Pre-Feasibility Study

SPICES PROCESSING, PACKING & MARKETING

(SMEDA DOCUMENT)

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1 PROJECT PROFILE

Purpose of the Documents

This document is developed to provide the entrepreneur with potential investment opportunity in setting up Spices processing, packing & marketing business. This pre-feasibility gives insight into various aspects of Spices processing business setup including both technical and general information. The document is designed to provide all relevant details to facilitate the entrepreneur in making the correct decision providing various technological as well as business alternatives. The document also allows flexibility in change of various parameters to suit the customized needs of the entrepreneur.

Project Brief

There has been an immense progression in the spices industry. Though technological changes have had a great impact on the spices processing, packing and distribution the main thrust for survival has always revolved around quality, pricing, and distribution network.

In the last decade the spices processing industry has grown at that point that many of commercial setups of spices processing and packing established to handle the public's demand in both local and international markets. Now the industry is changing again with the introduction of recipe packs and technology.

Opportunity Rationale

What makes it a lucrative business for an entrepreneur is a high probability of generating increasing profits by maintaining quality and competitive price as the product has vital standing in our daily life. However, a setup can only achieve such fast-track growth if some critical success factors are taken into account to ensure that the business is run properly. High standards of quality control and consistent quality check are two of the important factors that form an integral part of this fast-growth equation. In comparison with other businesses, spices have always been in consistent demand due to typical subcontinent food making curries which are incomplete without having some spices become the integral part of ingredients. That draws a substantial potential in this business, however, sudden increase in demand for spices has never been experienced and market growth largely depends on:

- Population growth and child to adult conversion rate
- Ratio of younger people in the population (according to 1998 census 64% belongs to age group of between 15 to 34)
- Increase in urban life phenomenon; and
- Conversion from popular home made curries to ready to use curries

Growth in above is a motivating factor to invest in curry based spice business.

Key Success Factors/Practical Tips for Success

Some factors play an instrumental role in the success of the project especially when the business growth is linked with business promotion, quality control and sales & distribution set up. Following are some important factors that should be carefully considered prior to setting up a Spices processing business:

1.4.1 Location

Deciding the location for setting up a Spice processing & packaging business has imperial implications on fixed costs, operational costs and procedures.

- Generally industrial areas having better communication, water and power facilities are the target areas for many businesses. In effect it all results from the vision of the entrepreneur and how a balance is kept between the volume and the profit margins involved in the business.

- Having the capability to invest large amounts in setting up a spice business in old industrial area does not qualify or guarantee a good business because prices of property or high rate of rental which would make business difficult. On the other hand prospecting some new industrial localities would surely increase profit margins.

1.4.3 Existing Competition

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

Number of existing competitors,
Type of products and schemes being offered by them,
Customer perception about the competitors' quality, and
Product prices and schemes offered to Customer.

- Usually customer traffic is divided where two or more companies offering same products, therefore there is a need to ensure competitive prices and promotion schemes aligned with customer interest/demand is maintained from the competitors to avoid unnecessary business concentration and to capture the untapped market. 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.

- Similarly 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.

1.4.5 Promotional Activities

Promotional activities are the primary source of revenue generation. Spices processing & packing 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 curry spices business or branded spice business promote their products by announcing different schemes like by two get one free or giving cutlery items on purchase of their products etc.

Proposed Business Legal Status

Although the legal status of business tends to play an important role in any setup the spices processing, packing and marketing business is mostly operated on a sole proprietorship basis or on partnership basis in case of a large setup.

Typical Setup

Before this pre-feasibility ventures on to discuss the related business parameters it is imperative to understand the generic set up of a Spices Processing & Packing Business. A typical Business set up consists of three sections:

1. <u>Processing Section</u> – Where processing, mixing and making of products are done as per production plan.

2. <u>Packing Section</u> – Where the packing of all products is performed.

3. Storage Section – where finished goods and raw material is stored.

4. <u>Marketing & Sales Section</u> – Where customer service, order booking & delivery, cash handling etc. takes place.

Drawing from the set up described above the primary element is factory for processing and of spices followed by packing. Secondary element is marketing and sales/distribution of product. Some spice business set ups outsource grinding process as well as sales and distribution of products.

Project Capacity and Rationale

The project capacity for a Spices Processing & Packaging Business setup is dependent on the demand of the spice within the region. The business volume varies from area to area and is very much location specific. Based on our discussions with the industry stakeholders and existing business operators, two broad categories of business volume that could be generated according to the income level of the locality are as follows:

Curry Spices

1. Low Income Areas – 10 to 15% of sale
2. Medium/ High Income Areas – 85 to 90% of sale

Whole/Grinded Spices

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

This study proposes for setting up the business in an industrial area surrounded by medium/high income area which will have better communication, power and water facilities, that is expected to provide a reasonable profit margin and market access.

Project Investment

A total of Rs. 3,947,210/- will be required to setup and operate the proposed Spices processing & packing business. The assumed breakup of the above project investment is as follows:

Item	Investment (Rs.)
Machinery (Grinding and packaging)	475,000
Facility Construction Cost	700,000
Office Equipment & Furniture	200,000
Vehicles	400,000
Rent in Advance	720,000
Preliminary and Transportation Expenses	50,000
Utilities - Three Months	120,000
Salaries - Three Months	324,000
Raw Material Inventories - One Month	883,210
Misc. Expenses - Three months	75,000
Total	**3,947,210**

Proposed Product Mix

The primary sources of revenue generation for a spices business are factory for processing & packing, marketing and sales/distribution. This pre-feasibility takes into account, revenue generation that is traceable to these three services where profit margins are expected to be the highest. Besides, type of product and the devised recipe would play a major role in the success of the business. For the purpose of this study following product mix has been proposed, general ingredients will remain the same, however, their ratio for any specific product will largely depend on the business setter, as every instant formula used by the existing players has its own unique taste and the prospective owner would need to develop his own curry recipe.

