen French-Fries Producing Company / facility in Pakistan.

Table 3-1: Leading Potato Chips Companies in Pakistan

S. 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	Krincles

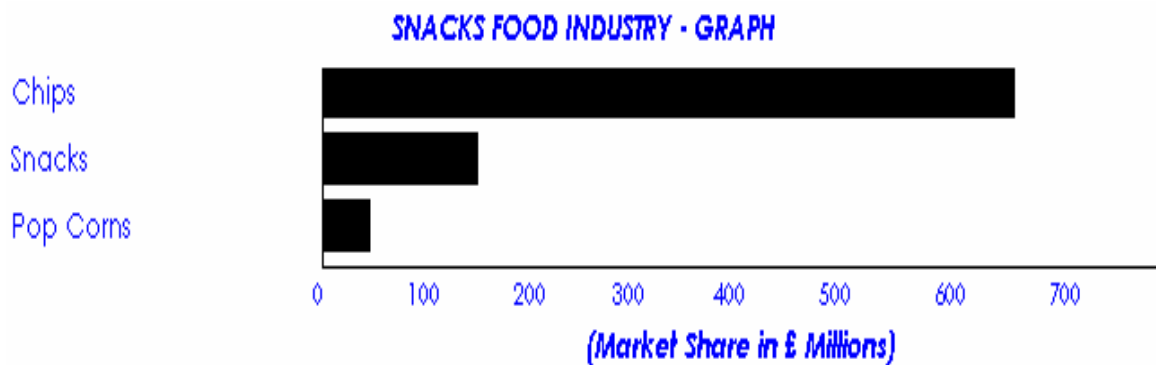
5.2 Sector Characteristics

Potato and Other Corn Products are considered a part of Snack Food Industry. Although, the concept of snacks particularly packed Snacks Meals is not old in Pakistan. Infact these products consumption is a result of adoption to Western Culture and eating habits.

A research made in U.K and published by DATA MONITOR is an example of the growth in the Snack Food Industry. The figures in this survey stood at £ 816.7 million in 1996 compared to £ 481.2 Millions in 1995 with break up as follows:

Table 3-2: Growth in Snacks Industry

Description	£ (Millions)
Chips	618.50
Snacks	148.20
Pop Corns	50.00
Total	816.70

Source: ³

³ www.foodnavigator.com/marketreport

5.3 Market Research, Trend & Analysis

Sales of crisps and snacks increased by 10.1% between 2000 and 2003 to peak at £2,386 million. A decline of 3.5% in 2004, however, took retail sales to £2,303 million. The key factor currently impacting on the Crisps and Savory Snacks market is public consideration towards health issues.

The Crisps sector accounts for just over 56% of total Crisps and Savory Snack Sales. Within the Crisps sector, sales of added value/premium Crisps saw their share of sales increase from 20% in 2000 to 26% in 2004.⁴

In addition to the local Market, Gulf and Central Asia are yet to be explored. It is estimated that 2,500 Tons of Chips can be exported to these countries if proper efforts are being made.

6 PAKISTAN & SNACKS INDUSTRY

As discussed earlier Third World Countries are very habitual to adopt the Western Culture therefore, Pakistan is also in line with those Countries. Big potential do exist for investment in this Industry in Pakistan as the Demand or Growth rate is very high. Annual Growth Rate of Snacks Industry is estimated at the rate of 20 % to 30 % per annum.

Children, teenagers and young people are the target market of the product and we have the experience that the eating habits of the Target Market is rapidly changing and they like to have Snacks all the time. Further Potato and Corn Snacks are labeled as a meal replacement and being a light fast food is becoming popular.

Another plus point for the investor is that the life style is improving and going to be changed and also because of satellite invasion the demand is bound to register a considerable boost.

The Potential market for the Snacks also exist in Gulf Countries and Central Asian States which has not yet been explored.

