

## POTATO - II

### Setting up a Potato Chips Unit

The Potato Chips project can be set up in any big city of Pakistan. The unit will produce premium quality potato chips to be sold in the local market, competing with existing brands. The unit will use 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 but after that the investment in this sector has picked up at a moderate speed. However, even in this period the Pakistani snacks market was represented by different types of biscuits and corn based products. Potato chips have recently been introduced on the snack's list and taken up a major share. Over the past few years the demand for snacks in general and potato chips in particular is rising, caused a gap between demand and supply of branded chips. To fill the gap many units can be set up in different parts of the country to produce good quality snacks at optimum production level.

According to Smeda the total project cost of this unit is estimated at Rs63.537 million. The project could be financed through 50 percent debt and 50 percent equity. The project NPV is around Rs211.063 million, with an IRR of 45 percent and payback period is 4.18 years. The legal business status of this project is proposed as sole proprietorship.

### H I G H L I G H T S

- *The Potato Chips project can be set up in any big city of Pakistan.*
- *The demand for snacks in general and potato chips in particular is rising.*
- *To fill the demand and supply gap many units can be established to produce good quality and branded snacks.*
- *Chips market is growing and has a scope for new players to enter in the market.*
- *Big fluctuation in potato prices occur, because all the excess production can not be stored neither processed for consumption during the off season.*
- *Pakistani snacks market was previously represented by different types of biscuits and corn based products.*

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

Before taking decision to set up a Potato Chips manufacturing unit some points to be considered like:

### SWOT Analysis

Investor 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.

- Continuous availability of raw material, i.e. fresh

potatoes.

- Fully automated plant requires less labour.
- Availability of low cost labour.
- Tariff cuts under Trade Agreements are anticipated which may increase the export market of the Potato Chips.
- With the improvement in the living standards and changing life style of the people the demand for potato chips is expected to increase in future especially in urban areas.
- Product price should be affordable to all income groups.
- 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 should be minimized.
- About 40 percent of the potato chips market share comprises of unbranded chips to capture in this market heavy marketing campaign would be required.
- To attract youngsters towards products identified innovative measures would be required.
- A large number of people are not brand loyal can be targeted through marketing campaign and export opportunities should be exploited.

There would be tough competition with the existing multinationals' brands. There is big fluctuation in the price of potatoes due to lack of storage facilities as a result of which large production of potatoes is wasted. Thus at proper time potatoes should be purchased in bulk and stored properly.

Quality of the potato chips is to be monitored very carefully as people are becoming more health and safety conscious. There may be chances of price cut from the existing players of the potato chips manufacturers to keep the new product out of the market.

### Success Factors

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 to be considered is the marketing and promotion of potato chips in the local as well as foreign market. This requires heavy budget towards promotional activities.

The current Chips (Crisps) market is already led by Super Crisps, Lays and Golden Crisps. The remaining 40pc of the market share belongs to the unbranded potato chips. This market share can only be captured by an aggressive marketing campaign.

Utmost care should be taken while selecting potatoes. Only the best quality and carefully handled potatoes should be used.

Wastage should be kept at minimum level and production process need to be monitored very strictly.

Selected potatoes should be delicately sliced, quickly 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.

Annual estimate of the potato requirement should be made and contracted with the suppliers so as to secure from the drastic changes in the prices of potatoes.

Moreover, maintenance will play an important role as the general consumers are more health conscious than ever before.

Cost benefit analysis system should be established which would monitor the entire process and determine the reasons for major variances in the process such as material, labour and factory overhead variances.

## SETTING A UNIT

With the globalization, eating habits of Asian people are becoming westernized. In the recent years,

consumption of western foods is on the rise. Due to this the potential market size of potato products has also seen a fast growth rate.

Not very long ago, Pakistani snacks market was represented by biscuits, corn based and nonpotato snacks and the premium quality and internationally recognized potato chips were yet to appear on the Pakistani snacks scenario. There were a very few local potato chips manufacturers in the market with a single international player.

The potato chips market is still in growing stage and has a scope for new players to enter in the market. A new high quality brand can capture considerable market share in the present growing market, depending on marketing strategy and quality.