For the purpose of this feasibility the proposed product mix is assumed to be as follows:

S. No.	Product Name	General Ingredients	Packaging	Quantity	Selling Price (Rs.)
1	Biryani Masala	1. Red Chilli (Surkh Mirch) 2. Salt (Namak) 3. Coriander (Dhanya) 4. Cumin Seed (Sufed Zeera) 5. Black Pepper (Kali Mirch) 6. Turmeric (Haldi) 7. Clove (Long) 8. Cinnamon (Dar Cheeni) 9. Cardamom (Alaichi) 10. Mace (Jautri) 11. Nutmeg (Jaifal) 12. Bay Leaf (Tez Pat) 13. Mango Powder (Aam Chur) 14. Plum (Aalo Bokhara) 15. Preservatives 16. Citric Acid	Plastic pillow packs	70 grams	18
2	Karahi Masala			70 grams	18
3	Nehari Masala			70 grams	18

Biryani Masala, being the most favorite item of the consumers has been kept at 40% of the total production, whereas, Nehari and Karahi Masala would be 30% of the total production each.

Recommended Project Parameters

Capacity	Capacity Utilisation	Human Resource	Technology/Machinery	Location
400 Kg per day (10,400 Kg per month)	60%	18	Grinding and Packing machinery	Medium Scale Industrial Area
Financial Summary				
Project Cost	**IRR**	**NPV (Rs)**	**Payback Period**	**Cost of Capital (WACC)**
Rs. 3,947,210	51%	10,268,692	3 Years & 2 Months	17.5%

Proposed Location

As discussed earlier the proposed project would be located in a medium scale industrial area i.e. North Karachi, F.B. Industrial area Karachi, Badami Bagh Industrial Area etc. For the purpose of this study it is assumed that the locality be in a medium level area. The rental expenses are likewise a reflection of such a location.

2 SECTOR & INDUSTRY ANALYSIS[1]

About 7000 spices and salt grinding units are operating in the country[2], with 60 percent of these units based in the rural areas. However the market share of these 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 Spice 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, Chef Pride and Mehran which hold major part of the market share of the curry spice business (about 25%), however, major share (about 70%) still lies with unbranded market. There are also small players in curry spices business and are restricted to very selective local market of rural areas.

Apart from the major brands there are a large number of self-owned independent spice business set ups that are not as such affiliated with any of the brands. Such set ups are largely undocumented and unorganized hence making it difficult to estimate the approximate market size. It is estimated that there are over a thousand spice business set ups spread across Pakistan.

Informal trade of raw Spices between Pakistan and India from the routes of Dubai-Bunder Abbas-Bara and Sindh Cross Border is around USD 6,250 million[3] and 1,300 million[4] respectively. Whereas, Delhi-Lahore informal trade of spices is USD 800 million[5]. During the year 2006 our import bill for spices has been USD 3,850 million[6], Pakistan generally imports spices from Indonesia, India, China, Srilanka, Singapore, Iran, Bangladesh, Burma etc. Vietnam is the major raw spices sourcing country for Pakistan. Exports of processed and semi processed spices during 2006 has been USD 1,955 million[7], mainly to Dubai, USA, United Kingdom, Saudi Arabia, Yemen, Spain, Germany, Australia and Jordan etc. Shan Foods, National and Mehran Masala are the biggest exporters of spices as expressed by the existing operators.

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[1] Based on the estimates of the industry experts

[2] Based on the estimates of the existing spice business operators

[3] SDPI 2005 report on Quantifying informal trade between Pakistan & India

[4] SDPI 2005 report on Quantifying informal trade between Pakistan & India

[5] SDPI 2005 report on Quantifying informal trade between Pakistan & India

[6] Federal Bureau of Statistics 2006 Data on Imports and Exports

[7] Federal Bureau of Statistics 2006 Data on Imports and Exports

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

Brand	Business Volume	Estimated Market Share %
Branded and Packaged	Rs.3 billion	20 %
Loose Spices	Rs.10 to 15 billion	80 %

There are five major companies that sell branded spices that claim a growing 22 percent market share. The following table gives an idea of the curry spices market shares as discussed with industry experts:

Brand	Market Share %
National Foods	40 %
Shan Foods	40 %
Chef Pride	15 %
Others	5 %

We have confined ourselves to focus on packaged spice market, a region-wise breakup of the total Curry based spice market shows the following pattern:

Region	%age Share
Punjab	45
Sindh	45
N.W.F.P.& Baluchistan	10

As evident from the above geographical distribution, Punjab & Sindh accounts for approximately 90% of the packaged spices market due to a large number of towns and developed cities/areas. The remaining 10% caters to the NWFP and Baluchistan region.

International Spices Market[8]

During the period from 2000 to 2004, the value of international spice imports increased, on average, by 1.9% per year, whereas the volume increased by 5.9%. In 2004, world trade in spices consisted of 1.547 million tons valued at USD2.97 billion. There was a growing trend towards the trade of processed spices during the period, which fetch higher prices. The increasing demand for value-added processing of spices such as capsicum and ginger offer business opportunities for the food and spice industries in international markets.

[8] International Trade Centre (UNCTD/WTO)-Report on World Spice Market 2000-2004

The major markets in the global spice trade are the United States, the European Union, Japan, Singapore, Saudi Arabia and Malaysia. The principal supplying countries are China, India, Madagascar, Indonesia, Vietnam, Brazil, Spain, Guatemala and Sri Lanka. Among the major spices exporters, Pakistan does not exist and enormous potential of the export market attracts the investors in this sector.

