



Pre-feasibility Study

PRODUCTION UNIT FOR DOG FOOD AND CAT FOOD

November 2021

“The figures and financial projections are approximate due to fluctuations in exchange rates, energy costs, and fuel prices etc. Users are advised to focus on understanding essential elements such as production processes and capacities, space, machinery, human resources, and raw material etc. requirements. Project investment, operating costs, and revenues can change daily. For accurate financial calculations, utilize financial calculators on SMEDA’s website and consult financial experts to stay current with market conditions.”

Small and Medium Enterprises Development Authority
Ministry of Industries and Production
Government of Pakistan

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1. DISCLAIMER

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2. EXECUTIVE SUMMARY

With the passing years, there has been an increasing trend of keeping pets in the Pakistani households. Pets increase the overall liveliness of homes; they act as interesting and friendly creatures for the kids and they provide a sense of companionship to the humans. Some pets, like dogs, are also kept to guard the houses/offices from unwanted visitors. The society is going through a cultural change where the acceptability of pets in the local households is increasing. With an increased and ready supply of high-quality veterinary services and specialized pet foods, it has become easy for the pet-owners to properly manage their pets. There now are specialized pet accessory stores in all the large cities from where all the things required for pet-keeping can be easily procured.

People keep a large variety of pets including land animals, birds and aquatic animals. However, dogs and cats remain as the most common pets in the Pakistani households. These two animals can be easily tamed and the requirements for proper management of pet dogs and pet cats can be easily met from the local markets of the large cities. Of all the requirements in this regard, food is the most important one to keep the pets healthy, useful and happy. Therefore, pet food industry becomes the most important need for proper management of pets.

In line with the pets' popularity, the most important products of the pet food industry are dog food and cat food. Balanced pet food provides balanced nutrients to sustain physical and mental health and the routine activity of the pet animals. Hence packed pet food is preferred by the owners over natural or homemade food. Generally, pets are not given cooked and marinated foods like sauces and gravies since such foods contain ingredients which may be toxic to pets.

Dogs and cats have complex nutritional requirements. Dogs are known to require 38 important nutrients daily, while cats require 40 such nutrients. Dog foods and cat foods are formulated according to the nutritional needs of the two animals. Key ingredients of these foods include meat, meat byproducts, cereals, grain, vitamins, and minerals.

There are mainly three types of diets in the pet food industry:

- **Dry foods**, which contain 8-15% water
- **Semi-moist foods** which contain 25-35% water (usually packed in pouches)
- **Canned foods** which contain 60-78% water (usually in a solid or soft-sided container)

The proposed project produces dry foods that are more economical to feed than other forms of food and can be safely stored at room temperature.

This "Pre-feasibility Document" provides details for setting up a "Production Unit for Dog Food and Cat Food". There are still very few producers of cat food and dog food in Pakistan but their demand is constantly increasing due to which it appears as a good investment opportunity. The proposed project has a capacity of manufacturing

184,395 packs of the two types of pet foods in a year at the maximum capacity of 100%. The production capacity in “Year One” is assumed to be 50%, with a production of 92,202 packs annually.

The unit is proposed to be ideally located in metropolitan cities like Karachi, Lahore, Islamabad, and other cities with sizeable shares of affluent population, such as Faisalabad, Rawalpindi, Peshawar, Quetta, Hyderabad, Multan, Gujranwala, Sialkot, etc. Other benefits of these cities are the availability of improved infrastructure and skilled labor.

The “Production Unit for Dog Food and Cat Food” will be set up in a rented building with area of 2,250 square feet. The project requires a total investment of PKR 14.97 million. This includes capital investment of PKR 12.61 million and working capital of PKR 2.4 million. This project is financed through 100% equity. The Net Present Value (NPV) of project is PKR 64.65 million with an Internal Rate of Return (IRR) of 60% and a Payback period of 2.47 years. Further, this project is expected to generate Gross Annual Revenues of PKR 85.90 million during 1st year, with Gross Profit (GP) ratio ranging from 34% to 39% and Net Profit (NP) ratio ranging from 6% to 13% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 38% (70,585 packs) with breakeven revenue of PKR 65.76 million.

The proposed project will provide employment opportunities to 28 people. High return on investment and steady growth of business is expected with the entrepreneur having some prior experience or education in the related field of business. The legal business status of this project is proposed as “Sole Proprietorship”. Further, the proposed project may also be established as a “Partnership Concern”.

3. INTRODUCTION TO SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established in October 1998 with an objective to provide fresh impetus to the economy through development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out ‘sectoral research’ to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives. Preparation and dissemination of prefeasibility studies in key areas of investment has been a successful hallmark of SME facilitation by SMEDA.

Concurrent to the prefeasibility studies, a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of experts and consultants and delivery of need-based capacity building

programs of different types in addition to business guidance through help desk services.

National Business Development Program for SMEs (NBDP) is a project of SMEDA, funded through Public Sector Development Program of Government of Pakistan.

