

Pre-Feasibility Study

Pickle Production, Processing, Packaging & Marketing

(SMEDA DOCUMENT)



**Small and Medium Enterprise Development Authority
Government of Pakistan**

March 2018

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1. PROJECT PROFILE

1.1 Opportunity Rationale

Pickles are considered the permanent part of the food table all over the Sub-Continent and its demand is rising after its production on commercial scale. Sub-continental spices, preserved foods and traditional methods of cooking and food making have always been attractive to the world particularly the western countries.

Traditionally in Pakistan and India homemade pickles have been used; however, rise in consumerism and urbanization has affected traditional food and cooking habits where people tend to use food products instantly available in the market. This trend is growing which has resulted in increase in the growth rate of whole sale and retail sector i.e. the growth rate of wholesale and retail trade is 6.82% and its share in GDP is 18.50% for the provisional year 2016-17 as reported by the economic survey of Pakistan. Growth in population (1.86% as per Economic Survey of Pakistan) is another proponent leveraging the potential in this sector for the investment, further aided by the growth in exports by 151% during 2016-17. A huge local market of more than 199 million consumers carries enormous potential for the investment in this business.

In comparison with other businesses, pickles have always been in consistent demand due to typical subcontinent spicy add-on food supplement, making meal incomplete without having some spicy taste. This signals substantial potential of this business and market growth largely depends on:

- Population growth and demographics
- Ratio of younger people in the population (according to 2017 census 21.2% belongs to age group of between 5 to 14 and 61.4% belongs to the age group of 15-59.)
- Increase in urban life phenomenon; and
- Switching from popular homemade pickles to ready to use foods.

Growth in above is the key determinant factor for investing in pickle business.

1.2 Project Brief

The proposed project envisages the setup of Pickle production, processing and marketing business. Pickle is a general term used for fruits or vegetables preserved in vinegar or brine, usually with spices or sugar or both. Pickle producing businesses are engaged in producing pickle in different varieties. Natural fruit and vegetable items are used as raw material for producing various types of pickle i.e. mango, beet, cabbage, cauliflower, cucumber, olive, onion, pepper, and tomato.

Besides its industrial scale production, pickle is also produced at home due to its easy and convenient production process. However, in the proposed business setup, pickle will

be produced in large pots which will then be filled in bottles and after packaging will be sent for sale in the local and remote markets of Pakistan. Dedicated distributors will distribute this product and packing machinery will be used for the packaging purpose. The producer may also explore export opportunities once the business gets stable.

1.3 Market Entry Timing

Pickle is eaten with all types of foods in Pakistan. It is preferred to have pickle while food with less chili is being served on the table. Besides, there are some food recipes in which pickle is compulsory i.e. Achar gosht. Therefore, demand of pickle is almost consistent throughout the year and there is, as such, no specific time for the market entry; however, availability of raw material, particularly mango is seasonal and production of pickle would be better started during summer when mango is easily and economically available.

1.4 Proposed Business Legal Status

The legal status of business tends to play an important role in any setup; the proposed Pickle Production, Processing and Packaging Unit is assumed to operate on Sole Proprietorship basis.

1.5 Proposed Capacity and Rationale

The project capacity for a Pickle Business setup is dependent on the demand for spices within the region. The business volume varies from area to area and is very much location specific. The two broad categories of business volume that could be generated according to the income level of the locality are as follows:

In Bottled & Plastic Bags Packaging

1. Low Income Areas – 15 to 20% of sale
2. Medium & High Income Areas – 80 to 85% of sale

In Bulk Packaging (5kg, 10kg or greater quantity Tumblers)

1. Low Income Areas – 70 to 80% of sale
2. Medium Income Areas – 20 to 30% of sale

Considering the above factors and the current consumption levels which is around 5000 tons¹ annually (including exports), it has been assumed that the proposed Pickle production, processing and packaging unit would produce around **70,000 Kilograms per**

¹ Source: Internal working based on the data collected from various sources i.e. fruits jams and pickle manufacturers and fruit and vegetable suppliers to the pickle manufacturers

annum at initial stage, utilizing 70% of capacity and which will be raised with 5% every year.

1.6 Project Cost

Pickle processing and packaging does not need any heavy machinery and equipment. During the discussion with existing pickle producers, Pickle production is time consuming because its process requires sun-light and machinery is used for packaging of Pickle. Total project cost of the Pickle processing and packaging machinery costs around Rs. 3.15 million.

1.7 Recommended Project Parameters

Capacity	Human Resource	Technology/Machinery	Location
100,000 kg / year, 70% utilized initially	8	Local Machinery	Karachi

Financial Summary

Project Cost	IRR	NPV (Rs)	Payback Period
Rs. 3.15 million	42%	4,867,530	3 Years 5 Months

1.8 Proposed Location

Currently pickle is largely produced at homes as production and packaging procedure is economical and simple. Therefore, for the proposed project location would not be critical in terms of availability of labor, utilities or other production requirements. It has been proposed to establish the unit at a place from where target market is close so that the business could save distribution cost.

Proposed Product Mix

The primary sources of revenue generation for the proposed business are factory for processing & packing, marketing and sales/distribution. As production process is simple for making pickle, separate pickles of different vegetables and fruits are generally made which are manually mixed as per the demand of the market. Besides the main ingredients which are often mango, chili, lime, garlic, carrot etc. other spices are the largely similar in all kinds of pickles. The sale price of different types of pickles are also more or less the same as vegetables are pickled during the season when they are available in large quantities and in economical prices.

For the purpose of this study, following four types of pickles are proposed. General ingredients will remain the same; however, their ratio for any specific product will largely depend on the prospective entrepreneur, as every formula used by the existing

players has its own unique taste and the prospective owner would need to develop his own recipe.

Mango Pickle	25%
Chili Pickle	25%
Garlic Pickle	25%
Cucumber Pickle	25%

1.9 Key Success Factor

Main key factory in Pickle production include purchase of raw material at a time when it is available in economical price. Therefore, seasons when vegetables and fruits i.e. mango, carrot, Garlic and Cucumber etc. are easily available at low price would be critical. Besides that, for the product penetration purpose, it would be necessary to select potential consumer market which is generally considered lower or middle class areas with dense population. Following factors should be considered before entering into the pickle business.