World Spices Producing Countries

Country / Spice	BGD	CPR	IND	INS	ROK	MAL	PAK	SRL	THA	VIE
Black pepper		⊗	⊗	⊗		⊗		X	⊗	⊗
Cardamom			⊗	X		X		⊗	X	
Cassia		X		⊗						
Chili pepper	X	X	⊗	X	⊗		X	X	⊗	X
Cinnamon		X	X			X		⊗	X	X
Clove			X	⊗		X		X		
Coriander	X		⊗	⊗			X		X	
Cumin		X	⊗							
Garlic			⊗		⊗		X		⊗	
Ginger	X	X	⊗	X	X			X	⊗	X
Nutmeg				⊗		X		X	X	
Turmeric	X	X	⊗				X		X	
Vanilla		X		⊗		X				

Symbols: *⊗ Major producer*
X Minor producer

Sector Characteristics

The demand for branded spices 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 potential investors.

However this does not imply that the demand for spices business has been affected by technology because considering the associated costs and the subsequent pricing the affordability for spices by a large population of Pakistan becomes questionable.

Branded spices are facing competition from loose spices in terms of their prices. Branded spices are at least 30 percent more expensive than loose spices, because of the 15 percent GST. The packaged spices industry has an estimated growth rate of 22%[9] annually.

The sales of loose spices have fallen “substantially” according to chairman, Pakistan Grocers Association. And this market share seems to be going to branded or packaged spices, which have seen 25 percent growth annually over the past five years, according to, national sales manager at National Foods (Pvt) Ltd.

Consumers are not only aware of the health hazards of adulterated and unclean spices, sold out in the open, but there is a big difference in the medical bills of those who use branded spices and those who used loose spices, according to a manager at Shan Foods Ltd. “The use of loose spices is prohibited in most countries of the world and consumers in developed countries only use packed and branded spices”.

3 PRODUCTION PROCESS

A typical setup for packaged spices goes through three main stages end up with storage. The process is very simple which starts from the procurement of whole spices sent to the grinding process where mixing is also carried out. Mixed spices are stored in tanks or large sized tumblers from where it is shifted to the packaging machines to be converted into desired packet sizes. In small setups (with 500 kg/day) pre-grinded spices are also used, whereas, in large scale production generally manufacturing setups use their own grinding facility, however, during Eid, Ramazan and Moharram grinded spices are also used due to increased demand.

Process Flow

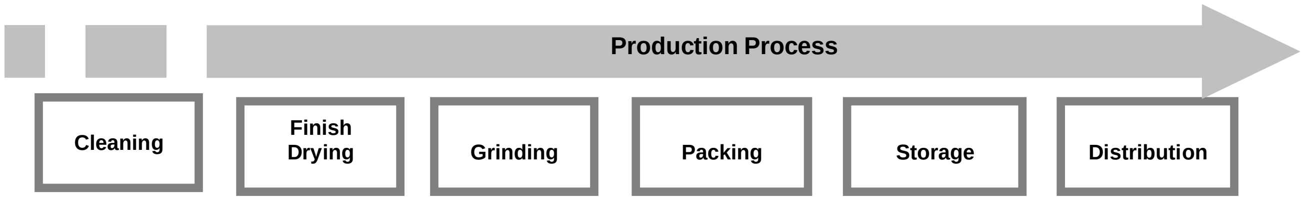
Unlike a manufacturing concern, a spices business has a very basic process flow diagram which enables a person to understand the underlying principles involved in the workflow.

Process flow consists of four steps:

1. Finish Drying – Generally dried spices are used which need to be further checked whether humidity has influenced the quality. A finish drying may be needed if material is not completely dried. Various types of dryers are used for processing spices, ranging from simple sundrying to gas or kerosene-fired dryers.
2. Grinding and Mixing – Spices are grinded and mixed using stone mill.
3. Packing – Grinded spices are packed into desired sizes using automatic packaging machines.
4. Storage – Finished packets are cartoned and stored in warehouse.

[9] Daily Times Site Edition 27th November 2002

The following illustration gives an understanding of how work is routed in a conventional spices processing, packing and marketing business:



It is recommended that the generic workflow be documented by the entrepreneur for future use or modified accordingly for reference by any other staff member and to train the new staff, when required.

The process in the proposed project with the selected machinery will be as follows:

- Spices (in the whole form) are stored in the godown in 25 and 50 k.g. bags i.e. Chilli, coriander etc
- According to desired recipe (curry i.e. Biryani Masala, Nehari Masala, Karahi Gosht etc.) different spices are mixed in the prescribed ratios and again packed into 10-15 kg bags to be grinded according to production plan

- Before starting the production you must have a production plan indicating what recipe is to be produced and in what quantity, which recipe will follow it and total how many recipes have to be produced.
- For example to start with Biryani Masala you have to shift prepared bags in 10-15 kg to the processing hall where these are grinded and stored in the large sized containers.
- Grinded spices are fed into the vassal (feeding system), from where grinded spice will be filled automatically into the pillow packs. Conveyer will move the filled packs ahead and whole items are filled in manually (if required) according to the spice recipe.
- Completed packets are sealed and ejected for cartoning.
- After one curry is done, machine is ready to be used for the subsequent curries.

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*Generally two types of recipe (curry) based packets are produced which are as follows:

Spice curry having whole items (powder with whole items) i.e. Plum, Bay leaf etc.
Spice curry without whole items (only powder)

Raw Material Requirement

Two main input materials are required for the production on a regular basis. One is the whole spices or grinded spices for processing and mixing and the packing material for making products as per production plan. Both these two materials are crucial to the operation of the spices machines.

3.1.1 Technology/Process Options

The main cost components in account of plant and machinery while setting up a spices business are the grinding and packing machines, while, for the drying purpose, sun-drying procedure is generally followed which is however inexpensive and compatible with the weather conditions of Pakistan. Both brand new and reconditioned machines are available in the market. However considering the cost viability of the business most of the existing businesses operate on locally manufactured machines. Grinding process is generally performed on stone mills generic to all kinds of small or large scale setups. What makes a difference is the use of packaging machines. Big market players use plastic or aluminum pillow packs placed in hard paper box. Pillow packing machinery is easily available in the market at a reasonable price whereas, paper box packaging technology is only used by the companies generating substantial revenue through exports. This machine is also expensive (about Rs.10 million).