### Packing Size

The project, can be set up 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.

### Capacity

The capacity selection is a critical matter that should be decided after thorough market survey. The production capacity of this particular pre-investment feasibility is 150 kg per hour of potato chips, which is the minimum viable size for Chips Manufacturing Unit.

There is huge demand of potato chips or snacks food, inside 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 hour depending on marketing efforts. The production is based on two shifts basis.

### Location

The project can be set up in any industrial area of a big city like Lahore, Karachi or Islamabad, where raw material is easily available and infrastructure is

existed. However, this project is recommended to be located at Raiwind Road, Lahore.

### Investment

Total initial cost of the project is estimated as follows:

**Table - 1  
Project Cost**

	<b>Rupees</b>
Capital Investment	36,886,430
Working Capital	26,650,806
<b>Total Investment</b>	<b>63,537,236</b>

**Table - 2  
Financing**

	<b>Percentage</b>	<b>Rupees</b>
Debt	50	31,768,618
Equity	50	31,768,618
<b>Total Investment</b>	<b>100</b>	<b>63,537,236</b>

**Table - 3  
Returns Period**

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

### Market Information

Pakistan is one of the largest potato producing countries, yet it has very limited storage and processing facilities, due to which a substantial proportion of production is wasted every year. This resulted in big fluctuation in potato prices, because all the excess production can not be stored neither processed for consumption during the off season. The following analysis will illustrate the current state of the potato production in Pakistan.

### Potato Production

Potato is grown in Pakistan on about 145,000 hectares distributed over eight different agro-

ecological Zones. About 70 to 80 percent of the production is concentrated in the irrigated plains of the central Punjab and Southeast North West Frontier Province (KP). There are three seasons of potato cultivation, i.e. autumn, spring and summer.

About 20 percent quantity is wasted against post harvest loss primarily due to improper handling and lack of proper cold storage facilities.

**Table - 4**  
**Potato Production in Pakistan**

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

Potatoes are improperly stored at temperatures negative 3 to 4 Degree celsius mainly for seed storage purpose. These temperatures are maintained only to avoid sprouting since no humidity levels are administered, a vital factor for proper storage of potatoes for consumption and processing. About five percent of total potato production is being exported and 18 percent 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 - 5 & 7.

**Table - 5**  
**Crop seasons**

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

### Potato Wholesale Prices

In the absence of adequate storage facilities, at the time of harvest, there is a huge supply of potatoes, which lowered the prices to its extreme high or low. If storage facilities are available prices could be stable through consistent supply year around.

### World Potato Exports

Table-8 gives the quantity and value details of potato exports worldwide, including Pakistan, for the year 2007.

### Market Information about the Units Currently in Operation

It is only recently, with the advent of globalization and adoption of the western culture, 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 sector since it entered the market in 2007. By introducing innovative and trend setting 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 - 6**  
**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	Krincles
6	PepsiCo Inc	Lay's

### Market 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

**Table - 7**  
**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 +Firm	French Fries	Quite Resistible
Sante	Oval	Light Yellow	Very Meal +Firm	Crisps	Just Resistible

**Table - 8**  
**World Potato Export - 2007**

Rank		Quantity (ton)	Value (1000 \$)	Unit value (\$/ton)
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
<b>16</b>	<b>Pakistan</b>	<b>162,640</b>	<b>29,326</b>	<b>180</b>
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

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 playing an important role to stimulate demand for potato snacks. The only key factor currently impacting the Crisps and Savoury Snacks market is public inclination towards health and taste issues.

### Snacks Industry in Pakistan

The snacks industry in Pakistan is growing at the rate of 20 to 30 percent per annum. Children and teenagers could be the target market of this product. In the given changing eating habits of the target market, inclination is more towards having snacks. Potato and corn snacks are labeled as a meal replacement and being a light fast food are becoming popular.

The encouraging factor for the investor is that

the life style is changing rapidly in urban centers, because the demand would surely grow in future. Foreign media is also influencing and boosting the demand for snacks.