6.1 DEMAND & SUPPLY

According to the Industry findings carried out the Market Mix in respect of the Potato Chips is as follows:

⁴ [Report] UK Crisps & Snacks Market Research, Trends, Analysis

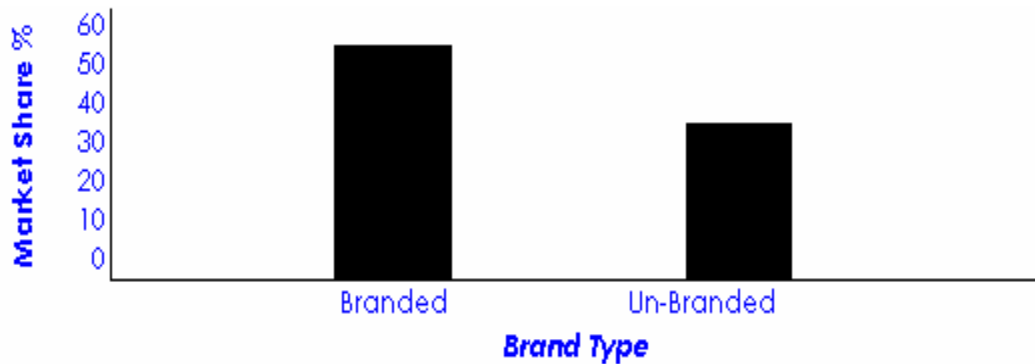
Table 4-1: Market Mix

Age Group (Years)	Market Mix
5 – 10	30 %
11 – 20	35 %
21 – 35	20 %
36 – above	15 %

The demand of the present market is met by the mix of Branded and Unbranded Chips available in the Market. There are 60% of the population which is Brand Loyal. However remaining 40% of the Un-branded Market can be attracted through heavy Advertisement Campaign. The analysis is as follows:

Table 4-2: Growth in Snacks Industry

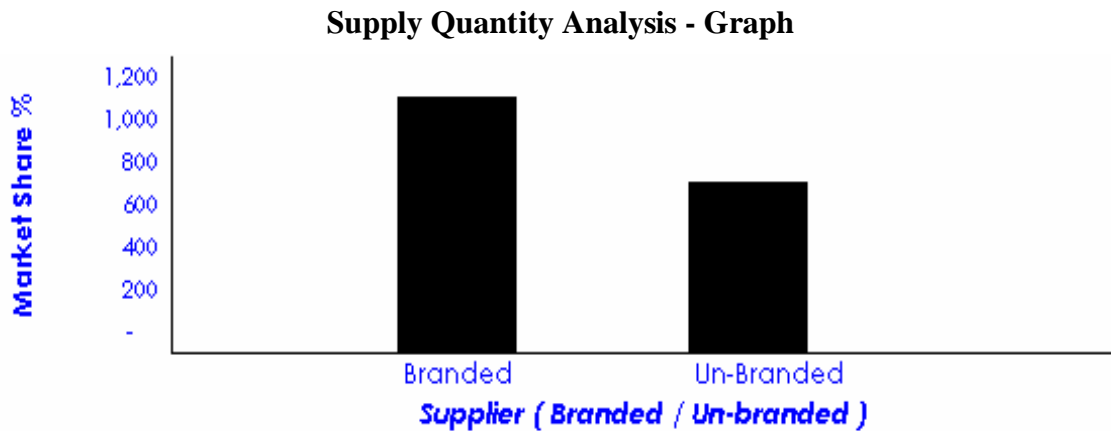
Supplier	Market
Branded	60 %
Unbranded	40 %

Market Share of Branded and Unbranded Chips – Graph

On the basis of data collected and present survey of the market, current total market is estimated at 2,000 Tons of Potato Chips which is segregated as follows:

Table 4-3: Segmentation - Snacks Industry

Segments	Share %	Quantity (Tons)
Branded	60	1,200
Unbranded	40	800
		2,000



Presently, Triple Em which produces major share that is about 58.33 % and is a market leader. Good potential exists for a new brand to compete and fetch a market share provided that:

- Having good quality of product
- Unique Packing
- A market Network
- Industry Understanding
- Financial Soundness
- Feed back of Information
- Preferring the taste of the Market

An analysis of the Current Market Competitors is produced below:

Table 4-4: Major Competitors

Market Competitors	Quantity (Tons)	% - age Share
Super Crisps	700	58.33
Golden	200	16.67
Smith/Kolson / Krincles	300	25
	1,200	100