1.9.1 Existing Competition

Although a pre-requisite for deciding on the product type, it is necessary to carefully evaluate the existing competition present in the locality and the product mix being offered by them. Factors to consider are:

- Number of existing competitors;
 - Type of products and schemes being offered by them; and
 - Customer perception about the competitors' quality.
- Usually customer volumes are divided where two or more companies are offering same products; therefore there is a need to ensure competitive prices and promotion schemes aligned with customer interest and demand. Too many businesses give fierce competition forcing the profit margins to go down thereby creating sustainability issues.
 - The promotion schemes being offered by the competition in a particular locality need to be carefully evaluated to identify weaknesses and opportunity areas. This is predominantly affected by the level of technology employed by the competition which again is a reflection of the associated customer profiles.
 - Quality issues regarding established business are another opportunity wherein the customers might want to switch to a better quality and even at times willing to pay a higher price if their expectations are adequately met.

1.9.2 Promotional Activities

Promotional activities have a significant influence on revenue generation. Pickle production, packing & marketing business is unique in the sense that this is a common item of our daily life. However, it is very important to focus on promotional activities to ensure a constant stream of business. Mostly the pickle business operators promote their products by announcing different schemes like “buy 2 get 1 free” or giving cutlery items on purchase of the product, etc. Besides, jars used for the packing purposes are also made attractive and re-usable for another purpose after the pickle has been used.

2. SECTOR & INDUSTRY ANALYSIS

2.1 Sector Characteristics and Overview

Pickling of plants is a relatively old method of food preservation. It is estimated that the first pickles were produced over 4,000 years ago using cucumbers. The ancient Egyptians and Greeks both have written about the use of pickles for their nutritive value and healing power. Pickles were a common food during the time of the Roman Empire and they soon spread throughout Europe. In America, pickles have always been popular. The first travelers to America kept pickles in large supply because they were nutritious and did not spoil during the long journeys.

Though there are different Pickling recipes used in the world, they could broadly be grouped into two. In most of the European countries and USA, vinegar is used as bulk making and preserving agent, whereas, in the subcontinent including Pakistan, Brine (or sun-melt salt water) is used. Besides that, spices particularly red chili is also added in sub-continental pickle while it is missing in the Western pickle recipes.

Although pickle has a good business potential in itself as a product, not many large scale manufacturers from the formal sector have taken up this business. Ahmed Foods, Shan Foods and National are considered to be the leader in pickles, sauces, squashes & jams manufacturing. Other than these bigger brands, there are some other brands in 2nd tier market like are famous ‘Shikarpuri Achar’, ‘Daccan Achar’ and ‘Hyderabadi Achar’ etc.

The sector can be divided into formal and informal segments as due to convenient manufacturing process, home based small scale setups in thousands have ventured into this as source of additional income. The small scale pickle manufacturers are also selling their product in low quality plastic bottles with different brand names. However, against hundreds of pickle producers from the informal sector, number of large scale pickle producers is limited who are working on the national level. Market share of the rural based units is gradually decreasing, as a number of modern industrial units with larger production capacity have entered the market, with quality branded products.

The Pickles industry is mostly un-documented, which makes it difficult to determine the exact market share. However on a macro scale, there are a number of major players like National Foods, Shan Foods, Young's Food, Ahmed Foods and Mitchell's which hold major part of the market (about 25%-30%), however, major share (about 70%-75%) still lies with unbranded market. There are also small players in this business; however, their operations are restricted to very selective local market of rural and urban areas.

Apart from the major brands, there are a large number of self-owned (home based) independent pickle business set ups. These are largely undocumented and unorganized hence making it difficult to estimate the approximate market size.

The following table gives an idea of the pickle market shares as discussed with industry experts:

Brand	Market Share %
Branded and Packaged	25% - 30 %
Loose	70% - 75%

2.2 Sector Characteristics

The demand for branded pickles business has experienced a gradual change over the past years. As mentioned earlier, the advent of technology has opened a new option of export for many units. However this does not imply that the demand for pickles has been affected by technology because considering the associated costs and the subsequent pricing, the affordability for pickles by a large population of Pakistan becomes questionable.

Branded pickles are facing competition from homemade loose pickles which are available with different names and recognitions i.e. Hyderabad Achar, Shikarpuri Achar etc. Branded pickles are at least 30 percent more expensive than un-branded, because of the imposition of 17% General Sales Tax, marketing expenses and other related overheads.

2.3 Retailer and Distributor Role

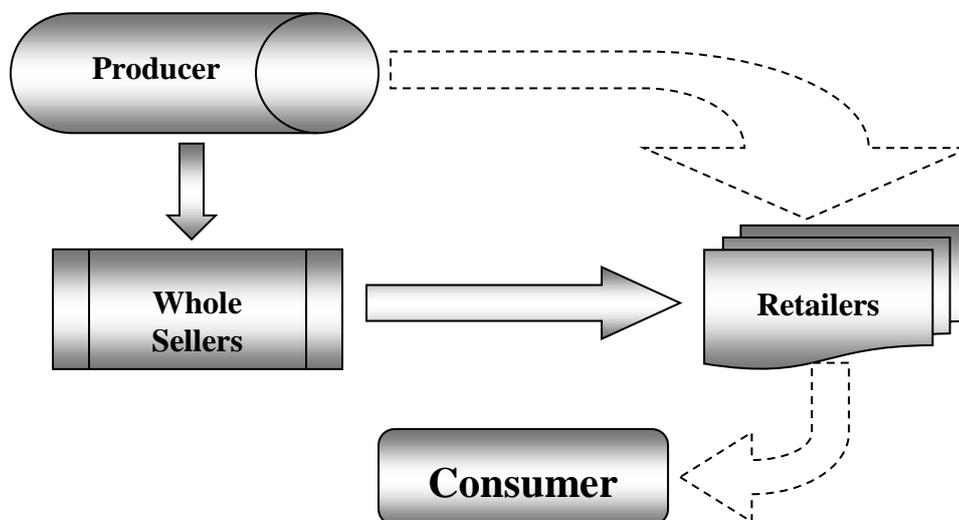
Distributor and retailers are of primary importance in marketing Pickle products, especially for easy availability of alternate brands. That is the reason that, unlike other consumer goods, distribution and retailer margins are relatively high on Pickle Products like other FMCG products. For distributor and retailer, around 10%-15% profit margins are normally given by the manufacturer depending upon the brand penetration, especially by those with small to medium sized operations.