The NBDP envisages provision of handholding support / business development services to SMEs to promote business startup, improvement of efficiencies in existing SME value chains to make them globally competitive and provide conducive business environment through evidence-based policy-assistance to the Government of Pakistan. The Project is objectively designed to support SMEDA's capacity of providing an effective handholding to SMEs. The proposed program is aimed at facilitating around 314,000 SME beneficiaries over a period of five years.

4. PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, marketing, finance and business management.

The purpose of this document is to provide information to the potential investors about "Production Unit for Dog Food and Cat Food". The document provides a general understanding of the business to facilitate potential investors in crucial and effective investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business setup and its successful management.

Apart from carefully studying the whole document one must consider critical aspects provided later on, which form the basis of any investment decision.

5. BRIEF DESCRIPTION OF PROJECT & PRODUCTS

With the passing years, there has been an increasing trend of keeping pets in the Pakistani households. Pets increase the overall liveliness of homes; they act as interesting and friendly creatures for the kids and they provide a sense of companionship to the humans. Some pets like dogs are also kept to guard the houses/offices from unwanted visitors. The society is going through a cultural change where the acceptability of pets in the local households is increasing. With an increased and ready supply of high-quality veterinary services and specialized pets

foods, it has become easy for the pet-owners to properly manage their pets. There now are specialized pet accessory stores in all the large cities from where all the things required for pet-keeping can be procured.

People keep a large variety of pets including land animals, birds and aquatic animals. However, dogs and cats remain as the most common pets in the Pakistani households. These two animals can be easily tamed and the requirements for proper management of pet dogs and pet cats can be easily met from the local markets of the large cities. Of all the requirements in this regard, food is the most important one to keep the pets healthy, useful and happy. Therefore, pet food industry becomes the most important need for proper management of pets.

Complete and balanced pet food products are formulated as a single source of nutrition for a pet. Dog foods and cat foods can be generally segmented into dry, semi-moist and wet foods. Dry pet food contains 8–15% moisture, semi-moist pet food contains 25–35% moisture, whereas wet pet food contains 60-78% moisture. Dry pet food is the largest segment in the pet food market, and hence has been selected as the key product of this pre-feasibility study. The proposed manufacturing unit aims to produce dry dog food and dry cat food.

The dogs and cats need a balanced diet which contain proteins, fats, carbohydrates and essential vitamins and minerals in right quantities and proportions; so as to ensure the animals' health, safety and happiness. Pet food is made from multiple ingredients which constitute the sources of animal and plant proteins, carbohydrates, fats, fibers, vitamins and minerals. The selection of ingredients for producing dry products is based on many factors; including their nutrient content, digestibility, taste, functionality, availability and cost.

Dry dog foods and cat foods are produced in different forms and shapes; such as biscuits, mixtures, etc. Good quality pet foods should:

- have all the required ingredients in the right quantities
- have high energy levels
- have adequate shelf-life under proper storage conditions
- be acceptable to the pets for eating

Dogs and cats have different nutritional needs. In case some pet owners choose to give their pets homemade foods, they need to have a good understanding of the specific nutritional needs of their pets. Preparing a food without such knowledge is likely to affect the health safety and satisfaction of pet dogs or cats.

For example, if the calcium level in the food is too high or too low, it may adversely affect the health of the pet. Similarly, mismanaged fat intake can result in health issues such as pancreatic problems. Additionally, improperly formulated or under-cooked pet food could become contaminated with bacteria such as *E. coli* or *Salmonella* which can make the pet sick. Using proper pet food keep the pet owners

away from such worries. Hence most of the pet owners prefer the easy way out and opt for the prepared dog and cat food available in the market.

In the proposed project, following three types of dry pet foods have been included:

Chicken Food for Dogs and Cats: Chicken meat is the main ingredient in these foods. In the dog food, 42% of total food is chicken meat, whereas the cat food contains 60% chicken meat. In contrast to dogs which are omnivores, cats are carnivores. That is the reason the proportion of meat in cat food is usually higher than that in dog food. Other ingredients include chicken liver, eggs, whole brown rice, whole grain corn, oats, chicken fat, sunflower oil, sweet potatoes, peas flour, carrots, vitamin E and water.

Beef Food for Dogs and Cats: Beef is the main ingredient in these foods. Dog food contains 42% beef whereas, the cat food contains 60% beef. Other ingredients include beef liver, eggs, whole brown rice, whole grain corn, oats, beef fat, sunflower oil, sweet potatoes, peas flour, carrots, vitamin E and water.