6.2 Public Sector in Food Industry

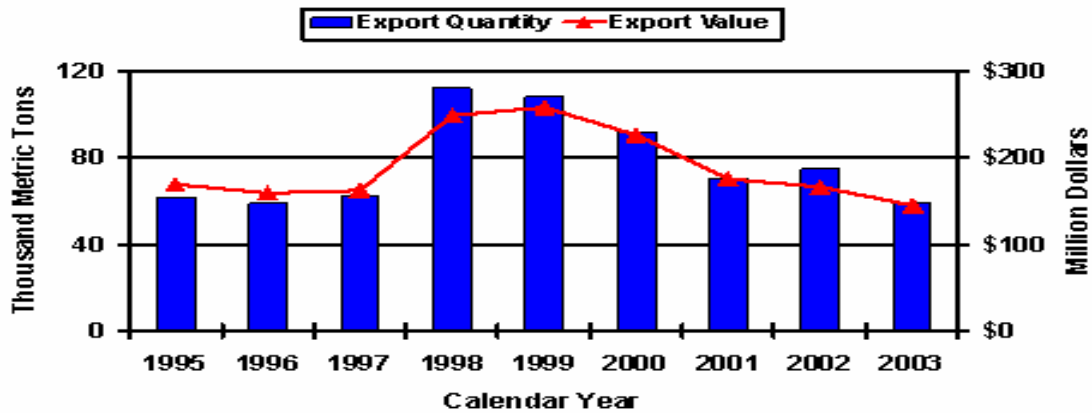
The share of Food Industry and Allied in Karachi Stock Exchange is approximately 15 %. Having Capital investment of 7.05 Billion Rupees, the Share of Profit is about 19% which is insignificant.

6.3 Leading Exporting Countries of Potato Chips in the World

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. Low per Capita consumption of Fries in the overseas market is a strong indication of future demand.

United States of America is a major exporting country of the Potato Chips in the World.

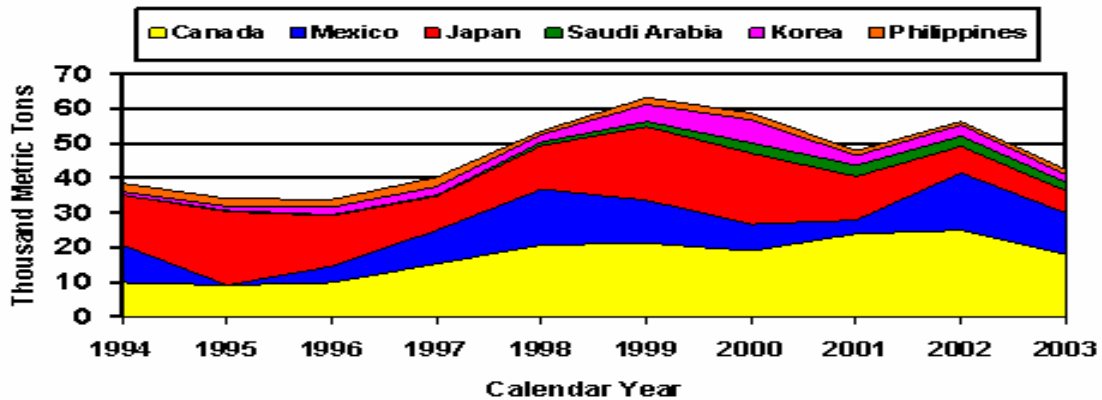
U.S. Exports of Potato Chips



Source: Bureau of the Census, DDC

Source: ⁵

U.S. Potato Chip Exports to Top Markets



Source: Bureau of the Census, DDC

Source: ⁶



6.4 Target Customers

Children, teenagers and young people are the target market of the Potato Chips Line. Home, rather than school, is the most popular destination for eating crisps and savory snacks, with seven in ten children (70%) consuming them at home, against around half (48%) who eat such snacks at school.