The distribution network desirable for marketing and distribution of Pickle products will be one which provides complete solution from pickup of product from the manufacturer’s premises, distribution and ensuring space availability for the product on retail outlets. This kind of distribution solutions can be availed at 30 to 35% of the gross sales.

This type of distribution network is proposed for the reason that being a new business setup, it would be difficult for the manufacturer (owner) to handle logistics involved in managing distribution; therefore commissioning such kind of solution will make it possible for the manufacturer to concentrate on product development and broaden market niche. Once the product becomes successful, the distribution cost may gradually be reduced.

Distribution of pickle is carried out following the same model prevalent in the market for the other consumer goods, particularly the food products. Following channels of distribution are common in the market.

Channel of Distribution



2.4 Pickle Quality Issues and Prevention

PROBLEM	CAUSE	PREVENTION
Soft or slippery pickles (if spoilage is evident, do not eat)	A brine is too weak	Maintain salt concentration specified in recipe.
	Vinegar is too weak.	Use vinegar of 5 percent acidity.

PROBLEM	CAUSE	PREVENTION
	Cucumbers stored at too high a temperature during curing/brining.	Store cucumbers between 70 and 75 °F. This is the optimum temperature for growth of the organisms necessary for fermentation.
	Insufficient amount of brine.	Keep cucumbers immersed in the brine.
	Pickles not processed properly (to destroy microorganisms).	Process in a boiling-water canner for the specified time indicated for the product. As in all canning, a seal is necessary on the jar to prevent other microorganisms from entering.
	Moldy garlic or spices.	Always use fresh spices.
	Blossom ends not removed.	Always remove blossom ends.
Strong, bitter taste	Spices cooked too long in vinegar, or too many spices used.	Follow directions for amount of spices to use and the boiling time.
	Vinegar too strong.	Use vinegar of the proper strength (5-percent acidity).
	Dry weather.	No prevention. Bitter taste is usually in the peeling.
	Using salt substitutes.	Potassium chloride ingredient in these is naturally bitter.
Hollow pickles	Fruit / Vegetable is too large for brining.	Use smaller cucumbers for brining.
	Improper curing.	Keep brine proper strength and the product well-covered. Cure until fermentation is complete.
	Long lapse of time between gathering and brining.	Pickling process should be started within 24 hours after gathering.
	Faulty growth of fruit/vegetable.	None. During washing, hollow cucumbers usually float. Remove and use for relish.
Shriveled pickles	Placing fruit/vegetable in too-strong brine, too heavy syrup or too strong vinegar.	Follow a reliable recipe. Use amounts of salt and sugar called for in recipe, and vinegar that is 5-percent acidity.
	Long lapse of time between gathering and brining.	Brine within 24 hours after gathering.
	Over-cooking or over-processing.	Follow a reliable recipe exactly.

PROBLEM	CAUSE	PREVENTION
	Dry weather.	No prevention.
Scum on brine surfaces while curing cucumbers	Wild yeasts, molds and bacteria that feed on the acid, thus reducing the concentration if allowed to accumulate.	Remove scum as often as needed.
Dark or discolored pickles (if brass, copper or zinc utensils were used do not use the pickles)	Minerals in hard water.	Use soft water.
	Ground spices used.	Use whole spices.
	Spices left in pickles.	Place spices loosely in cheesecloth bag so they can be removed before canning.
	Brass, iron, copper or zinc utensils used.	Use un-chipped enamelware, glass, stainless steel or stoneware utensils.
	Iodized salt used.	Use canning or pickling salt.
Spotted, dull or faded color.	Cucumbers not well cured (brined).	Use brine of proper concentration. Complete fermentation process.
	Excessive exposure to light.	Store in a dark, dry, cool place.
	Fruit/vegetable of poor quality.	Work with good-quality produce.
White sediment in crock or jar.	Bacteria cause this during fermentation.	None.
	Salt contains an anti-caking agent.	Use canning or pickling salt.

3. MARKET INFORMATION

3.1 Market Potential

On average total demand of the pickle products in Karachi only is around 1,000 tons per month² whereas, around 10 to 15% of the total production is exported, which indicates positive trend of this industry. In 2016, around 1,197 Tons³ pickle was exported. Main export markets include USA, Canada, Kuwait, Afghanistan, Bangladesh and Middle East Countries.

² Market Experts

³ ITC Calculations based on UN COMTRADE

3.1.2 Product Characteristics

Pickle products are available in the market with different composition and in different sizes. Following table presents different types of pickle introduced by two market leaders of the sector.