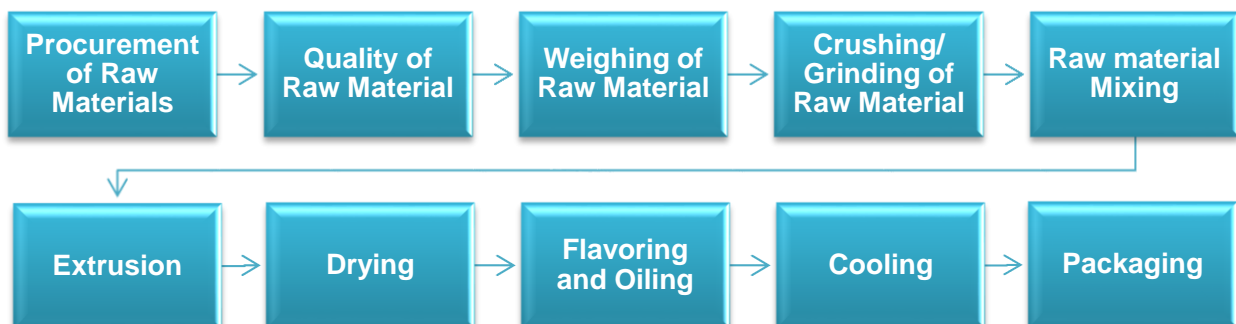
Fish Food for Cats: Fish meat is the main ingredient in this food. Other ingredients include chicken liver, eggs, whole brown rice, whole grain corn, oats, fish oil, sunflower oil, sweet potatoes, peas flour, carrots, vitamin E and water.

5.1. Production Process Flow

Process Flow

The production process flow of producing dog and cat food is shown in Figure 1.

Figure 1: Process Flow



Procurement of Raw Materials

Dogs and cats have different nutritional requirements. Dogs are omnivores and can live on multiple types of foods; such as meat, bones, grains, plant materials and vegetables. In general, dog food may have a combination of animal proteins, grains, and vegetables. The raw materials used for dog food are beef, chicken meat, eggs, and some plant ingredients like corn, oats, peas, sweet potatoes, etc. Contrary to popular belief, dogs are not entirely carnivorous. They require (and benefit from)

regularly consuming non-meat foods. Cats, on the other hand, are far more limited on what they need to eat to survive. Cats are obligate carnivores which must get their nutrients from more meat and less plant material. Beef or chicken meat is the major ingredient for cat food. They can be easily procured from the slaughterhouses. Chicken fat or beef fat can also be easily procured from slaughter houses as they usually separate the fat while preparing meat. For obtaining 1 kg liquid egg, an average of 20 eggs is required. The cost of eggs has been calculated accordingly. Peas flour is an ingredient used all the recipes and can be procured easily from the local market. Other ingredients containing protein and carbohydrates such as, brown rice, oats, peas and carrots are used in smaller quantities. Some other ingredients like sunflower oil and fish oil are used as sources of fats. All these raw materials are purchased from the local markets.

Quality of Raw Material

After procurement, the quality of procured raw materials (mainly grains) is checked through the Near Infrared Grain Analyzer SGrain. Quality controller checks the moisture, protein, etc. in the raw material using this analyzer. After this quality test, the raw material is approved for use.

Weighing of Raw Material

After the quality check, the raw materials are weighed, using electronic weigh scale, in the required proportions as per the recipe of each product.

In the proposed project, a complete production line is being used for the production of dog food and cat food. It consists of a Crusher, Grinder, Mixing machine, Screw Conveyor, Extruder, Dryer, Oil Sprayer, Cooling Conveyor and a Packaging Machine.

Crushing/Grinding of the Raw Material

In this step, raw materials such as corn, oats and peas are crushed in the crusher, whereas meat is minced using the mincing machine. The meat is minced by the machine's grinding blades and the minced meat then comes out on the grinding plate. The raw material is put into the hopper manually by the labor where it is ground and crushed by using series of blades installed in the crusher. Figure 2 shows a meat mincing machine and Figure 3 shows a crushing machine.

Figure 2: Meat Mincing Machine



Figure 3: Crusher Machine**Ingredients Mixing**

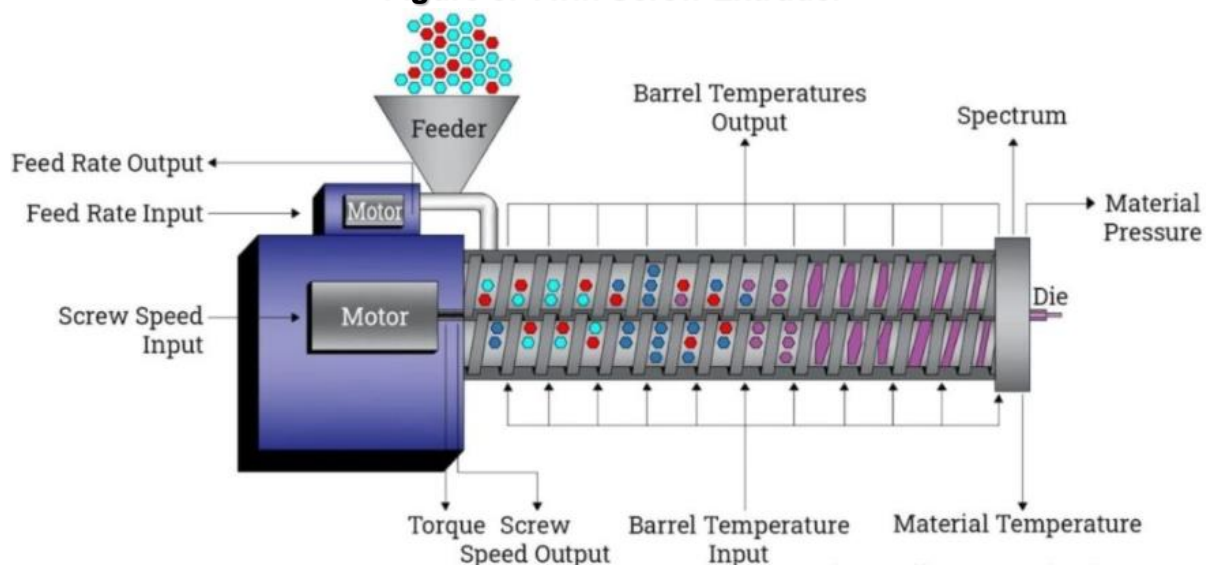
The raw materials are then transferred to the mixing machine which mixes them for production. For the proposed project, food grade mixing machine of stainless-steel body having capacity of mixing 150 kilograms per hour of raw materials is used. Figure 4 shows the machine used for mixing all the ingredients. It can be used for production of cat and dog food.