3.1.2 Merits & demerits of a particular technology

Although new machines are the best option for starting a business cost constraints make reconditioned/locally manufactured machines a viable solution. If properly handled and maintained on a regular basis reconditioned/locally manufactured machines can give quality output for a longer period of time.

Machinery Requirement

For the purpose of this study we are assuming that good locally manufactured machinery costing around Rs. 475,000 will be able to give the desired quality of output. The production capacity of the machine would depend on the amount of business expected to be generated.

The cost implications would depend on the capacity of the machine. For this pre-feasibility the locally manufactured grinding machine with a grinding capacity of 400 k.g. pr hour, whereas, packaging machine is assume to have a capacity of producing 1800 packets per hour. This capacity seems reasonable for the initial years which could be expanded in future as business volume and brand awareness is established.

Machinery Description

Spice processing and packaging unit typically comprise on two separate sub-units supporting grinding and packaging process separately. Following table presents machinery details:

<u>Grinding Machine</u>

Component	Specification	Cost
Grinding Stone	22”	20,000/-
Motor	15 HP	45,000/-
Electrical Fittings	-	5,000/-
Mechanical Fitting	-	5,000/-
Total		75000/-

<u>Packaging Machine</u>

Pneumatic System Machine with Conveyor Belt	
Type of Machine	Four Side seal
Weight to Pack	50-75 grams
Out Put	30 to 35 Packets per min.
Packet Size	As per sample
Feeding System	Variable Turn Table
Cost	Rs. 400,000/-

Machine Maintenance

Maintenance of machine is essential to ensure consistency of quality and quality control. This pre-feasibility takes into account the necessary maintenance required to operate a machine over a period of 10 years. It is anticipated that the machine would require a recurring annual maintenance costing around 2.5 to 5% of the total cost machinery cost. Machinery suppliers provide life time free service of packaging machinery.

Product/Project Standards and Compliance Issues

The government has laid down certain regulations for food products which include registration of the product(s) with Pakistan Standard Quality Control Authority (PSQCA) and carrying a safety logo on the package. Failure to do so is punishable by fine and imprisonment. For production registration form the said authority information can be downloaded form the website: www.psqca.com.pk

Machine Brands & Suppliers

For the purpose of this study we have proposed to use local machinery and pillow packing. During the study we have contacted following pillow packing machinery manufacturer whereas, grinding mills manufacturers are located at Pan Mandi Karachi and easily accessible. Most of the local and even the export oriented business i.e. National and Shan are also using locally manufactured machinery due to its reliability:

M S Engineering Karachi	Packaging/Wrapping Machine Manufacturers **Services Offered:** Machinery Installation and trial production /Importer of Plant/Machinery	021-6361868
Sama Engineering	Packaging/Wrapping Machine Manufacturers **Services Offered:** Machinery Installation and trial production /Importer of Plant/Machinery	021-6602467 021-6607131

However, hard paper box packing machine is expensive and not easily available in Pakistan. Some of the big existing setups are using imported machines worth roughly round Rs. 10 to 10.5 million.

4 LAND & BUILDING REQUIREMENT

Land Requirement

The workspace required to setup the assumed Spice processing unit is a 400 square yards covered area, which will serve for the office, storage godown and spice processing and packaging. It is normally available in Rs. 50,000 to 75,000 on rent in a medium cost industrial location i.e. Landhi Industrial area, F.B. Industrial area Karachi or North Karachi Industrial area etc.

5 HUMAN RESOURCE REQUIREMENT

Spices processing industry is considered to be a labor intensive industry where most of the functions are preformed manually. For the proposed setup 18 persons can handle the operations of the spices processing and packaging. The business unit will work on one shift basis. Semiskilled staff is sufficient to look after all the processing operations, while one trained staff will be required for operating packing machine. Such staff is available in the local market. Total estimated manpower required for the business operations along with their respective salaries is given in the table below.

Type of Manpower	Number	Monthly Salary	Annual Salary
Grinding Mill Operator/Labourer	2	5,000	120,000
Trained packing machine operator	1	6,000	72,000
Packers	2	4,500	108,000
Helper / Loader	4	4,500	216,000
Store Keeper	1	4,500	54,000
Total	**10**	**-**	**570,000**

General Management / Administrative & Selling Staff

Type of Manpower	Number	Monthly Salary	Annual Salary
Owner	1	-	
Production Incharge	1	12,000	144,000
Quality Assurance Officer	1	15,000	180,000
Admin. / Accounts Officer	1	8,000	96,000
Sales Coordinator	2	6,000	144,000
Office Driver	1	4,500	54,000
Security Guard	2	4,500	108,000
Total	**8**	**-**	**726,000**

1. ***The owner*** is required to manage the following jobs:

- Overall business operations including general administration.
- Procurement of new orders
- Distribution
- Customer handling
- Product quality
- Ensuring adequate cash flow to meet working capital requirements etc.

2. ***Machines Operators*** are required to operate the packing machine. They are also responsible for machine's timely maintenance, oiling, etc.

3. ***Quality Assurance Officer*** The person will be responsible for the quality check of the raw material and finished products according to the industry standards.

4. ***Sales Coordinators*** are responsible for day to day coordination with distribution and production operations and coordination with the distributor. They are also responsible to carry out field surveys and ensuring product availability in the immediate market.

5. ***Admin. / Accounts Officer*** is mainly responsible for carrying out day to day administrative activities of the overall business including facilitation provided to the owner as and when required.

6 FINANCIAL ANALYSIS & KEY ASSUMPTIONS

The project cost estimates for the proposed "Spice Processing, Packaging and Marketing" have been formulated on the basis of discussions with relevant stakeholders and experts. The projections cover the cost of land, machinery and equipment including office equipment, fixtures etc. The specific assumptions relating to individual cost components are given as under.