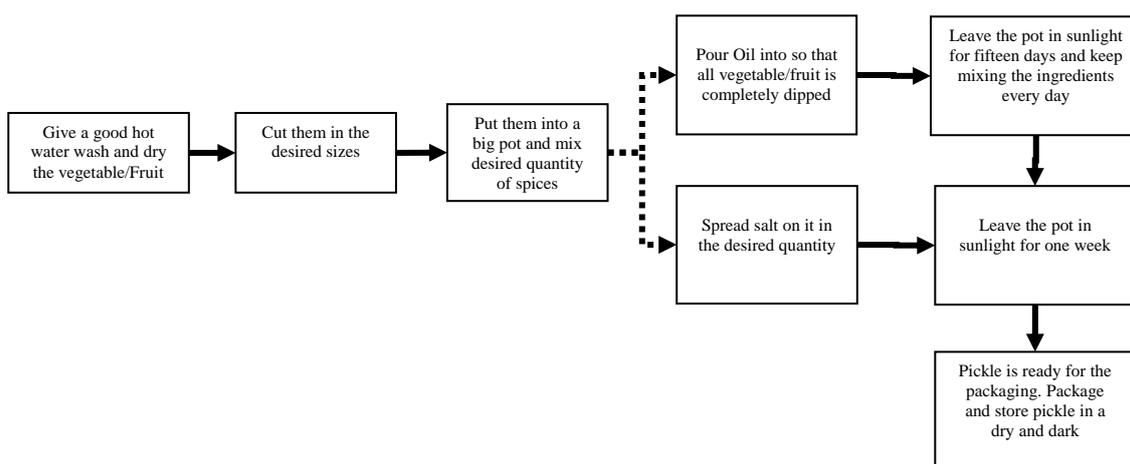
Mitchell's	Ahmed Foods
➤ Mixed Hyderabadi Pickle	➤ Mango Pickle in oil
➤ Carrot Pickle	➤ Mixed Pickle in oil
➤ Lime Pickle	➤ Garlic Pickle in oil
➤ Garlic Pickle	➤ Lime Pickle in oil
➤ Green Chilli Pickle	➤ Kasondi Pealed Mango Pickle in oil
➤ Mango Hyderabadi Pickle	➤ Chilli Pickle in oil
➤ Mango Pickle	➤ Lime Chilli Hydrabadi
	➤ Lime Hydrabadi
	➤ Mango Hydrabadi
	➤ Mixed Hydrabadi
	➤ Lasoor (Methia Gunda)
	➤ Karela (Bitter Gourd)
	➤ Chilli Pickle in Vinegar
	➤ Mango Masala

4. PRODUCTION PROCESS

4.1 PROCESS FLOW

There are two basic methods for pickle processing used in Pakistan where local taste is concerned. One is water based process and the other is oil based processing. Pickles available in the Pakistani market are generally based on the water process, whereas, homemade pickles are made using oil. Generic production process is carried out following the method given under.

Generic Production Process



Processing days also vary and depend on the recipe used by the manufacturer. In fact, there are hundreds of processes that can be laid down for producing mango pickle, rendering uniqueness of a particular brand in the market. Therefore, processes for the most common pickles produced in Pakistan have been provided in the following paragraphs.

4.2 TEMPERATURES FOR FOOD PRESERVATION

Temperature(s)	Effect
240 to 250°F	Canning temperatures for low acid vegetables, meat, and poultry in a pressure canner.

Temperature(s)	Effect
212°F	Temperature water boils at sea level. Canning temperature for acid fruits, tomatoes, pickles, and jellied products in a boiling-water canner.
180 to 250°F	Canning temperatures are used to destroy most bacteria, yeasts, and molds in acid foods. Time required to kill these decreases as temperatures increase.
140 to 165°F	Warming, temperatures prevent growth, but may allow survival of some microorganisms.
40 to 140°F	DANGER ZONE. Temperatures between 40°F - 140°F allow rapid growth of bacteria, yeast, and molds.
95°F	Maximum storage temperature for canned foods.
50 to 70°F	Best storage temperatures for canned and dried foods.
32°F	Temperature water freezes.
32 to 40°F	Cold temperatures permit slow growth of some bacteria, yeasts, and molds.
0 to 32°F	Freezing temperatures stop growth of microorganisms, but may allow some to survive.
0 to -10°F	Best storage temperatures for frozen foods.

Garlic Pickle (Lehsan Ka Achar)

For 50 KG Batch - Garlic Pickle		
Item	Quantity	Approximately
Garlic	40.00	Kg
Salt	0.75	Kg
Methi Seeds	1.25	Kg
Kalongi	1.25	Kg
Turmeric Powder	0.50	Kg
Rie	1.50	Kg
Vinegar *	9.00	Liter

Heat oil in a large frying pan on medium heat and fry garlic until light brown, about 5 - 8 minutes, Keep aside to cool at room temperature. Dry roast the Kalongi, rie and methi seeds and coarsely grind them. In a large bowl, combine garlic with oil (or vinegar), salt, turmeric powder, Methi and Kalongi. Add lemon juice (optional) and stir with a wooden spoon to mix the ingredients. Store it in an airtight glass or plastic container. Stay fresh up to one month.

Mango Pickle

For 50 KG Batch - Mango Pickle		
Item	Quantity	Approximately
		Approximately
Mango	35.00	Kg
Salt	0.50	Kg
Saunf	1.00	Kg
Methi Seeds	1.00	Kg
Rie	1.00	Kg
Oil *	10.00	Liter

Apply salt to the peeled mangoes and leave them overnight. Next the mangoes would have left some water. Remove mangoes in a plate and do not discard the juices of the mangoes. Slit the mangoes and remove the stone from them. Dry the mangoes in the sun for the whole day. Mix the dry masala spices (i.e. saunf, methi seeds and rie) and when the mangoes dry nicely, fill the mangoes with this spices mix and put them into a sterilized jar. Pour the reserved juices of mangoes over the mangoes in a jar. Keep the jar in sunlight for 10-15 days and after every 2-3 days toss the pickle up side down.

Lemon Pickle

For 50 KG Batch - Lemon Pickle		
Item	Quantity	Approximately
Lemon	40.00	Kg
Chilli	2.00	Kg
Salt	0.50	Kg
Methi Seeds	0.50	Kg
Saunf	0.50	Kg
Kalongi	1.25	Kg
Rie	1.50	Kg
Oil *	12.00	Liter

Wash and pat dry the lemons and then cut them into halves. Divide the salt into three parts. Place the lemons in a bowl, sprinkle one part of the salt, mix well, cover and leave to marinate over night. Next day drain out all the water released by lemons. Cover them and leave to marinate for one more day. Wash the green chilies and dry them properly. Slit the chilies carefully into half, leaving them still held together at the stalk. Place the green chilies in a separate bowl, sprinkle 2nd part of the salt, mix well, cover and leave to marinate for one day along with the lemons. Next day gently squeeze out all the water released by the lemons and green chilies, taking care not to squeeze the juice from the lemons. Heat mustard oil to smoking point, remove from heat and leave it to cool. In a large bowl combine saunf, kalonji, methi dana, turmeric powder, chili powder and remaining 3rd part of salt, with enough oil just to bind the spices. Stuff the green chilies with half of the spice mixture. Rub the rest of the mixture over lemon pieces to coat them liberally. Place the lemons and chilies in an earthenware jar, Mix thoroughly with hands. Pour in the remaining oil. The oil should cover the lemons and green chilies by about 2.5 cm (1 inch). Cover the jar with a muslin cloth and keep it in an airing place. Stir the contents of the jar for the first two weeks at least once a day. Do this to ensure that all pieces are completely dipped in the oil.