Figure 4: Mixing Machine

Extrusion

The mixed material is then transferred to the extruder through a screw conveyor. The twin-screw extruder is a machine in which the mixed raw materials are heated and rolled through screws to form pellets. Twin-screw extruder comprises of a pair of parallel screws, rotating inside a barrel with an 8-shaped cross-section. At the exit end, each half of the barrel converges into a short conical section, each with a die at the end. The screws can be co-rotating or counter-rotating. The proposed extruder has a capacity to process 150 kg/hour of mixed raw material. Figure 5 shows the working of a twin-screw extruder.

Figure 5: Twin Screw Extruder



Twin screw extrusion carries out thermal-chemical treatment of mixed raw materials, which forms semi-finished product (pellets). The semi-finished product, in the form of pellets, is discharged from the die placed at the outlet of the extruder. Figure 6 shows twin-screw extruder and screw conveyor.

Figure 6: Extruder and Screw Conveyor



Drying

Drying of the prepared food pellets is necessary in order to remove the moisture for preparation of dry cat food and dog food. The semi-finished products (pellets) via a conveyor belt are put into an electrically powered tunnel dryer machine which helps in drying them by applying heat.

Tunnel dryer is an electric dryer having four racks of 5 meters length parallel to each other. At the inlet of the tunnel dryer, the moisture level of the food pellets is around 25%. The tunnel dryer removes 7 to 12% moisture and the product comes out of the dryer at a moisture level of 10 to 12%. It has a capacity to dry 150 kg/hour feed. Figure 7 shows a tunnel dryer.

Figure 7: Dryer



Oil Spraying

The dry pellets then pass through to the oil spraying drum which is connected with the dryer from end. Oil is used to meet the required fat level in feed and to improve taste of the food and make it more palatable for the pet animals. Figure 8 shows the oil spraying drum.

Figure 8: Oil Spraying Drum



Cooling

Cooling conveyor uses high-powered fans to cool the food as they travel along the production line on the conveyor belt. By the time the food passes through the conveyor, they are ready for packaging and shipping. Cooling Conveyor has a capacity of processing 150 kg/hour pet food pellets. Figure 9 shows cooling conveyor.

Figure 9: Cooling Conveyor



Packaging

The prepared dog food and cat food are packed into an attractive food grade packing of 1 kilogram, 3 kilograms and 5 kilograms packs; using an automatic packaging machine. The material used for packing dog food and cat food can be either polyethylene or polypropylene. The dry dog and cat food are packed in stand-up pouches, whereas pet foods with moisture are mostly sealed in cans. According to industry practice, the expiry date of these products is normally 12 months which is stamped on the packing material. Figure 10 shows an automatic packing machine.

Figure 10: Automatic Packing Machine



Currently in Pakistan, there are no available quality standards for manufacturing dog food and cat food. Since most of the pet foods are imported from developed countries like USA, the standards applicable in those countries should preferably be followed by the interested manufacturers. The Food and Drug Administration (FDA) regulates the manufacture of cat food and dog food in the USA. The Federal Food, Drug, and Cosmetic Act (FD&C Act) requires that all animal foods, like human foods, be safe to eat, produced under sanitary conditions and should contain no harmful substances.

There is no requirement that pet food products have pre-market approval by the FDA. But FDA ensures that the ingredients used in pet food are safe and have an appropriate function in the pet food. Many ingredients such as meat, poultry, and grains are considered safe and do not require pre-market approval.

Figure 11, Figure 12 and Figure 13 respectively show packaged dog food, cat food and dog and cat eating packaged foods.