6.1 Land & Building

	Location	Total Cost (Rs.)	Rent Per Month (Rs.)	Expected Annual Increase in rent
400 Yards (covered area)	Medium Cost Industrial Area	(on rent)	60,000	10%
Construction Cost	Office & Stores	400,000		
	Production Facility	300,000		

This pre-feasibility study assumes that the space will be acquired on rental basis with an initial deposit of 6 months and initial advance rent of 6 months after which the rent will be payable on a monthly basis. In addition construction and renovation will cost around Rs. 700,000/- which will depreciate at 10% per annum using diminishing balance method. Total initial outflow for acquisition of land would be as follows:

	Months	Rent
Security Deposit	6	360,000
Advance Rent	6	360,000
Total		**720,000**

Land & Building will include:

- General Management Office
- Storage Area (Raw Material and Finished Goods)
- Production Factory

The proposed business unit will be based in a medium cost industrial locality in a metropolitan area like North Karachi or F.B. Industrial Area as the business highly depends on a good distribution network and quick access to the prospects market with less distribution cost. The expected area required for the set up would be a single story building with two storage godowns of 30ft. x 30ft. each on the first floor. The total covered area (plot size) of land & building will be around 400 yards.

It is assumed that all activities will be undertaken under one roof and the factory be acquired on a rental basis at Rs. 60,000 per month for the projected period. This rent is expected to increase at a rate of 5% per year. It is further assumed that there will be no addition or deletion during the projected period. Furthermore, it is assumed that Rs. 720,000 will be paid in advance before possession of premises. This will include advance rent for six months and six months security deposit.

6.1.1 Overall Factory & Office Renovation

It is expected that a total of Rs. 350,000 would be incurred to renovate the factory / office premises in Year 5 and Year 10 each. In the following lines we are providing a break up of other assets required for setting up Spice processing unit.

6.2 Machinery

Assuming market competition i.e. technology advancement, machinery used by prospective competitors, desired volume of production and the minimum cost in which machinery is easily available in the local market, we have assumed that local machinery will be used for the proposed set-up.

The production capacity of the machine would depend on the amount of business expected to be generated. Assumed capacity for the proposed setup would be:

1. Grinding Machine: having a production capacity of 50 k.g. of grinded spice per hour
2. Packing Machine: Machine having a production capacity of more then 1800 packets of 50-70 grams grinded spices per hour

Machinery with the above specification is easily available in the local market at a cost of around Rs. 475,000/- All machinery will operate on 8 working hours basis which seems enough during the initial period, however, this duration may increase as overall business volume expands.

6.2.1 Maintenance Requirement

The local machine is expected to be serviced on an annual basis, for the projected period, costing around 2.5% of the cost of machine for first five years and 5% for the coming years.

6.2.2 Depreciation Treatment

The treatment of depreciation would be on a diminishing balance method at the rate of 10% per annum. This method is also expected to provide accurate tax treatment.

6.3 Factory / Office Equipment & Furniture

A lump sum provision of Rs. 200,000 for procurement of office furniture and factory equipment is assumed. This would include table, desk, chairs, office stationery and other necessary equipment. The breakup of Factory Office Furniture & Fixtures is as follows:

Item	Number	Total Cost
Table & Chair for Owner	1	7,000
Tables & Chairs for Staff	6	20,000
Carpet for Office	1	10,000
Air Conditioner	1	30,000
Waiting Chairs	6	9,000
Sofa Set	1	10,000
Curtains & Interior Decoration	-	10,000
Electrical Fittings & Lights	-	40,000
Safety Equipment (Masks and Apron etc)		50,000
Others	-	14,000
Total		**200,000**

6.3.1 Depreciation Treatment

Factory/Office equipment and furniture is expected to depreciate at a constant rate of 10% per annum according to the diminishing balance depreciation method.

6.4 Office Vehicle

The proposed setup would require an office vehicle to carryout all office activities and to cater urgent delivery requirements, if any. The cost of vehicle is assumed to be Rs. 400,000.

6.4.1 Depreciation Treatment

The office vehicle is expected to depreciate at a constant rate of 10% according to the diminishing balance method.

6.5 Utilities

The proposed spice processing setup will operate using electricity for grinding and packing purposes. This would draw considerable amount of electricity, which would further increase in case of air conditioner. The cost of the utilities including electricity, telephone, and water is estimated to be Rs. 480,000 per annum. The utility expenses are assumed to increase at 10% per annum.

Utilities	Total Monthly Cost
Water & Gas	5,000
Telephones (2)	5,000
Electricity	30,000
Total	**40,000**

6.6 Working Capital Requirements

It is estimated that an additional amount of approximately **Rs. 1,402,210** will be required as cash in hand to meet the working capital requirements / contingency cash for the initial stages. This provision has been estimated based on the salaries of the staff and utilities charges for first three months of operations of the proposed spice business.

Cost	Amount in Rs.
First Three Months Salary - Production	324,000
First Three Months Utilities Charges	120,000
First Three Months Misc. Expenses	75,000
Inventory (Raw Material-One Month)	883,210
Total	**1,402,210**

6.7 Preliminary and Machinery Transportation Expenses

A lump sum provision of Rs. 50,000 is assumed to cover all preliminary expenses like registration, documentation charges etc. which will be amortized over the 5 year period.

6.8 Miscellaneous Expenses

Miscellaneous expenses of running the business are assumed to be Rs. 25,000 per month. These expenses include various items like office stationery, daily consumables, fuel expenses, traveling allowances etc. and are assumed to increase at a nominal rate of 10% per annum.

6.9 Raw Materials Inventory

It is assumed that an initial raw material inventory for one month would be purchased the total cost of which would be Rs. 883,210/-. The cost of raw materials is expected to increase at the rate of 7.5% per annum for the projected period.

6.10 Finished Goods Inventory

The proposed setup is assumed to maintain a Finished Goods Inventory of at least 15 days of the total annual production.