**Export Market**

The potential export market for the snacks also exists in the Middle East, Gulf countries and Central Asian States which has not yet been explored. The export prospects for the next decade are very bright and expected continued expansion in the fast food industry abroad. Further, there are tariff cuts under Trade Agreements are anticipated.

**Demand and Supply**

According to the survey findings carried out by SMEDA, the market segment with respect to age is given in table-9. It can be seen that 65 percent users are in the age group of 5 to 20 years because they are influenced with the media advertisement. They can be made brand conscious.

**Table - 9  
Market Segmentation**

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

According to the survey, the demand in Pakistan is met by the mix of branded and unbranded chips available in the market. About 60pc of the consumers are brand conscious and the remaining 40pc are the unbranded users of chips, that can be attracted through heavy advertisement campaign.

**Table - 10  
Segmentation - Snacks Industry**

Segments	% Share
Branded	60
Unbranded	40
<b>Total</b>	<b>100</b>

**Target Customers**

Children, teenagers and youngsters 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%) eats such snacks at school.

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

About 44 percent of the consumers prefer to buy children’s snacks in multi packs while nearly half of all consumers are price motivated in their snack purchasing.

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 attract a market share provided the product has: Good quality, Unique Packaging and Customers’ preferred taste.

Moreover, the company should have a wide distribution network, has industry knowledge, strong financial position and market feedback system.

The share of current market competitors is given in table-11.

**Table - 11  
Major Competitors**

Market Competitors	Share (%)
Lay’s	57.59
Super Crisps	19.80
Golden	9.95
Smith / Kolson / Krincles	14.65
<b>Total</b>	<b>100</b>

**Production Process**

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, see table-13 and Figure-1 for Production Process Flow.

### Product Mix

The project will produce branded potato chips in different packet sizes. 50 percent of the production will be flavoured with salt, the remaining 50 percent will have other flavours. The product mix according to packet size is given in table-12.

**Table -12**  
**Product Mix**

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

### Misc Fixed Assets

Following additional fixed assets would be required for the factory and administrative management offices, table-14.

### Vehicles

The project will need the vehicles one pool car, costing around Rs750,000 and depreciation on the vehicle will be calculated at the rate of 20 percent per annum on written down value basis.

### Machinery

Table-13 shows the machinery and equipment required for setting up a potato chips manufacturing

unit mainly imported from China.

**Table - 13**  
**Machinery**

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
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
<b>Total</b>			<b>9,449,705</b>

### 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
<b>Total</b>	<b>18,753,930</b>

### Raw Material

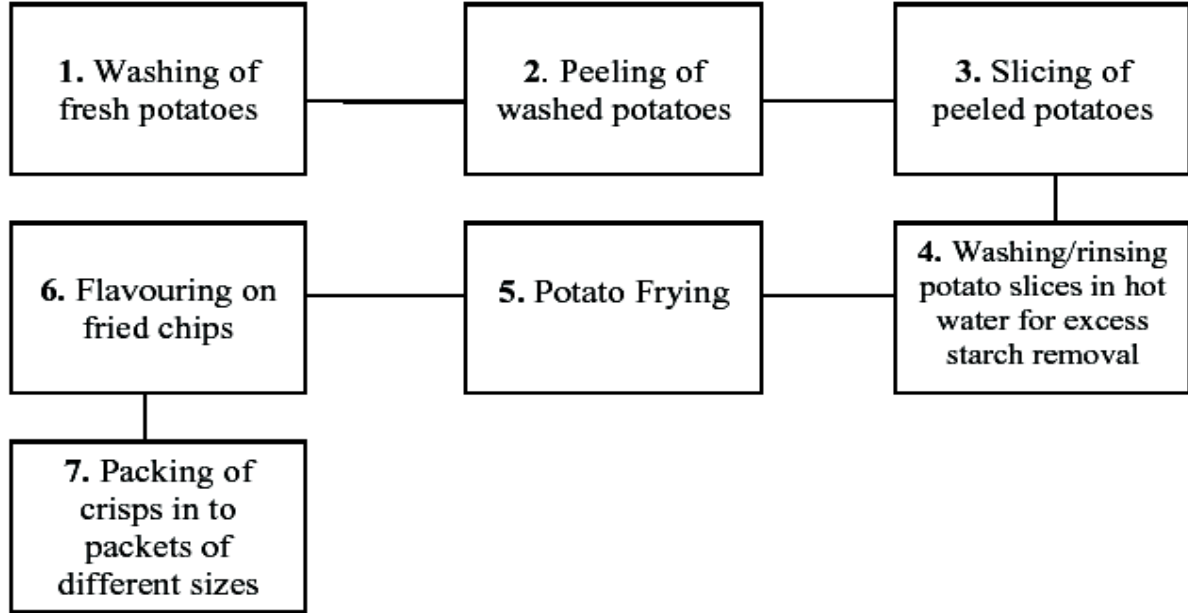
Pakistan is a major potato growing country and has an advantage of availability at lower prices. Potatoes produced are appropriate and ideal to produce quality potato chips. Potatoes will be procured twice a year directly from farms and transported to the rented cold storage for the future use. Raw material used in potato chips includes potatoes, cooking oil, flavours and packaging material.