Figure 11: Packaged Dog Food



Figure 12: Packaged Cat Food



Figure 13: Dog and Cat Eating Food

5.1. Installed and Operational Capacities

The proposed production unit shall, at maximum capacity of 100%, annually produce 184,395 packs of five types of pet foods (2 types of dog food and 3 types of cat food). These packs will be in three packing sizes of 1 kg, 3 kg and 5 kg. The project is assumed to attain 50% capacity utilization during the first year of operations; which translates into an annual production of 92,202 packs. The operational capacity utilization is assumed to increase at the rate of 5% per annum to reach a maximum of 90% in the 9th year of operations. The unit operates for 8 hours a day, working in one shift per day for 280 days in a year. Table 1, Table 2 and Table 3 show the production assumptions and production capacity respectively.

Table 1: Production Assumptions

Product	Production Line Capacity per hour (kg)	Annual Capacity (kg)	Production Ratio	Annual Product wise Production (kg)
Dog Food	150	336,000	60%	201,600
Cat Food			40%	134,400
			100%	336,000

Table 2: Production Assumptions

Product wise Production per hour (kg)	Annual Production Capacity (kg) (Table 1)	Production Ratio	Product Wise Production (kg)
Chicken Dog Food	201,600	50%	100,800
Beef Dog Food		50%	100,800
Chicken Cat Food	134,400	40%	53,760
Beef Cat Food		30%	40,320
Fish Cat Food		30%	40,320
Total	336,000		336,000

Table 3: Production Capacity

Particulars	Material Input (kgs) / Hour (Table 2)	Process Loss	Finished Product (KGs)	Production Ratio	Material Output (kgs)	No. of Packs / Annum
Chicken Dog Food						
Pack - 1 (1kg)	100,800	2%	98,784	40%	39,514	39,514
Pack - 2 (3kg)				30%	29,635	9,878
Pack - 3 (5kg)				30%	29,635	5,927
Beef Dog Food						
Pack - 1 (1kg)	100,800	2%	98,784	40%	39,514	39,514
Pack - 2 (3kg)				30%	29,635	9,878
Pack - 3 (5kg)				30%	29,635	5,927
Chicken Cat Food						
Pack - 1 (1kg)	53,760	2%	52,685	40%	21,074	21,074
Pack - 2 (3kg)				30%	15,805	5,268
Pack - 3 (5kg)				30%	15,805	3,161
Fish Cat Food						
Pack - 1 (1kg)	40,320	2%	39,514	40%	15,805	15,805
Pack - 2 (3kg)				30%	11,854	3,951
Pack - 3 (5kg)				30%	11,854	2,371

Beef Cat Food						
Pack - 1 (1kg)	40,320	2%	39,514	40%	15,805	15,805
Pack - 2 (3kg)				30%	11,854	3,951
Pack - 3 (5kg)				30%	11,854	2,371

6. CRITICAL FACTORS

The following factors should be taken into account while making investment decision:

- Sound technical knowhow and knowledge of the industry
- Availability of specialized workforce
- Up-to-date knowledge of market needs
- Selection of appropriate machinery and human resources
- Rigorous supervision of production
- Eye-catching packaging
- Ability to generate work orders through networking
- Assurance of timely order fulfillment
- Compliance with international quality control standards

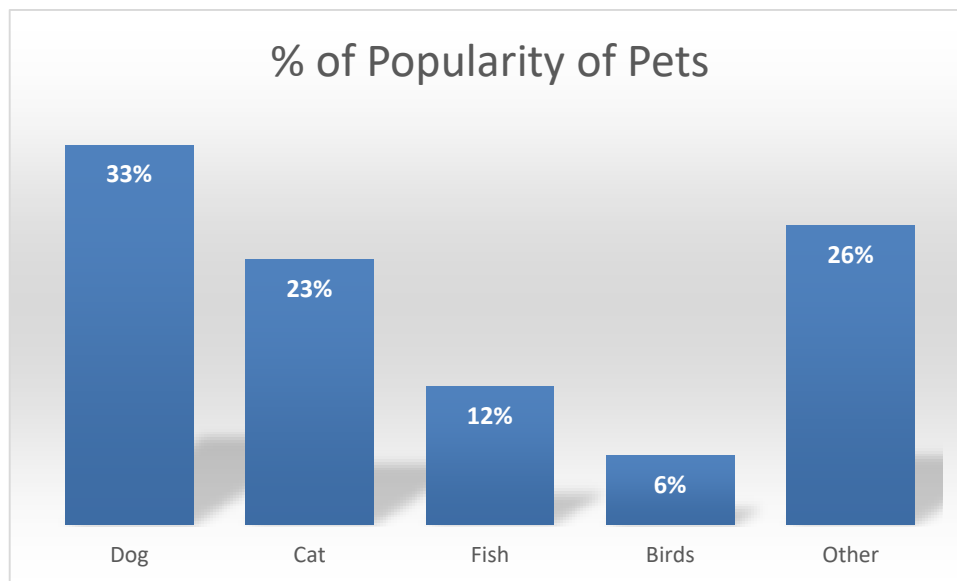
7. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

A production unit for Dog and Cat Food can be set up in any major city with sizeable population such as Karachi, Lahore, Rawalpindi, Islamabad, Peshawar, Quetta, Multan, Faisalabad, Hyderabad, Gujranwala, Hyderabad, Sialkot, etc. Furthermore, sub-urban areas of all major cities of Pakistan also have potential for this investment. Availability of skilled labor is vital while selecting a location. All the above-mentioned cities have adequate availability of skilled labor, raw materials and other support infrastructure. In addition, there is a high demand for cat food and dog food in larger cities due to a larger share of affluent population.