6.11 Revenue Projections

Key assumptions for the revenue projections are as following:

• Spice Pack	15X10 (Dimension)
• Net weight per packet	70 grams
• Price/Packet	Rs. 18

It is assumed that sales price will increase by 10% annually *(a curry based spice packet of 70 gms was available at Rs. 12 three years back which is now of Rs. 20. A straight 22% annual growth in sales price)*.

It has been assumed that it will take some time for the business to reach the optimal capacity utilization point for the projected period. Therefore the first year sales are assumed to be based on 60% capacity utilization and an annual increase of 10% in capacity utilization is expected for the projection period. Provision for raw material wastage is assumed to be 1%.

6.12 Accounts Receivables

A collection period of 45 days is assumed for sales. A provision for bad debts has been assumed equivalent to 2% of the annual gross sales.

6.13 Accounts Payables

A payable period of 45 days is assumed for raw material purchases.

6.14 Financial Charges

It is assumed that long-term financing for 5 years will be obtained in order to finance the project investment cost. This leasing facility would be required at a rate of 15% (including 1% insurance premium) per annum with 60 monthly installments over a period of five years. The installments are assumed to be paid at the end of every month.

6.15 Taxation

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

6.16 Cost of Capital

The cost of capital is explained in the following table:

Particulars	Rate
Required return on equity	20%
Cost of finance	15%
Weighted Average Cost of Capital	17.5%

The weighted average cost of capital is based on the debt/equity ratio of 50:50.

6.17 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.

6.18 ANNEXURES

6.18.1 Summary of Key Assumptions

6.18.2 Cost and Revenue Sheet

6.18.3 Projected Income Statement

6.18.4 Projected Balance Sheet

6.18.5 Projected Cash Flow Statement

SPICES PROCESSING, PACKAGING AND MARKETING

COST AND REVENUE SHEET

REVENUE CALCULATIONS		
Production		
Rated capacity	50	Kg / Hr
Estimated No. of Operating Hours	8	Hrs / Day
Estimated Optimal Production	400	Kg / Day
Expected Capacity Utilization (At the beginning of the project)	60%	
Annual Capacity Utilization Growth Rate	5%	
Expected Production at the beginning of the project	240	Kg / Day
Provision for Wastage	1%	
Total Realised Production	**238**	**Kg / Day**
Approximate Net weight of a Spice packet	70	grams / pack
Total packets Produced	3,326	packets / day
Total packets Produced	86,486	packets / month
Total packets Produced	1,037,837	packets / year
Sales Price / Packet	18	Rs.
Daily Revenue from Spice Packets Produced per Day	**59,875**	**Rs.**
Total Price of packets Produced per Month	1,556,755	Rs.
Total Price of packets Produced per Year	18,681,062	Rs
Provision for Finished Goods Inventory	15	Days Inventory
Estimated Finished Goods Inventory - end of the Year	-	Rs
Gross Annual Sales	**18,681,062**	**Rs.**
Packing Machine		
Rated capacity	1,800	Packets / Hour
No. of hours worked	2	Hrs / Day
Estimated packets per day	3,600	Packets / Day
Number of Machines Proposed	1	
Total Estimated Wrappings per day	**3,600**	**Packets / Day**

COST CALCULATION

Ingredients

	Ratio	Quantity Produced		Cost	
Total Quantity		**238**	k.g./day		
BIRYANI MASALA	40%	1,331		13,452	Rs.
KARAHI MASALA	30%	998		10,089	Rs.
NEHARI MASALA	30%	998		10,089	Rs.
Total Ingredient Cost		**3326**		33,630	**Rs / day**

Packing Material		
Cost of Packing per packet	2.5	Rs / Packet
Total Packing Cost per packet	**2.50**	**Rs**
Total Cost per packet	**10.11**	**Rs.**

Summary of Key Assumptions

Sr. No.	*PARTICULARS*	*TOTAL COST/DETAILS*
1	Plant & machinery	475,000
2	Facility Construction Cost	700,000
3	Office Equipment & Furniture	200,000
4	Vehicles	400,000
5	Rent in Advance	720,000
6	Preliminary and Transportation Expenses	50,000
	Total Capital Cost	**2,545,000**
7	Utilities - Three Months	120,000
8	Salaries - Three Months	324,000
9	Raw Material Inventories - One Month	883,210
10	Misc. Expenses - Three months	75,000
	Total Working Capital	1,402,210
	Total Project Cost	**3,947,210**

	PROJECT RETURNS AND OTHER FINANCIAL ASSUMPTIONS	
11	IRR	51%
12	NPV	10,268,692
13	Payback Period (Years)	3 Years and 2 Months
14	Debt Equity Ratio	50:50
15	Required return on equity	20%
16	Cost of finance	15%
17	Weighted Average Cost of capital	17.50%

	OTHER ASSUMPTIONS	
18	Depreciation	10%
19	Bed debts	2%
20	Selling & Distribution Expenses	22%
21	Wastage During production	1%
22	Repair & Maintenance	1.5% of the Total Plant Cost for Initial 5 Years and 2.5% after 5 Years
23	Increase in the Raw Material Cost (Annual)	7.5%
24	Increase in capacity utilisation (Annual)	5%
25	Increase in Staff Salaries	10%
26	Increase in Utilities Cost	10%
27	Increase in Rent Expenses	10%
28	Increase in Misc. Expenses	10%
29	Capacity Utilisation at the beginning of the period	
30	*Grinding Machine*	60%
31	*Packaging Machine*	2 Hours
32		
33	Finished Goods Inventory at the End of the Year	15 Days
34	Accounts Receiveable period	45 Days
35	Accounts Payable period	45 Days
36	Days per Month	26
37	Increase in Sales Price	10%