Note: In most of the Pakistani pickles, salt and oil are used as preservatives.

* Vinegar is optional, most of resident like Oil in pickle, instead of Vinegar, so any of of them can be used at the time of preparation of Pickle production

4.3 PRODUCTION MIX OFFERED

For the purpose of this pre-feasibility, four types of pickles will be produced in different packaging. Chili, Mango, Lime and Garlic or mix pickle are most commonly used. It has been assumed that the four basic types of pickles will be produced initially in equal quantities and it will be possible to produce mix pickle using the four basic pickles when there is a demand in the market.

All types of pickles will be available in 330 grams, 450 grams, 01 kg, 1.8 kg and 05 kg packs. Pickle from 330 grams pack to 1.8 kg pack will be available in Glass bottles, whereas, large quantities will also be available in convenient polythene bags. Pickle in five kilogram will be available in small bucket for loose pickle buyers. In the market, loose pickle is available in 16 kg to 32 kg packs; however, the proposed business setup will not offer these quantities.

4.4 RAW MATERIAL REQUIREMENT

Pickle production would need different types of vegetables and fruits. For the proposed setup, initially 60,000 kg of pickles raw materials would be required annually with respect to the pickle variety and recipe.

Polythene bags

Pickle will first be packed in polythene bags which will then be placed in the Glass bottles or bucket. Therefore, polythene bags requirement would be equal to the number of bottles and buckets produced.

Besides above material, cardboard cartons and sticking labels will also be required providing the pickle description, manufacturing and expiry dates.

Vegetables and fruits are available in the Subzi Mandi's, whereas, for the procurement of packaging material following companies may be contacted:

For labels and cartons

Shafiq & Sons

C-6, Lane 12, Nishat Commercial
Area, DHA Phase 6
Karachi. Ph. 0300-2021096

For Glass Bottle

Rachna Glass Ltd

C-4 Palace Annexe, Dr. Ziauddin Ahmed
Road, Karachi
Ph: 92-21-35680771

Bottle Market

Bottle Gali, Light House, Karachi

For Liberate Film

Multipec, Karachi

Mr. Amir Zuberi
Ph: 021-36619394

Asad Packages

Lahore – Sheikhpura Road, Near ICI
Polyester, Ph: 0322-5050562

4.5 MACHINERY REQUIREMENT

Pickle production would need machinery for the packaging purpose only. Machinery required for the packaging of pickle is available both locally and imported. Local machinery reportedly gives good quality output and after sales service is easily available. Following machinery will be required for Pickle packaging:

S. No.	Machine	Required No. of Units	Total Cost (in Rupees)	Local / Imported
1	Packaging Machine	1	650,000	Local
2	Gas Burner with Other Accessories	2	100,000	Local
3	Support Structure		150,000	Local
Total			900,000	

There are many local suppliers of packaging machinery working at Karachi and other cities, which could be contacted for obtaining machinery; during the course of study following machinery manufacturer was identified in Karachi:

Sama Engineering

Nazimabad # 2, Block-A, Plot No. 1/32, Opposite Firdous Colony

Karachi Pakistan

Phone +9221-36688883, 36603311, 36602467

URL: www.samaengineering.com.pk

From Punjab following may be contacted for the supply of packaging machinery.

Prime Packages Industries

750-752 B Punjab Small Industries Estate, Sargodha Road

Faisalabad

Phone : (92-41) 8810103-4

4.6 MACHINERY MAINTENANCE

Machinery is expected to be serviced on an annual basis. During the projection period, maintenance expenses are estimated to be around 3% of the total cost of machine.

5. LAND AND BUILDING REQUIREMENT

The pickle production, processing and Packaging setup is estimated to require a total area of 120-200 yards plot. This area will be used for production, packaging, storage and administration office.

5.1 BUILDING CONSTRUCTION COST

As per discussion with market experts, 120 – 200 Sq. Yards area is sufficient for the production facility. The factory would be located at any place in Karachi, where basic infrastructure and utilities i.e. water, electricity, gas and telephone are available. The place will be acquired on rent basis and necessary alterations will be required so as to facilitate the production and processing lines. The renovation and necessary alteration are estimated to cost around Rs. 150,000/-.

6. HUMAN RESOURCE REQUIREMENT

Pickle processing does not need specialized and skilled labor and even women can make good pickle. However packaging may need to hire trained labor having experience of operating packaging machinery. The proposed project would need a total of 8 persons in order to handle the processing and packaging operations. The business unit will work on one shift basis (8 hours daily). Technical staff for packaging and distribution purpose would require experience. Manpower requirement for the business operations along with their respective salaries is given in the table below:

Staff Title	No of Persons	Individual Salary	Monthly Salary	Annual Salary
1. Business Unit Manager/Owner				
Production Staff				
Supervisor / Manager	1	30,000	30,000	360,000
Packaging Staff	2	15,000	30,000	360,000
Processing Staff	3	15,000	45,000	540,000
Total Production Staff	6		105,000	1,260,000
General Administration Staff				
Accountant	1	20,000	20,000	240,000
Driver	1	15,000	15,000	180,000
Total G A /S Staff	2		35,000	420,000
TOTAL	8		140,000	1,680,000

7. FINANCIAL ANALYSIS & KEY ASSUMPTIONS

The project cost estimates for the proposed “Pickle Production, Processing, Packaging and Marketing unit” have been formulated on the basis of discussions with industry stakeholders and experts. The projections cover the cost of land, machinery and equipment including office equipment, fixtures etc. Assumptions regarding machinery have been provided, however, the specific assumptions relating to individual cost components are given as under.