8. POTENTIAL TARGET MARKETS

Over the years, pet animals have become a status symbol and the willingness to spend more money for pure-bred animals and their upkeep is increasing. Potential target market for the proposed business is the upper and upper-middle income classes of the society. Keeping dogs/cats is an expensive activity, which makes it unaffordable for the middle and lower-middle income classes of the society. Moreover, pet-keeping requires large open spaces which are only available in large houses of the upper and upper-middle income classes.

Pet owners today are more concerned about the convenience of carrying, storing and using of pet foods which has opened the opportunity to invest in and developing advanced pet food processing systems. Owing to these factors, the pet food processing market is expected to attain a significant CAGR during the forecast period 2021-2029. The market is segmented by application into dog food, cat food and others. Out of these segments, the dog and cat food segment is anticipated to grow at the fastest rate on the back of growing population count of dogs and cats across the world. Figure 14 shows popularity of different pets around the world.

Figure 14: % of Popularity of Pets

According to pet food industry.com report, dogs are the most popular pet globally, owned by 33% of respondents out of 27,000 online consumers surveyed in 22 countries; with cats being the second, at 23%.¹

The increasing adoption rate of pets worldwide, especially in the developing regions is expected to drive the pet food market growth. The global pet food market size is expected to gain momentum by reaching USD 136.82 billion by 2028 while exhibiting a CAGR of 4.96% from 2021 to 2028. In a report titled "Pet Food Market, 2021-2028," Fortune Business Insight mentions the market size as USD 93.94 billion in 2020.²

In recent times, there has been inclination towards working from home, therefore people are using this as an opportunity to get family pets. Besides, in tough times of pandemic, the demand for pets has increased. For instance, as per report published by Mars Petcare, a leading pet food manufacturer, stated that the combined sales of cat food and dog food grew by 6.5% in the 12 weeks between February and May 2020.

Pakistan's recent economic recession has renewed the government's focus towards reducing its import burden by enhancing local production and export capacity. This can be achieved by facilitating and increasing production of products that can easily be produced locally, such as pet food.

The owner of Pet Mania Pakistan, a leading retail store of pet food and accessories, stresses that facilitation by the government to set up new industries is vital. Having worked as one of the country's largest importers of pet food in the previous decade, she thinks policies and expertise are aligning for Pakistan to establish local pet food

¹ <https://www.petfoodindustry.com/articles/5845-infographic-most-of-world-owns-pets-dogs-are-tops>

² <https://www.fortunebusinessinsights.com/industry-reports/pet-food-market-100554>

production, based on the fact that customs duties on imported pet food raise the cost by 110%, which may increase soon.

The owner of Pet Mania Pakistan also acknowledges the growing Pakistan pet food market, which has increased 20% a year, compared to the 6-8% rise in the global pet food market. “The Pakistani pet food market has grown over 20% a year for the past three years consecutively. As per the estimate, the current market is about 4,000 to 5,000 tons of pet food per year. Less than 5% is locally manufactured, while 95% is imported.”³

A similar situation arose in the Chinese and Indian pet food markets from 2000-2005 and 2005-2015, respectively, which saw their markets soar past 20% growth per annum. As per the owner of Pet Mania Pakistan, the catalyzing factor in both these countries has been the animal feed, specifically the development of industrial fish feed. With the entrance of fish feed factories, pet food experimentation also occurs. This is due to the fact that the core machine, an extruder, is the same for both industries. Since fish food season is off in winter, production units then attempt to make pet food.

The global pet food market is expected to grow from \$72.07 billion in 2020 to \$75.29 billion in 2021 at a compound annual growth rate (CAGR) of 4.5%. The growth is mainly due to the companies rearranging their operations and recovering from the COVID-19 impact, which had earlier led to restrictive containment measures involving social distancing, remote working, and the closure of commercial activities that resulted in operational challenges. The market is expected to reach \$90.32 billion in 2025 at a CAGR of 5%.⁴

9. PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of a Production Unit for Dog and Cat Food. Various costs and revenue related assumptions along with results of the analysis are outlined in this section.

The projected Income Statement, Cost of Goods Sold, Cash Flow Statement and Balance Sheet are attached as Annexure.

9.1. Project Economics

All the figures in this financial model have been calculated after carefully taking into account the relevant assumptions and target market.