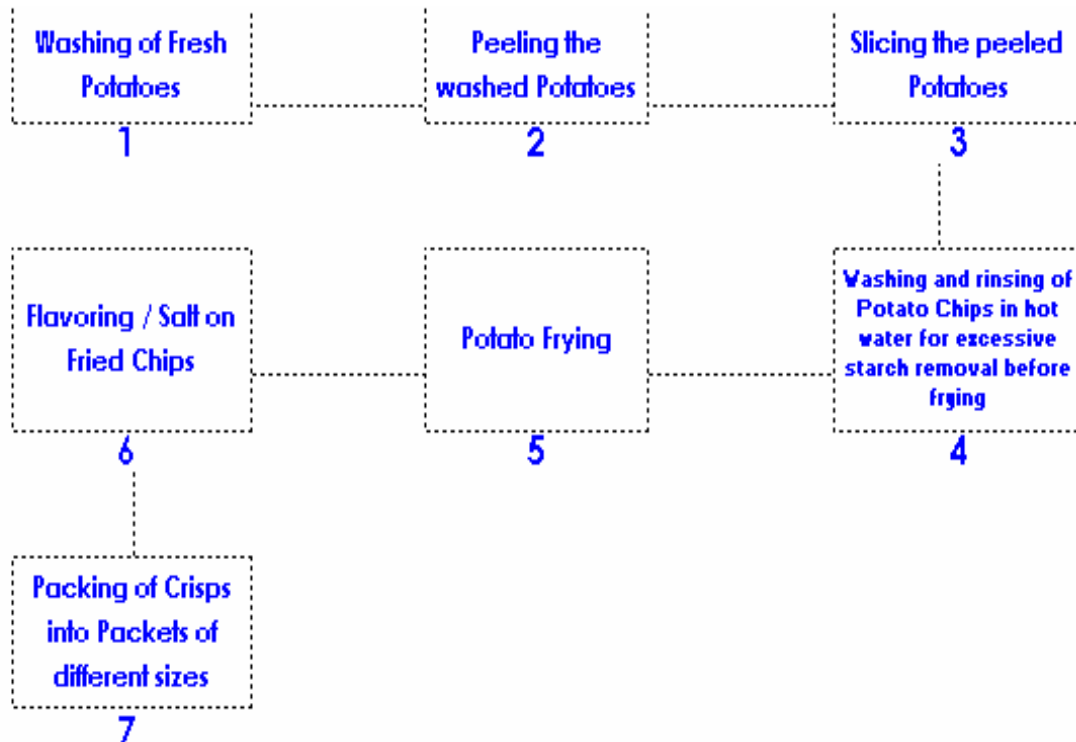
After school, when children tend to choose their own snacks, 70% select crisps and savoury snacks compared to lunchboxes, which mothers generally pack, where the most popular item is a savoury sandwich or roll.

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

7 PRODUCTION PROCESS

7.1 Production Process Flow

The following figure shows the production process flow of Potato Chips Manufacturing Unit:



⁵ www.fas.usda.gov/htp/Presentations/2004/Veg/2004%20Potatoes

⁶ www.fas.usda.gov/htp/Presentations/2004/Veg/2004%20Potatoes

- | | |
|--|--|
| 1- Washing & Shelling Machine - | suitable for washing of Fresh Potatoes |
| 2- Peeling Machine - | suitable for peeling of Potatoes |
| 3- Slicing Machine - | suitable for slicing Potatoes into Chips |
| 4- Chips Washing Machine - | suitable for washing and rinsing of Potato Chips in hot water for excessive starch removal before frying |
| 5- Flavoring Machine - | suitable for flavoring / salt on Fried Chips |
| 6- Packing Machine - | suitable for packing Finished Potato Chips in packets |

7.2 Proposed Product Mix

The proposed project will be producing the Branded Potato Chips in different Packing sizes. The composition of Production and the Assumptions on which these are based is presented in Annexure A to this Pre-feasibility Report.

7.3 Machinery Requirement⁷

Following table shows the machinery & equipment requirement for setting up a Potato Chips Manufacturing Unit imported from China. (HS Codes 84.38.)

Machine Description	Price \$	Make	Unit	RUPEES
Washing Machine	2,450	China	1	146,982
Peeling Machine	2,723	China	1	163,350
Slicing Machine	1,991	China	1	119,460
Chips Washing Machine	5,240	China	1	314,424
Frying Machine	13,885	China	1	833,118
Flavouring Machine	5,280	China	1	316,800
Chips Cooling Machine	4,574	China	1	274,428
Packing Machine	5,718	China	1	343,068
Gas Burning Boiler	17,992	China	1	1,079,496
Frozen Machine	51,051	China	1	3,063,060
Total	110,903			6,654,186
<u>Other charges</u>				
Income Tax	6%			399,251