7.1 LAND & BUILDING

Land and Building for setting up the proposed Pickle Processing and Packaging unit would be on rental basis which will cost around Rs. 30,000/- per month for a single storey 200 Sq. Yards area.

It has been assumed that it would be a developed land with basic infrastructure available. However, for the necessary construction, renovation and customization of the facility Rs. 150,000/- will be required, which has been assumed to depreciate at 10% per annum using diminishing balance method.

7.2 OVERALL FACTORY & OFFICE RENOVATION

To renovate the factory / office premises in Year 5 and Year 10, a cost would be incurred for which an amount equivalent to 5% of the total factory/office construction cost is estimated.

7.3 FACTORY / OFFICE FURNITURE

A lump sum provision of Rs. 85,000/- for procurement of office/factory furniture is assumed. This would include table, desk, chairs etc. The breakup of Factory Office Furniture & Fixtures is as follows:

7.4 DEPRECIATION TREATMENT

The treatment of depreciation would be on a diminishing balance method at the rate of 10% per annum on the following.

1. Machinery
2. Land & Building Construction
3. Vehicles
4. Furniture and Fixtures etc.

7.5 UTILITIES

Pickle processing and packaging unit will be operated using electricity for packaging purposes, while, substantial quantity of water will be consumed for washing and cleaning of fruits and vegetables. The cost of the utilities including electricity, fuel, telephone, and gas is estimated to be around Rs. 426,000/- per annum. Details of the utilities have been provided below:

Utility	Total Monthly Cost (Rs.)	Total Annual Cost (Rs.)	Annual Increase in Cost (%)
1. Electricity	15,000	180,000	5%
2. Diesel for Vehicle	5,000	60,000	5%

3.	Gas	8,000	96,000	5%
4.	Telephone	2,500	30,000	5%
5.	Water	5,000	60,000	5%
Total		35,000	426,000	

7.6 WORKING CAPITAL REQUIREMENTS

It is estimated that an additional amount of Rs. 994,084/- (approximately) will be required as cash in hand to meet the working capital requirements. These provisions have been estimated based on the following assumptions for the proposed business.

Description	Amount in Rs.
First Three Months Salaries (Production staff)	315,000
First Three Months Utilities Charges	106,500
First Three Months Misc. Expenses	30,000
Raw Material Inventory for One Month	542,584
Total	994,084

7.7 VEHICLE FOR SUPPORT AND MAINTENANCE SERVICES

A loading vehicle would be required for providing services for the transportation of raw material and finished products. For this purpose a transportation vehicle has been assumed which will cost around Rs. 850,000. A used or brand new Chinese vehicle can be purchased with in this amount.

7.8 SELLING & PROMOTIONAL EXPENSES

For the purpose of this pre-feasibility, it has been assumed that the Pickle processing and packaging unit will be engaged in local sales for which demand can be created through advertising, which is however difficult for a new setup as advertising draws substantial funds. Therefore, it has been assumed that relationship building will be followed by the business in order to create consistent demand for the product. For this purpose, an amount equivalent to 1% of the annual sales has been assumed. This amount will be utilized for business meetings, parties, gifts, sales promotions, etc.

7.9 DISTRIBUTION AND RETAILER MARGINS

Distributor and retailers are of primary importance in marketing Pickle and similar products, especially due to easy availability of alternate brands. This is the reason that, unlike other consumer goods, distribution and retailer margins are relatively higher. For this business it is assumed that initially finished products will be directly distributed to the retailers, therefore margin of 7.5% has been assumed for distribution.

7.10 MISCELLANEOUS EXPENSES

Miscellaneous expenses of running the business are assumed to be Rs. 10,000 per month. These expenses include various items like office stationery, daily consumables, traveling allowances etc. and are assumed to increase at a nominal rate of 10% per annum.

7.11 RAW MATERIAL INVENTORY

Based on our assumptions for the production facility, it would be necessary to maintain raw material inventory in order to avoid any unexpected price fluctuation. For this purpose one month inventory of pickle, glass bottles, labels and cartons has been assumed.

7.12 FINISHED GOODS INVENTORY

The proposed setup is assumed to maintain finished goods inventory to meet urgent supply orders which may arise from caterers and hotels. For this purpose, finished products equivalent to one month production will be maintained.

7.13 REVENUE PROJECTIONS

For the projection purposes, annual revenue growth rate of 5% has been assumed which would cover anticipated growth in the industry as well as price. Based on our discussions with the industry experts, following revenue related assumptions have been made on annualized basis with respect to different quantities of pickle packs, their prices and total revenue expected from each quantity pack.

No. of Packs (Grams)	Qty	Weight In KG	Retail Price (Rs.)	Total Revenue
330	17,150	5,660	85	1,457,750
450	14,700	6,615	115	1,690,500
1,000	9,800	9,800	240	2,352,000
1,800	4,900	8,820	440	2,516,000
5,000	2,450	12,250	1200	2,940,000
		70,000		10,596,250

7.14 ACCOUNTS RECEIVABLES

Considering the industry norms, it has been assumed that 20% of the total sale will be on cash while remaining 80% sales will be on credit to local distributors. A collection period of 30 days has been assumed.

A provision for bad debts has been assumed equivalent to 1% of the annual credit sales.

7.15 TAXATION

The business is assumed to be run as a sole proprietorship; therefore, tax rates applicable on the income of a non-salaried individual taxpayer are used for income tax calculation of the business.

7.16 OWNER'S WITHDRAWAL

It is assumed that the owner will draw funds from the business once the desired profitability is reached from the start of operations. The amount would depend on business sustainability and availability of funds for future growth.