³<https://www.petfoodindustry.com/articles/8996-is-pakistan-ready-for-domestic-pet-food-production#:~:text=%E2%80%9CThe%20Pakistani%20pet%20food%20market,while%2095%25%20is%20imported.%E2%80%9D>

⁴<https://www.globenewswire.com/news-release/2021/03/22/2196776/28124/en/Outlook-on-the-Pet-Food-72-Billion-Global-Market-to-2030-Identify-Growth-Segments-for-Investment.html>

9.2. Project Cost

Total cost of the project has been calculated to be PKR 14.97 million. The project will be financed through 100% equity. Table 4 provides the details of the costs calculated for the proposed production unit.

Table 4: Project Cost

Description	Amount (PKR)	Reference
Land	-	9.2.1
Building / Infrastructure	948,870	9.2.2
Machinery & Equipment	7,410,000	9.2.3
Furniture & Fixtures	1,035,000	9.2.4
Office Equipment	1,643,000	9.2.5
Office Vehicles	333,300	9.2.6
Pre-operating Costs	838,531	9.2.7
Security against building	405,000	9.2.8
Total Capital Cost	12,613,701	
Working capital		
Equipment spare part inventory	61,750	
Raw Material Inventory	1,043,305	
Upfront building rent	135,000	
Upfront insurance payment	119,483	
Cash	1,000,000	
Total Working capital	2,359,537	
Total Project Cost (PKR)	14,973,239	

9.2.1. Land

The proposed Dog Food and Cat Food Production Unit will be established in a rented building to avoid the high cost of land. Suitable locations for setting up a production business like this can be easily available on rent. Therefore, no land cost has been added to the project cost. Total space requirement for the proposed unit has been estimated as 2,250 sq. ft. The breakup of the space requirement is provided in Table 5.

Table 5: Breakup of Space Requirement

Break-up of Land Area	% Break-up	Area (Sq. Ft.)
Raw Material Store	13%	300
Production Department	29%	660

Finished Goods Store	13%	300
Executive Office	7%	150
HR and Admin. Department	7%	150
Accounts Department	7%	150
Procurement Department	7%	150
Sales and Marketing Department	7%	150
Washrooms	11%	240
Total Area	100%	2,250

9.2.2. Building

There will be no cost of building since the unit will be started in a rented premises. However, there will be a renovation cost; required to make the building usable for the business. The proposed project requires electricity load of 43 KW for which an electricity connection under the General Supply Tariff-Industrial three phase will be required. Building rent of PKR 135,000 per month has been included in the operating cost. Building renovation cost is shown in Table 6.

Table 6: Building Renovation Cost

Cost Item	Unit of Measurement	Total Units	Cost/ Unit (PKR)	Total Cost (PKR)
Paint Cost	Liter	69	500	34,740
Labour Cost- Paint	Sq. Feet	6,948	10	69,480
Tiles Cost	Sq. Feet	990	120	118,800
Labour Cost- Tiles	Sq. Feet	990	40	39,600
Wall Racks	No.	15	15,000	225,000
Glass Partition	Sq. Feet	675	550	371,250
Curtains	No.	12	5,000	60,000
Blinds	No.	6	5,000	30,000
Total				948,870

9.2.3. Machinery and Equipment

Table 7 provides details of machinery and equipment required for the project. The Complete Production Line includes Meat mincing machine, Crusher machine, Mixing Machine, Extruder, Screw Conveyor, Drying Machine, Oiling Drum, cooling conveyor and Packing machine.

Table 7: Machinery and Equipment

Cost Item	Number	Unit Cost (PKR)	Total Cost (PKR)
Complete Production line - (40KW)	1	4,000,000	4,000,000
Working Tables	5	10,000	50,000
Platform Trolley	5	30,000	150,000
Plastic Bucket	20	500	10,000
Refrigerators (300 ltr)	5	60,000	300,000
Deep Freezer (500 ltr)	5	90,000	450,000
Electronic Weigh Scale (500 kg)	1	50,000	50,000
Near Infrared Grain Analyser Sgrain (Analysis time 25 seconds)	1	2,400,000	2,400,000
Total	43		7,410,000

9.2.4. Furniture & Fixtures

Table 8 provides details of the furniture and fixture requirement of the project.

Table 8: Furniture and Fixtures

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
Executive Chairs	8	20,000	160,000
Executive Table	8	35,000	280,000
Office Chairs	9	10,000	90,000
Office Table	9	25,000	225,000
Visiting Chairs	10	10,000	100,000
Sofa Sets	4	45,000	180,000
Total			1,035,000

9.2.5. Office Equipment

Details of office equipment required for the project are provided in Table 9.

Table 9: Office Equipment

Cost Item	Units	Unit Cost(PKR)	Total Cost (PKR)
Laptop	5	90,000	450,000
Desktop Computer	8	40,000	320,000
1.5 ton Inverter AC	7	90,000	630,000

Ceiling Fan	7	6,000	42,000
Pedestal Fan	5	6,000	30,000
Bracket Fan	10	5,000	50,000
Water Dispenser	2	20,000	40,000
Laser Printer	1	40,000	40,000
CCTV Cameras	12	2,000	24,000
DVR	1	12,000	12,000
WI-FI/ Internet Connection	1	5,000	5,000
Total			1,643,000

9.2.6. Office Vehicle

Details of office vehicle required for the project are provided in Table 10.