⁷ Kasmac Industries Co. Ltd, 2F, # 96, SEC. 3, Chung Haiiao E.Road. Taipei Taiwan: 886-22-7717299 FAX: 886-22-7781105

Freight & Handling Charges as % of CIF price	5%			352,672
Installation Charges as % of Price	1%			74,061
Cost of Imported Machinery				7,480,170
Cold Storage Equipments & Accessories				3,000,000
TOTAL				10,480,170

Following is the List of major suppliers of Potato Chips Plant & Machinery

Table 5-1: Major Suppliers

Serial #	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

Refer ⁸

7.4 Other Fixed Assets Requirement

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

Items	No.	Cost/Item (Rs.)	Total Cost (Rs.)
<u>Office Equipments</u>			
Computers	6	30,000	180,000
Printers	3	25,000	75,000
Photocopy Machine	1	100,000	100,000
Fax Machine	1	10,000	10,000
Telephone Sets	10	500	5,000
			370,000
<u>Fittings & Installations</u>			
Air Conditioners	4	20,000	80,000
Generator	1	1,500,000	1,500,000
Air Compressor	1	1,200,000	1,200,000

⁸ www.alibaba.com

Transformer	1	450,000	450,000
Electric Installations & Charges			300,000
Water Pump including boring			500,000
			4,030,000
<u>Furniture & Fixtures</u>			
Office Furniture	1	250,000	250,000
TOTAL			4,650,000

7.5 Motor Vehicles

The proposed project will also be using two Loader truck for transportation purposes. The truck will be costing Rs. 1,100,000 and the depreciation will be charged at the rate of 20% on written down value basis. In addition to the above the proposed project will also be using two Cars costing Rs. 1,000,000/- each.

7.6 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.

Raw material used in Potato Chips Manufacturing includes:

- Potatoes
- Vegetable Ghee / Cooking Oil
- Flavors

A detailed requirement of Raw Material composition is attached as "Annexure B" to this Pre-feasibility Report.

8 LAND & BUILDING REQUIREMENT

8.1 Land Requirement

Building for the proposed business can be acquired on rent but it is recommended that it should be purchased or built as machinery will be installed. Total land required for the Potato Chips Manufacturing Unit is approximately 22,449 -Sq. ft or 5 kanals. Land price per kanal is taken to be Rs. 600,000 (Raiwind Road, Lahore). The break up of the required area and construction cost of the building is given below.

8.2 Building Requirement

Following Table shows the detailed Machinery Requirements for the Project.

Building & Civil works	Space Reqd. Sq. ft	Cost Rs. Per Sq. Ft.	Total Cost Rs.
Plant Area	4,000	800	3,200,000
Generator Area	600	800	480,000
Air Compressor Room	600	800	480,000
Management Office	,200	900	1,080,000
Accessories Store	600	800	480,000
Potato Store	1,500	800	1,200,000
Finished Goods Store	1,500	800	1,200,000
Toilets	600	800	480,000
Loading, unloading Bay	1,800	800	1,440,000
Grounds	9,000	40	360,000
Water Tank	-	-	400,000
Total Space Requirement (sq.ft)	21,400	-	10,800,000
Boundary wall	600 x 10	100	600,000
Total Infrastructure Cost			11,400,000

8.3 Utilities Requirement

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

9 HUMAN RESOURCE REQUIREMENT

9.1 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.

Description	Shifts	Employees	Salary per Month Rs.	Annual Salary Rs.
<u>Production Staff</u>				
Production Manager	1	1	40,000	480,000
Technical supervisor	2	1	18,000	432,000

Quality Incharge	1	1	15,000	180,000
Store Supervisor	2	1	8,000	192,000
Machine Operator	2	1	6,500	156,000
Fryer Supervisor	2	2	8,000	384,000
Skilled Labor	2	10	4,000	960,000
Un-skilled Labor	2	20	3,000	1,440,000
Total Direct Labor				4,224,000
<u>Administrative Cost</u>				
Admin. Manager	1	1	30,000	360,000
Finance Manager	1	1	25,000	300,000
Accounts Officer	1	2	8,000	192,000
Purchase Officer	1	1	10,000	120,000
Purchasers	1	2	6,000	144,000
Office Boys	1	2	3,000	72,000
Driver	1	2	4,500	108,000
Security Guard, Gate Keepers	3	1	4,500	162,000
Sweeper	1	2	1,000	24,000
Total Administrative Salaries				1,458,000
<u>Marketing Cost</u>				
Marketing Manager	1	1	45,000	540,000
Senior Sales Officer	1	1	18,000	216,000
Assistant Sales Officer	1	1	8,000	96,000
Sales Representatives	1	20	5,000	1,200,000
Total Marketing Cost				2,052,000
<u>Total Human Resource Cost</u>				
Direct Labor				
Factory Wages				4,224,000
Other Benefits				468,000
				4,692,000
Administrative Cost				1,458,000
Marketing Cost				2,052,000
Other Benefits				524,000
TOTAL				2,576,000