8 ANNEXURES

Summary of Key Assumptions

Cost and Revenue Sheet

Projected Income Statement

Projected Balance Sheet

Projected Cash Flow Statement

Summary of Key Assumptions		
		(in Pak. Rs.)
Sr. No.	PARTICULARS	TOTAL COST/DETAILS
Fixed Capital		
	Plant & machinery	900,000
	Processing & Packaging Machine	750,000
	Other support structure & Machine tools	150,000
	Vehicle for support and transportation	850,000
	Construction & Renovation	150,000
	Factory / Office Furniture	85,000
	Premises Advance Deposit (6 months)	180,000
	Total Fixed Capital	2,165,000
Working Capital		
	Utilities - Three Months (Office & Factory)	106,500
	1. Electricity/Month	15,000
	2. Diesel for Vehicles and Machinery	5,000
	3. Gas / Month	8,000
	4. Office Rent	30,000
	5. Telephone/Month	2,500
	6. Water	5,000
	Salaries - Three Months (Production Staff)	315,000
	Raw Material Inventory - One months	542,584
	Misc. Expenses - Three months (@ 10000 /month)	30,000
	Total Working Capital	994,084
	TOTAL PROJECT COST	3,159,084
	Equity Financing	3,159,084
PROJECT RETURNS AND OTHER FINANCIAL		
	IRR	42%
	NPV	4,867,530
	Payback Period (Years)	3 Year 5 Months
	Debt Equity Ratio	0:100
OTHER ASSUMPTIONS		
	Depreciation	10%
	Machinery Annual Repair & Maintenance (as %age of total cost of Machinery)	3.00%
	Selling & Distribution Expenses	1.00%
Factory Operations and Capacity Utilisation Assumptions		
	Increase in Production (Annual), Increase in Rent Expense , Increase in Ending Inventory , Increase	5%
	Annual sales price increase	5%
	Operational Hrs./day	8
	Operational Days / Month	26
	Operational Months	12
	Annual Operational Days	312
Economy related assumptions		
	Electricity charges grow th rate	5%
	Increase in Salaries - till fully capacity utilized	10%
	Increase in Salaries - after increase in capacity (after 6 year)	12%
	Increase in Misc. Expenses	10%
Cash Flow Assumptions		
	Sales on Credit - as %age of total	80%
	Sales on Cash - as %age of total	20%
	Accounts Receivable period (months) - only for 70% credit sales	1
	Provision for bed debts (only on 30% credit sales)	1%
	Distribution & Retailer Margin	8%
	Raw Material Inventory - (Days)	7
	Finished Goods Inventory - Month	1

Pickle Processing, Packaging & Marketing COST AND REVENUE SHEET		
1. REVENUE CALCULATION		
<u>Monthly Production</u>		
Maximum Capacity	100,000 Kilogram	
Capacity Utilization	70% Beginning of Year	
Gross Annual Sales	10,596,250 Rs.	
Estimated Finished Goods Inventory at the end of the Year	441,510 Rs	
Total Annual Sales	10,596,250 Rs.	
2. COST CALCULATION		
		Amount (Rs.)
Raw Material		5,399,933
Packaging Material		1,111,075
Annual Cost of Production		
Raw Material Cost	6,511,008	Rs. / annum
TOTAL ANNUAL COST OF PRODUCTION	6,511,008	Rs. / annum
Total Annual Sales	10,596,250	Difference
Total Annual Cost	6,511,008	4,085,242

Pickle Processing, Packaging & Marketing										
Projected Income Statement (Rs.)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	10,596,250	11,682,366	12,879,808	14,199,988	15,655,487	17,260,175	19,029,343	20,979,850	23,130,285	25,501,139
Beginning Inventory	-	441,510	463,586	486,765	511,103	536,659	563,492	591,666	621,249	652,312
Ending Inventory	441,510	463,586	486,765	511,103	536,659	563,492	591,666	621,249	652,312	684,928
Gross Revenue	10,154,740	11,660,290	12,856,629	14,175,650	15,629,932	17,233,342	19,001,168	20,950,267	23,099,222	25,468,523
Sales on Credit	8,123,792	9,328,232	10,285,303	11,340,520	12,503,946	13,786,673	15,200,934	16,760,214	18,479,378	20,374,819
Sales on Cash	2,030,948	2,332,058	2,571,326	2,835,130	3,125,986	3,446,668	3,800,234	4,190,053	4,619,844	5,093,705
Bad Debt Expenses	81,238	93,282	102,853	113,405	125,039	137,867	152,009	167,602	184,794	203,748
Net (Adjusted Sales)	10,073,502	11,660,290	12,856,629	14,175,650	15,629,932	17,233,342	19,001,168	20,950,267	23,099,222	25,468,523
Cost of Sales	8,041,008	8,506,058	9,000,661	9,526,924	10,087,123	10,683,718	11,587,226	12,621,592	13,813,238	15,194,517
Raw Material Cost	6,511,008	6,836,558	7,178,386	7,537,305	7,914,171	8,309,879	8,725,373	9,161,642	9,619,724	10,100,710
Labor (Production Staff)	1,260,000	1,386,000	1,524,600	1,677,060	1,844,766	2,029,243	2,500,027	3,080,033	3,794,601	4,674,948
Other Utilities	270,000	283,500	297,675	312,559	328,187	344,596	361,826	379,917	398,913	418,859
Gross Profit	2,032,494	3,154,232	3,855,968	4,648,726	5,542,809	6,549,624	7,413,942	8,328,675	9,285,985	10,274,006
Gross Profit Margin	20%	27%	30%	33%	35%	38%	39%	40%	40%	40%
General Administrative & Selling Expenses										
Salaries	420,000	462,000	508,200	559,020	614,922	676,414	744,056	818,461	900,307	990,338
Factory/Office Miscellaneous Expenses	120,000	132,000	145,200	159,720	175,692	193,261	212,587	233,846	257,231	282,954
Rent Expense	360,000	378,000	396,900	416,745	437,582	459,461	482,434	506,556	531,884	558,478
Amortization of Preliminary Expenses	-	-	-	-	-	-	-	-	-	-
Depreciation Expense	198,500	178,650	160,785	144,707	130,236	117,962	106,166	95,549	85,994	77,395
Maintenance Expense	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000
Distribution & Retailer Margin	755,513	831,064	914,170	1,005,587	1,106,146	1,216,761	1,338,437	1,472,280	1,619,508	1,781,459
Selling & Promotional Expense	100,735	116,603	128,566	141,757	156,299	172,333	190,012	209,503	230,992	254,685
Subtotal	1,981,748	2,125,317	2,280,822	2,454,535	2,647,877	2,863,193	3,100,692	3,363,196	3,652,917	3,972,309
Operating Income	50,746	1,028,915	1,575,146	2,194,191	2,894,931	3,686,431	4,313,250	4,965,479	5,633,068	6,301,697
Earnings Before Taxes	50,746	1,028,915	1,575,146	2,194,191	2,894,931	3,686,431	4,313,250	4,965,479	5,633,068	6,301,697
Tax	12,687	257,229	393,787	548,548	723,733	921,608	1,078,313	1,241,370	1,408,267	1,575,424
Net Profit	38,060	771,686	1,181,360	1,645,643	2,171,198	2,764,823	3,234,938	3,724,109	4,224,801	4,726,273
Monthly Profit After Tax	3,172	64,307	98,447	137,137	180,933	230,402	269,578	310,342	352,067	393,856