SPICES PROCESSING, PACKAGING AND 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
Gross Revenue	**18,681,062**	**21,405,384**	**26,438,227**	**30,918,888**	**35,745,494**	**42,317,629**	**49,471,052**	**57,143,394**	**66,981,222**	**74,045,664**
Net (Adjusted Sales)	**18,307,441**	**20,977,276**	**25,909,463**	**30,300,510**	**35,030,585**	**41,471,277**	**48,481,631**	**56,000,526**	**65,641,598**	**72,564,751**
Cost of Sales	**11,648,515**	**13,497,854**	**15,559,727**	**17,855,678**	**20,409,292**	**23,246,383**	**26,486,995**	**30,097,765**	**34,118,905**	**36,901,832**
Raw Material	10,598,515	12,342,854	14,289,227	16,458,128	18,871,987	21,555,347	24,535,057	27,840,474	31,503,695	33,866,472
Labor (Production Staff)	570,000	627,000	689,700	758,670	834,537	917,991	1,101,589	1,321,907	1,586,288	1,903,546
Utilities	480,000	528,000	580,800	638,880	702,768	773,045	850,349	935,384	1,028,923	1,131,815
Gross Profit	**6,658,926**	**7,479,422**	**10,349,735**	**12,444,832**	**14,621,293**	**18,224,894**	**21,994,636**	**25,902,761**	**31,522,692**	**35,662,918**
Gross Profit Margin	**36%**	**36%**	**40%**	**41%**	**42%**	**44%**	**45%**	**46%**	**48%**	**49%**
General Administrative & Selling Expenses										
Salaries	726,000	798,600	878,460	966,306	1,062,937	1,169,230	1,286,153	1,414,769	1,556,245	1,711,870
Rent Expense	720,000	792,000	871,200	958,320	1,054,152	1,159,567	1,275,524	1,403,076	1,543,384	1,697,722
Office Miscellaneous Expenses	300,000	330,000	363,000	399,300	439,230	483,153	531,468	584,615	643,077	707,384
Amortization of Preliminary Expenses	10,000	10,000	10,000	10,000	10,000	-	-	-	-	-
Depreciation Expense	177,500	159,750	143,775	129,398	116,458	139,812	125,831	113,248	101,923	91,731
Maintenance Expense	11,875	11,875	11,875	11,875	11,875	23,750	23,750	23,750	23,750	23,750
Selling & Distribution	4,027,637	4,615,001	5,700,082	6,666,112	7,706,729	9,123,681	10,665,959	12,320,116	14,441,151	15,964,245
Subtotal	***5,973,012***	***6,717,226***	***7,978,392***	***9,141,311***	***10,401,380***	***12,099,193***	***13,908,685***	***15,859,574***	***18,309,530***	***20,196,702***
Operating Income	**685,914**	**762,196**	**2,371,344**	**3,303,522**	**4,219,913**	**6,125,701**	**8,085,951**	**10,043,187**	**13,213,162**	**15,466,216**
Financial Charges (15% Per Annum)	276,870	230,806	177,336	115,271	43,228	-	-	-	-	-
Earnings Before Taxes	**409,044**	**531,391**	**2,194,008**	**3,188,251**	**4,176,685**	**6,125,701**	**8,085,951**	**10,043,187**	**13,213,162**	**15,466,216**
Tax	-	92,993	548,502	797,063	1,044,171	1,531,425	2,021,488	2,510,797	3,303,290	3,866,554
Net Profit	**409,044**	**438,397**	**1,645,506**	**2,391,188**	**3,132,514**	**4,594,275**	**6,064,463**	**7,532,391**	**9,909,871**	**11,599,662**
Monthly Profit After Tax	***34,087***	***36,533***	***137,125***	***199,266***	***261,043***	***382,856***	***505,372***	***627,699***	***825,823***	***966,639***

SPICES PROCESSING, PACKAGING AND 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	519,000	1,336,024	147,661	1,736,303	2,932,483	3,956,150	7,050,536	11,386,098	16,704,380	23,803,967	31,876,441
Raw Material Inventory	883,210	927,370	973,739	1,022,426	1,073,547	1,127,224	1,183,585	1,242,765	1,304,903	1,370,148	1,438,655
Accounts Receivable	0	373,621	1,509,188	728,349	834,594	947,758	1,166,519	1,334,535	1,512,930	1,817,794	1,813,553
Prepaid Rent	720,000	720,000	720,000	720,000	720,000	720,000	720,000	720,000	720,000	720,000	720,000
Total Current Assets	**2,122,210**	**3,357,015**	**3,350,587**	**4,207,077**	**5,560,623**	**6,751,132**	**10,120,640**	**14,683,397**	**20,242,213**	**27,711,910**	**35,848,649**
Fixed Assets											
Plant Machinery & Facility	1,175,000	1,057,500	951,750	856,575	770,918	1,043,826	939,443	845,499	760,949	684,854	966,369
Furniture & Fixtures	200,000	180,000	162,000	145,800	131,220	118,098	106,288	95,659	86,093	77,484	69,736
Vehicle	400,000	360,000	324,000	291,600	262,440	236,196	212,576	191,319	172,187	154,968	139,471
Total Fixed Assets	**1,775,000**	**1,597,500**	**1,437,750**	**1,293,975**	**1,164,578**	**1,398,120**	**1,258,308**	**1,132,477**	**1,019,229**	**917,306**	**1,175,576**
Intangible Assets											
Preliminary and Transportation Expenses	**50,000**	**40,000**	**30,000**	**20,000**	**10,000**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**3,947,210**	**4,994,515**	**4,818,337**	**5,521,052**	**6,735,201**	**8,149,252**	**11,378,947**	**15,815,874**	**21,261,442**	**28,629,216**	**37,024,225**
Owner's Equity	1,973,605	1,982,648	1,921,046	2,766,552	4,157,740	5,790,253	8,684,529	12,748,992	17,781,383	24,691,254	32,790,916
Short-term Liabilities											
Account Payable	0	1,324,814	1,542,857	1,786,153	2,057,266	2,358,998	2,694,418	3,066,882	3,480,059	3,937,962	4,233,309
Long Term Liability	1,973,605	1,687,052	1,354,435	968,347	520,195	0	0	0	0	0	0
Total Equity & Liabilities	**3,947,210**	**4,994,515**	**4,818,337**	**5,521,052**	**6,735,201**	**8,149,252**	**11,378,947**	**15,815,874**	**21,261,442**	**28,629,216**	**37,024,225**