10 KEY ASSUMPTIONS

10.1 Project Assumptions

Projected Life of the Project in Years	10
Debt	50 %
Equity	50 %
Annual Mark Up Rate (Short Term & Long Term)	15 %
Debt Tenure in Years	5
General Inflation Rate	5 %

10.2 Operating Assumptions

No of Working Days in One Year	300
No. of Shift	2
No. of hours in one shift	8
Break Down time in one shift (hours)	1
Annual installed production capacity	150 kgs per hour
Initial year capacity utilization	70 %
Capacity growth rate	5 %
Maximum capacity utilization	95 %

10.3 Revenue Assumptions

	Distribution price to Retailer Rs.	Distribution price to Consumer Rs.
Sales Price per 15 gm packet	3.75	5
Sales Price per 25 gm packet	7.5	10
Sales Price per 55 gm packet	15.5	20

Raw Material Costs during the 1st Year of Operation	Cost (Rs./kg)
Potatoes per Kg ⁹	18
Frying Oil per Liter	60
Flavors per kg	392

Region wise Average Annual wholesale prices of Potato (Rs. per 40 kgs)

⁹ Potato price per kg is Rs. 18 average out by taking different Mandi rates. [Source Market Committee Lahore]

City	1997	1998	1999	2000	2001	2002	2003
Lahore	319.0	176.58	196.58	213.5	313.92	301.92	196.5
Hyderab	286	172.58	170.08	178.67	240.33	221.17	156.25
Peshawa	301	191.92	207.92	224.17	293.25	291.5	197.5
Quetta	358	243.33	274.5	255.83	320.92	298.75	210.92

Packing Material Costs during the 1st Year of Operation

Cartons - rate per unit	15.00
Packing Film per Kg	410.00
Gum Tape per Roll	46.00

10.4 Expense Assumptions

Salaries, wages growth rates	5%	of Salaries & Wages
Communication expense	10%	of admin expenses
Office expenses	10%	of admin expenses
Promotional expense	10%	of Revenue
Machinery & equipment insurance rate	10%	
Office vehicles insurance rate	10%	
Repair & Maintenance	20%	of Cost of Sales
Professional fees	10%	of Revenue
Marketing Expenses	10%	of Revenue
Freight and Custom Clearance Charges	10%	of Cost of Sales
Office Vehicle Running Expense	10%	of admin expenses
Depreciation rate on Machinery	10%	Written Down Value
Depreciation rate on furniture and office equipment	10%	Written Down Value

10.5 Turnover Assumptions

Raw Material Inventory	30 Days
Stores and Spares Inventory	2 Months
Finished Goods	15 Days
Accounts Payable	30 Days
Accounts Receivable	30 Days