### Land

Total land required for the project is about 20,600 Sq. ft or 5 kanals. Land price per kanal is calculated at Rs1.0 million (Raiwind Road, Lahore).

The total cost of purchasing the land is estimated at Rs5.0 million it may be different from location to location and city to city.

**Figure - 1**  
**Production Process Flow**



**Table - 14**  
**Office Equipment and Furniture**

<b>Items</b>	<b>No.</b>	<b>Cost per Item (Rs)</b>	<b>Total Cost (Rs)</b>
<b>Office Equipments</b>			
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
			<b>650,500</b>
<b>Fittings &amp; Installations</b>			
Air Conditioners	6	40,000	240,000
Generator (120KVA)	1	500,000	500,000
			<b>740,000</b>
<b>Furniture &amp; Fixtures</b>			
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
			<b>526,000</b>
<b>Total</b>			<b>1,916,500</b>

### Building

The break up of the required area and construction cost of the building is given in table-15.

### Utilities

Utilities required for plant are electricity, gas, water and telephone.

### Human Resources

Table-17 shows the human resource requirements of the Potato Chips unit. salaries and wages, are assumed to increase at the rate of 10pc per annum.

### Legal Status

The 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 and Exchange Commission of Pakistan. The selection depends upon the choice of the investor. However, this project is based on the sole proprietorship.

### Financial Analysis

**Table - 16**  
**Project Detail**

<b>Initial Investment</b>		
<b>Capital Investment</b>		<b>(Rs)</b>
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 cost		1,866,000
Legal/Licensing costs		50,000
<b>Total Capital Costs</b>		<b>36,886,430</b>
<b>Working Capital</b>		<b>(Rs) in actuals</b>
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
<b>Total Working Capital</b>		<b>26,650,807</b>
<b>Total Investment</b>		<b>63,537,236</b>
<b>Initial Financing</b>		<b>(Rs) in actuals</b>
Debt	50%	31,768,618
Equity	50%	31,768,618

#### Returns on Investment

	<b>Equity</b>	<b>Project</b>
Net Present Value	175,711,106	211,063,976
Internal Rate of Return	65%	45%
Payback Period (Yrs)	3.55	4.18

**Table - 15**  
**Building and Civil works**

<b>Building &amp; Civil works</b>	<b>Space Reqd.</b>	<b>Cost/Sq. Ft.</b>	<b>Total Cost</b>
	<b>(Sq. ft)</b>	<b>(Rs.)</b>	<b>(Rs.)</b>
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
<b>Total Space Requirement (sq ft)</b>	<b>20,600</b>		<b>7,635,000</b>
Boundary wall	6,000	150	900,000
<b>Total Infrastructure Cost</b>			<b>8,535,000</b>

**Table - 17**  
**Human Resource**

<b>Employees</b>	<b>Number</b>	<b>Salary/Month</b>	<b>Salary/Annual</b>
Chief Executive Officer	1	75,000	900,000
<b>Administrative Staff</b>			
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
<b>Marketing Staff</b>			
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
<b>Production Staff</b>			
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
<b>Total</b>	<b>65</b>		<b>11,316,000</b>