Pickle Processing, Pakaging & Marketing											
Projected Balance Sheet (Rs.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
Current Assets											
Cash & Bank Balance	451,500	(430,433)	370,328	1,581,052	3,229,218	5,369,240	8,085,323	11,245,772	14,869,552	18,967,847	23,533,364
Raw Material Inventory	542,584	542,584	569,713	598,199	628,109	659,514	692,490	727,114	763,470	801,644	841,726
Finished Goods Inventory	0	441,510	463,586	486,765	511,103	536,659	563,492	591,666	621,249	652,312	684,928
Accounts Receivable	0	676,983	777,353	857,109	945,043	1,041,995	1,148,889	1,266,745	1,396,684	1,539,948	1,697,902
Advnace Rent	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000
Total Current Assets	1,174,084	1,410,644	2,360,980	3,703,124	5,493,474	7,787,408	10,670,194	14,011,297	17,830,956	22,141,751	26,937,919
Fixed Assets											
Plant Machinery & Facility	900,000	810,000	729,000	656,100	590,490	531,441	478,297	430,467	387,420	348,678	313,811
Factory Construction	150,000	135,000	121,500	109,350	98,415	96,074	86,466	77,820	70,038	63,034	64,230
Land	0	0	0	0	0	0	0	0	0	0	0
Furniture & Fixtures	85,000	76,500	68,850	61,965	55,769	50,192	45,172	40,655	36,590	32,931	29,638
Vehicle	850,000	765,000	688,500	619,650	557,685	501,917	451,725	406,552	365,897	329,307	296,377
Total Fixed Assets	1,985,000	1,786,500	1,607,850	1,447,065	1,302,359	1,179,623	1,061,660	955,494	859,945	773,950	704,055
Intangible Assets											
Preliminary Expenses	0	0	0	0	0	-	-	-	-	-	-
Total Assets	3,159,084	3,197,144	3,968,830	5,150,189	6,795,832	8,967,031	11,731,854	14,966,792	18,690,901	22,915,702	27,641,974
Owner's Equity	3,159,084	3,197,144	3,968,830	5,150,189	6,795,832	8,967,031	11,731,854	14,966,792	18,690,901	22,915,702	27,641,974
Total Equity & Liabilities	3,159,084	3,197,144	3,968,830	5,150,189	6,795,832	8,967,031	11,731,854	14,966,792	18,690,901	22,915,702	27,641,974

Pickle Processing, Packaging & Marketing

Projected Statement of Cash Flows (Rs.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Cash Flow From Operating Activities											
Net Profit	0	38,060	771,686	1,181,360	1,645,643	2,171,198	2,764,823	3,234,938	3,724,109	4,224,801	4,726,273
Add: Depreciation Expense	0	198,500	178,650	160,785	144,707	130,236	117,962	106,166	95,549	85,994	77,395
Amortization Expense	0	0	0	0	0	0	-	-	-	-	-
(Increase) / decrease in Receivables	-	(676,983)	(100,370)	(79,756)	(87,935)	(96,952)	(106,894)	(117,855)	(129,940)	(143,264)	(157,953)
(Increase) / decrease in RM	-	0	(27,129)	(28,486)	(29,910)	(31,405)	(32,976)	(34,624)	(36,356)	(38,174)	(40,082)
(Increase) / decrease in FG Inventory	-	(441,510)	(22,076)	(23,179)	(24,338)	(25,555)	(26,833)	(28,175)	(29,583)	(31,062)	(32,616)
Net Cash Flow From Operations	0	(881,933)	800,762	1,210,724	1,648,167	2,147,522	2,716,083	3,160,450	3,623,780	4,098,295	4,573,017
Cash Flow From Financing Activities											
Receipt of Long Term Debt	0										
Repayment of Long Term Debt		0	0	0	0	0	-	-	-	-	-
Owner's Equity	3,159,084										
Net Cash Flow From Financing Activities	3,159,084	0	0	0	0						
Cash Flow From Investing Activities											
Capital Expenditure	(1,750,000)					(7,500)					(7,500)
Factory/Office Furniture	(85,000)										
Preliminary Operating Expenses	0										
Purchase of Raw Material Inventory	(542,584)										
Advance Rent	(180,000)										
Construction & Renovation	(150,000)										
Net Cash Flow From Investing Activities	(2,707,584)	0	0	0	0	(7,500)	0	0	0	0	(7,500)
NET CASH FLOW	451,500	(881,933)	800,762	1,210,724	1,648,167	2,140,022	2,716,083	3,160,450	3,623,780	4,098,295	4,565,517
Cash at the Beginning of the Period	0	451,500	(430,433)	370,328	1,581,052	3,229,218	5,369,240	8,085,323	11,245,772	14,869,552	18,967,847
Cash at the End of the Period	451,500	(430,433)	370,328	1,581,052	3,229,218	5,369,240	8,085,323	11,245,772	14,869,552	18,967,847	23,533,364