11 FINANCIAL ANALYSIS

11.1 Projected Income Statement

												Rupees (ooo)
		Year - I	Year - II	Year - III	Year - IV	Year - V	Year - VI	Year - VII	Year - VIII	Year - IX	Year - X	
Sales/Revenue		106,174,347	122,154,100	135,249,963	149,686,048	165,726,992	183,505,595	202,349,076	215,480,718	226,384,818	237,709,671	
Cost of Sales		85,741,967	95,666,233	104,706,593	114,867,449	126,213,206	137,036,766	150,516,442	160,503,361	169,469,794	179,064,698	
Gross Profit		20,432,380	26,487,868	30,543,370	34,818,599	39,513,786	46,468,829	51,832,633	54,977,357	56,915,024	58,644,974	
Operating Expenses:												
Administrative Expenses		4,872,844	4,550,644	4,625,176	4,739,035	4,887,067	5,065,284	5,270,640	5,500,845	5,754,225	6,029,607	
Marketing Expenses		7,231,259	7,703,872	5,883,232	5,821,555	6,303,711	6,834,082	7,117,490	7,709,239	8,277,163	9,053,679	
		12,104,103	12,254,517	10,508,408	10,560,591	11,190,778	11,899,366	12,388,130	13,210,084	14,031,388	15,083,287	
Operating Profit		8,328,277	14,233,351	17,817,830	21,429,363	25,379,503	31,507,652	35,960,839	38,108,098	38,957,186	39,502,084	
Other Income		3,122,721	2,908,049	3,016,898	3,041,763	3,072,025	3,163,907	3,319,082	3,424,830	3,513,572	3,606,750	
		11,450,997	17,141,400	20,834,727	24,471,126	28,451,528	34,671,559	42,951,586	41,532,929	42,470,758	43,108,834	
Financial Charges		3,255,000	2,655,000	2,013,000	1,380,000	742,000	298,000	326,000	398,000	437,000	498,000	
Profit before Taxation		8,195,997	14,486,400	18,821,727	23,091,126	27,709,528	34,373,559	42,625,586	44,932,103	42,033,758	42,610,834	
Taxation @ 35%		2,868,599	5,070,240	6,587,605	8,081,894	9,698,335	12,030,746	14,918,955	15,726,236	14,711,815	14,913,792	
Profit after Taxation		5,327,398	9,416,160	12,234,123	15,009,232	18,011,193	22,342,813	27,706,631	29,205,867	27,321,943	27,697,042	

11.2 Projected Cash-flow Statement

	Rupees									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Profit before Financial Charges & Taxation	11,472,666	17,507,587	23,833,653	27,808,422	32,093,159	38,591,849	43,357,582	45,775,091	46,885,006	47,703,242
Depreciation	3,472,026	2,985,722	2,576,213	2,230,564	1,938,104	1,690,022	1,479,033	1,299,105	1,145,234	1,013,269
Amortization of pre-operating expe	-	1,800,000	1,800,000	1,800,000	1,800,000					
	14,944,691	22,293,309	28,209,866	31,838,985	35,831,263	40,281,871	44,836,615	47,074,196	48,030,240	48,716,511
Stock in Trade	(6,494,226)	(852,464)	(734,019)	(817,287)	(911,329)	(1,012,935)	(1,079,011)	(781,722)	(680,138)	(719,300)
Stores & Spares	(1,979,913)	(850,351)	(291,668)	(323,817)	(358,328)	(395,846)	(425,862)	(367,728)	(361,727)	(391,018)
Advances, Deposits & Other Receiv	(537,000)	(53,700)	(59,070)	(64,977)	(71,475)	(78,622)	(86,484)	(95,133)	(104,646)	(115,111)
Accounts Receivable	(8,726,659)	(1,313,404)	(1,076,372)	(1,186,528)	(1,318,434)	(1,461,255)	(1,548,779)	(1,079,313)	(896,227)	(930,810)
Accounts Payable	5,728,202	530,961	660,470	738,444	820,802	909,623	962,321	655,797	550,331	577,848
Provisions & Accrued Charges	4,990,501	499,050	548,955	603,851	664,236	730,659	803,725	884,098	972,507	1,069,758
	(7,019,095)	(2,039,909)	(951,704)	(1,050,314)	(1,174,527)	(1,308,376)	(1,374,090)	(784,002)	(519,900)	(508,633)
<u>Cash form other Sources</u>										
Owners	22,000,000	-	-	-	-	-	-	-	-	-
Bank Finance	22,000,000	-	-	-	-	-	-	-	-	-
	44,000,000	-	-	-	-	-	-	-	-	-
Total Sources	51,925,597	20,253,401	27,258,163	30,788,672	34,656,735	38,973,495	43,462,525	46,290,194	47,510,341	48,207,878
<u>Applications:</u>										
Fixed Assets	33,730,170	-	-	-	-	-	-	-	-	-
Long Term Security Deposits	400,000									
Pre-Operating expenses	7,200,000									
Re -Payment of Loan	4,400,000	4,400,000	4,400,000	4,400,000	4,400,000	-	-	-	-	-
Drawings	-	-	4,000,000	4,400,000	4,840,000	5,324,000	5,856,400	6,442,040	7,086,244	7,794,868
Financial Charges	3,255,000	2,655,000	2,013,000	1,380,000	742,000	298,000	326,000	398,000	437,000	498,000
Tax	2,876,183	5,198,406	7,637,229	9,249,948	10,972,906	13,402,847	15,061,054	15,881,982	16,256,802	16,521,835
	51,861,353	12,253,406	18,050,229	19,429,948	20,954,906	19,024,847	21,243,454	22,722,022	23,780,046	24,814,703
Cash Increase/(Decrease)	64,244	7,999,995	9,207,934	11,358,724	13,701,830	19,948,648	22,219,072	23,568,172	23,730,295	23,393,175
Opening Balance	-	64,244	8,064,238	17,272,173	28,630,897	42,332,727	62,281,374	84,500,446	108,068,618	131,798,913
Closing Balance	64,244	8,064,238	17,272,173	28,630,897	42,332,727	62,281,374	84,500,446	108,068,618	131,798,913	155,192,088