**Major Machinery Suppliers**

<b>No.</b>	<b>Suppliers</b>	<b>Web Address</b>
1	Alisha Machines (Private) Limited	<a href="http://www.alishamachines.com">www.alishamachines.com</a>
2	Campbell Wrapper Machinery	<a href="http://www.campbellwrapper.com">www.campbellwrapper.com</a>
3	Xuzhi Equipment Co. Limited	<a href="http://www.lucy.168.com">www.lucy.168.com</a>
4	Seoju Engineering Co. Ltd.	<a href="http://www.ec21.net/foodmachinery.com">www.ec21.net/foodmachinery.com</a>
5	Mundra Engineering works	<a href="http://www.mundraengineering.com">www.mundraengineering.com</a>

**Major Cold Storage Facility in Lahore and surrounding areas**

<b>No.</b>	<b>Cold Storage Facilities</b>	<b>Contact Number</b>
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

**Table - 18**  
**Key Assumption**

<b>Machinery</b>		Chura chips per kg 140	
Capacity of processing plant (Kg/Hour)	150	Potato Chips sales price growth rate	10%
Potato chips production (% of potatoes)	25%	Chura chips sales price growth rate	10%
Burnt and under-fried chips (% of potatoes)	55%	<b>Raw Material</b>	
Chura Chips (% of potatoes)	20%	<b>Raw Material Mix</b>	
First Year Production ( Increasing @ 7.5% each successive Year)	50%	Potatoes in kg per kg potato chips	4
Machine maintenance expense (% of machine cost)	2%	Frying oil in litres per kg potato chips	0.3
Machine maintenance growth rate	5%	Flavours in kg per kg potato chips	0.06
Equipment spare part inventory (% machinery cost)	1%	<b>Raw material cost (Rs)</b>	
<b>Operating</b>		Potatoes per kg	17
Seasonal production at 100% capacity (Kg)	2,400	Frying Oil per litre	108
Daily production in Year 1, excluding burnt and chura chips (Kg)	1,200	Flavours per kg – Salt	14
First year capacity utilization	50%	Other flavours per kg	248
Capacity growth rate	10%	Cost storage rent per kg potatoes	7.8
Tenth year capacity utilization	95%	Transportation cost per kg potatoes	0.75
Shifts operational per day	2	<b>Packing Material cost per packet (Rs)</b>	
Hours per shift	8	20 gm packet	0.73
Days operational per month	25	50 gm packet	1.00
Day operational per year	300	120 gm packet	1.40
<b>Economy Related</b>		Carton cost per unit	18.70
Electricity growth rate	10%	Gum tape cost per roll	45
Diesel expense growth rate	5%	<b>Financial Details</b>	
Wage growth rate	10%	Project life (Years)	10
Office equipment price growth rate	10%	Debt	50%
Office vehicles price growth rate	10%	Equity	50%
Raw material price growth rate	5%	Interest rate on long-term debt	16%
Transportation/Travelling expense growth rate	10%	Interest rate on short term debt	14%
Cold storage rent growth rate	10%	Interest on cash in bank	10%
Sales price growth rate	10%	Debt tenure (Years)	5
Insurance rate	5%	Debt payments per year	1
<b>Cash Flow</b>		Discount rate (weighted avg. cost of capital for NPV)	20%
Accounts receivable cycle (in days)	30	Minimum Cash Balance	1,000,000
Accounts payable cycle (in days)	30	<b>Expense</b>	
Raw material inventory – Potatoes (in days)	150	Administration benefits (% of Admin expense)	5%
Other raw material inventory (in days)	30	Travelling expense (% of Admin expense)	10%
Raw material closing stock inventory (in days)	15	Communication expense (% of Admin expense)	10%
Finished goods inventory (in days)	15	Freight charges (% of Raw material costs)	1%
<b>Revenue</b>		Office expense (% of Admin expense)	10%
<b>Distribution Price to retailer per packet (Rs)</b>		Promotional expense (% of revenue)	3%
20 gm packet	6	Insurance expense (% of cost of machinery/vehicle)	5%
50 gm packet	15	Professional fee (% of revenue)	0.5%
120 gm packet	38	<b>Depreciation expense</b>	
		Building	5%
		Machinery and Equipment	10%
		Furniture and Fixture	10%
		Vehicles	20%
		IT Equipment	33%
		Bad debt expense (% of revenue)	2.5%