SPICES PROCESSING, PACKAGING AND 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	409,044	438,397	1,645,506	2,391,188	3,132,514	4,594,275	6,064,463	7,532,391	9,909,871	11,599,662
Add: Depreciation Expense	0	177,500	159,750	143,775	129,398	116,458	139,812	125,831	113,248	101,923	91,731
Amortization Expense	0	10,000	10,000	10,000	10,000	10,000	-	-	-	-	-
(Increase) / decrease in Receivables	-	(373,621)	(1,135,566)	780,839	(106,245)	(113,164)	(218,761)	(168,016)	(178,395)	(304,865)	4,241
(Increase) / decrease in Payables	-	1,324,814	218,042	243,297	271,113	301,732	335,420	372,464	413,177	457,903	295,347
(Increase) / decrease in RM Inventory	-	(44,160)	(46,369)	(48,687)	(51,121)	(53,677)	(56,361)	(59,179)	(62,138)	(65,245)	(68,507)
Net Cash Flow From Operations	**0**	**1,503,576**	**(355,745)**	**2,774,730**	**2,644,332**	**3,393,862**	**4,794,386**	**6,335,562**	**7,818,282**	**10,099,587**	**11,922,474**
Cash Flow From Financing Activities											
Receipt of Long Term Debt	1,973,605										
Repayment of Long Term Debt		(286,553)	(332,617)	(386,087)	(448,152)	(520,195)	-	-	-	-	-
Owner's Equity	1,973,605	(400,000)	(500,000)	(800,000)	(1,000,000)	(1,500,000)	(1,700,000)	(2,000,000)	(2,500,000)	(3,000,000)	(3,500,000)
Net Cash Flow From Financing Activities	**3,947,210**	**(686,553)**	**(832,617)**	**(1,186,087)**	**(1,448,152)**	**(2,020,195)**	**(1,700,000)**	**(2,000,000)**	**(2,500,000)**	**(3,000,000)**	**(3,500,000)**
Cash Flow From Investing Activities											
Capital Expenditure	(1,575,000)					(350,000)					(350,000)
Office Equipment & Furniture	(200,000)										
Preliminary Operating Expenses	(50,000)										
Security Deposit and Advance Rent	(720,000)										
Raw Material Inventory	(883,210)										
Net Cash Flow From Investing Activities	**(3,428,210)**	**0**	**0**	**0**	**0**	**(350,000)**	**0**	**0**	**0**	**0**	**(350,000)**
NET CASH FLOW	**519,000**	**817,024**	**(1,188,363)**	**1,588,642**	**1,196,179**	**1,023,667**	**3,094,386**	**4,335,562**	**5,318,282**	**7,099,587**	**8,072,474**
Cash at the Beginning of the Period	**0**	**519,000**	**1,336,024**	**147,661**	**1,736,303**	**2,932,483**	**3,956,150**	**7,050,536**	**11,386,098**	**16,704,380**	**23,803,967**
Cash at the End of the Period	**519,000**	**1,336,024**	**147,661**	**1,736,303**	**2,932,483**	**3,956,150**	**7,050,536**	**11,386,098**	**16,704,380**	**23,803,967**	**31,876,441**

SPICES PROCESSING, PACKAGING AND MARKETING

SAMPLE RATIO OF INGREDIENTS

			Total Qty./kg	Cost	Ingredient Ratio	Cost/k.g.
Regular Spices	1.	Red Chilli (Surkh Mirch)	200	14	20%	70
	2.	Salt (Namak)	100	0.5	10%	5
	3.	Coriander (Dhanya)	250	12.5	25%	50
Hot Spices	4.	Turmeric (Haldi)	100	5	10.00%	50
	5.	Cumin Seed (Sufed Zeera)	80	9.6	8.00%	120
	6.	Black Pepper (Kali Mirch)	80	8	8.00%	100
	7.	Clove (Long)	50	17.25	5.00%	345
	8.	Cinnamon (Dar Cheeni)	40	21.6	4.00%	540
	9.	Cardamom (Alaichi)	30	9	3.00%	300
	10.	Mace (Jautri)	5	2.7	0.50%	540
	11.	Nutmeg (Jaifal)	5	2.7	0.50%	540
	12.	Bay Leaf (Tez Pat)	20	2.5	2.00%	125
	13.	Mango Powder (Aam Chur)	3	0.375	0.30%	125
	14.	Plum (Aalo Bokhara)	5	0.625	0.50%	125
	15.	Preservatives & Citric Acid	30	0.15	3.00%	5
Weighted Average Cost of Regular Spices/k.g.						**27**
Weighted Average Cost of Hot Spices/k.g.						**80**
Total Cost/k.g.						**107**

COST CALCULATION

	Production (k.g./day)
Total	**240**
BIRYANI MASALA	**96.00**
KARAHI MASALA	**72.00**
NEHARI MASALA	**72.00**
Cost of Raw Material / Packet	**7.61**
Total Direct Cost of Raw Material /day (Exc	**25,570**
Total Cost of Raw Material /month	**664,810**
Total Cost of Raw Material /year	**7,977,715**
Total Cost pf Packaging Material Used	**2,620,800**

REVENUE CALCULATION

Packet Size	**70**	grams
Total packets in one k.g.	**14**	
Daily production	**240**	
Wastages	**1%**	
Total packets produced / day	**3326**	
Sales price (Rs.)	**18**	per packet
Total Sale / day	**59,875**	
Total Sale / month	**1,556,755**	
Total Sale / year	**18,681,062**	