11.3 Projected Balance Sheet

												Rupees (ooo)
		Year - I	Year - II	Year - III	Year - IV	Year - V	Year - VI	Year - VII	Year - VIII	Year - IX	Year - X	
Tangible Fixed Assets		30,258,145	27,272,423	24,696,209	22,465,646	20,527,542	18,837,520	17,358,487	16,059,382	14,914,147	13,900,879	
Long Term Deposits - Electricity etc.		400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	
* Pre-Operating Expenses		7,200,000	5,400,000	3,600,000	1,800,000	-	-	-	-	-	-	
Current Assets:												
Stock in Trade		6,494,226	7,346,690	8,080,709	8,897,996	9,809,325	10,822,260	11,901,271	12,682,993	13,363,131	14,082,431	
Stores & Spares		1,979,913	2,830,264	3,121,931	3,445,748	3,804,076	4,199,922	4,625,784	4,993,512	5,355,239	5,746,257	
Advances, Deposits & Other Receivable		537,000	590,700	649,770	714,747	786,222	864,844	951,328	1,046,461	1,151,107	1,266,218	
Accounts Receivable		8,726,659	10,040,063	11,116,435	12,302,963	13,621,397	15,082,652	16,631,431	17,710,744	18,606,971	19,537,781	
Cash in Hand / Bank		64,243	8,064,238	17,272,173	28,630,897	42,332,727	62,281,375	84,500,446	108,068,619	131,798,913	155,192,088	
		55,660,185	61,944,378	68,937,228	78,657,997	91,281,288	112,488,572	136,368,747	160,961,711	185,589,508	210,125,653	
Owners Equity:												
Capital Introduced		22,000,000	27,341,483	36,995,664	47,179,089	59,957,563	75,495,816	95,062,818	117,176,946	140,230,016	163,334,975	
Profit for the Year		5,327,398	9,654,182	14,183,424	17,178,474	20,378,253	24,891,002	27,970,528	29,495,109	30,191,204	30,683,407	
		27,341,483	36,995,664	51,179,089	64,357,563	80,335,816	100,386,818	123,033,346	146,672,056	170,421,219	194,018,383	
Less : Drawings		-	-	4,000,000	4,400,000	4,840,000	5,324,000	5,856,400	6,442,040	7,086,244	7,794,868	
		27,341,483	36,995,664	47,179,089	59,957,563	75,495,816	95,062,818	117,176,946	140,230,016	163,334,975	186,223,514	
Long Term Loan		13,200,000	8,800,000	4,400,000	-	-	-	-	-	-	-	
Current Liabilities:												
Current Portion of Long Term Loan		4,400,000	4,400,000	4,400,000	4,400,000	-	-	-	-	-	-	
Accounts Payable		5,728,202	6,259,163	6,919,633	7,658,077	8,478,879	9,388,502	10,350,824	11,006,620	11,556,951	12,134,799	
Provisions & Accrued Charges		4,990,501	5,489,551	6,038,506	6,642,357	7,306,593	8,037,252	8,840,977	9,725,075	10,697,582	11,767,340	
		55,660,185	61,944,378	68,937,228	78,657,997	91,281,288	112,488,572	136,368,747	160,961,710	185,589,509	210,125,653	