**Table - 19**  
**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 &amp; 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	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
<b>Earnings Before Interest &amp; Taxes</b>	<b>8,909,434</b>	<b>28,782,350</b>	<b>50,207,666</b>	<b>78,534,663</b>	<b>117,332,209</b>	<b>159,188,795</b>	<b>198,411,321</b>	<b>244,063,044</b>	<b>297,886,030</b>	<b>363,620,292</b>
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
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>2,293,494</b>	<b>17,492,311</b>	<b>35,336,009</b>	<b>57,764,027</b>	<b>87,372,066</b>	<b>119,355,964</b>	<b>148,783,022</b>	<b>183,033,605</b>	<b>223,414,523</b>	<b>272,715,219</b>

**Table - 20**  
**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	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)	(468,848)	(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

**Table - 21**  
**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
<b>Assets</b>											
<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	16,878,557	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	-	-	-	-	-	-
<b>TOTAL ASSETS</b>	<b>63,537,236</b>	<b>86,144,846</b>	<b>94,021,307</b>	<b>115,143,144</b>	<b>171,737,201</b>	<b>257,355,593</b>	<b>378,304,906</b>	<b>527,651,399</b>	<b>711,289,283</b>	<b>935,481,417</b>	<b>1,205,248,413</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<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
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>63,537,236</b>	<b>86,144,846</b>	<b>94,021,307</b>	<b>115,143,144</b>	<b>171,737,201</b>	<b>257,355,593</b>	<b>378,304,906</b>	<b>527,651,399</b>	<b>711,289,283</b>	<b>935,481,417</b>	<b>1,205,248,413</b>

**Table - 22**  
**Year-wise Production**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>FINISHED POTATO CHIPS - PRODUCTION QUANTITATIVE &amp; MIX</b>										
<b>POTATO CHIPS PLANT INSTALLED CAPACITY- AT 100% UTILIZATION</b>										
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
<b>POTATO CHIPS PLANT INSTALLED CAPACITY- AT ACTUAL UTILIZATION</b>										
Expected Annual Growth Rate	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Capacity Utilization Rate	50.00%	60.00%	70.00%	80.00%	90.00%	95.00%	95.00%	95.00%	95.00%	95.00%
Utilized Production Line Capacity in Kgs per Plant Hour	75	90	105	120	135	143	143	143	143	143
Expected per day Production in Kgs	1,200	1,440	1,680	1,920	2,160	2,280	2,280	2,280	2,280	2,280
<b>PRODUCTION YIELD IN %-AGE</b>										
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%	25%
Waste Production										
Burnt Chips & Under-fried	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Chura Chips	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
<b>DAILY PRODUCTION YIELD IN KGS</b>										
Finished Production	1,200	1,440	1,680	1,920	2,160	2,280	2,280	2,280	2,280	2,280
Potato Chips										
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	5,016
Chura Chips	960	1,152	1,344	1,536	1,728	1,824	1,824	1,824	1,824	1,824
<b>ANNUAL POTATO CHIPS PLANT PRODUCTION CAPACITY - AT ACTUAL UTILIZATION BASED ON 300 WORKING DAYS</b>										
Finished Production in kgs	360,000	432,000	504,000	576,000	648,000	684,000	684,000	684,000	684,000	684,000
Potato Chips										
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	1,504,800
Chura Chips	288,000	345,600	403,200	460,800	518,400	547,200	547,200	547,200	547,200	547,200
<b>POTATO CHIPS PRODUCTION WEIGHT &amp; MIX</b>										
20 grams	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%
50 grams	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
120 grams	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%

*Note:* For more details please contact SMEDA