Table 10: Office Vehicles

Cost Item	Units	Unit Cost (PKR)	Total Cost (PKR)
Loader Rickshaw (150 CC)	1	250,000	250,000
Motorcycle	1	80,000	80,000
Total Cost (PKR)			330,000

9.2.7. Pre-Operating Cost

Details of pre-operating cost for the project are provided in Table 11.

Table 11: Pre-Operating Cost

Cost Item	Number of Months	Total Cost (PKR)
Administration expenses	2	679,000
Utilities expenses	1	159,531
Total		838,531

9.2.8. Security against Building

Details of pre-operating cost for the project are provided in Table 12.

Table 12: Security against Building

Cost Item	Months	Unit Cost/Month (PKR)	Total Cost (PKR)
Security against Building	3	135,000	405,000

9.3. Financial Feasibility Analysis

The financial feasibility analysis given in Table 13 provides the information regarding projected IRR, NPV and payback period of the study based on 100% equity.

Table 13: Financial Feasibility Analysis

Description	Project
IRR	60%
NPV (PKR)	64,651,892
Payback Period (years)	2.47
Projection Years	10
Discount Rate used for NPV	18%

9.4. Financial Feasibility Debt Financing

Table 14 provides the information regarding projected IRR, NPV and payback period of the study based on combination of equity (50%) and debt (50%) financing for the proposed project.

Table 14: Financial Feasibility Debt Financing

Description	Project
IRR	60%
NPV (PKR)	64,918,710
Payback Period (years)	2.46
Projection Years	10
Discount Rate used for NPV	18%

9.4.1. Breakeven Analysis

Breakeven analysis is provided in Table 15.

Table 15: Breakeven Analysis

Particulars	Amount First Year (PKR)	Ratio
Sales (PKR) – A	85,902,510	100%
Variable Cost (PKR) – B	59,102,051	69%
Contribution (PKR) (A-B) = C	26,800,459	31%
Fixed Cost (PKR) – D	20,516,971	24%
Break Even Revenue (PKR) (D/CM) =E	65,762,282	
Breakeven Units (No. of Packs)	70,585	

Breakeven Capacity

38%

9.4.2. Revenue Generation

Based on the 50% capacity utilization of the unit, sales revenues during the first year of operations is estimated in Table 16.

Table 16: Revenue Generation

Product	Quantity Sold (Units)(A)	Sale Price Per Pack (PKR) (B)	Total Revenue (PKR) (A*B)
Chicken Dog Food			
Pack - 1 (1kg)	19,345	430	8,318,350
Pack - 2 (3kg)	4,836	1,200	5,803,200
Pack - 3 (5kg)	2,902	1,800	5,223,600
Total	27,083		19,345,150
Beef Dog Food			
Pack - 1 (1kg)	19,345	680	13,154,600
Pack - 2 (3kg)	4,836	1,900	9,188,400
Pack - 3 (5kg)	2,902	3,000	8,706,000
Total	27,083		31,049,000
Chicken Cat Food			
Pack - 1 (1kg)	10,317	470	4,848,990
Pack - 2 (3kg)	2,579	1,370	3,533,230
Pack - 3 (5kg)	1,548	2,150	3,328,200
Total	14,444		11,710,420
Fish Cat Food			
Pack - 1 (1kg)	7,738	480	3,714,240
Pack - 2 (3kg)	1,935	1,400	2,709,000
Pack - 3 (5kg)	1,161	2,200	2,554,200
Total	10,834		8,977,440
Beef Cat Food			
Pack - 1 (1kg)	7,738	800	6,190,400
Pack - 2 (3kg)	1,935	2,300	4,450,500
Pack - 3 (5kg)	1,161	3,600	4,179,600

Total	10,834		14,820,500
Grand Total			85,902,510

9.4.3. Variable Cost Estimate

Variable costs of the project have been provided in detail in Table 17.

Table 17: Variable Cost Estimate

Variable Cost	Cost (PKR)
Total Material Cost	50,078,639
Electricity Cost	1,938,373
Direct Salaries	4,080,000
Machinery Maintenance – Cost	741,000
Travelling expense	595,800
Communications expense (phone, mail, internet, etc.)	357,480
Office vehicles running expense	595,800
Office expenses (stationery, entertainment, janitorial services, etc.)	714,960
Total Variable Cost (PKR)	59,102,051

9.4.4. Raw Material Cost

Table 18 provides detail of total raw material cost used in the production unit of dog and cat food.

Table 18: Raw Material Cost

Particulars	Total Cost / Pack (PKR)		
	Food 1 (1kg)	Food 2 (3kg)	Food 3 (5kg)
Chicken Dog Food			
Total Raw Material Cost (Table 21)	204.5	613.5	1,022.5
Packing Cost (Table 26)	15	38	68
Beef Dog Food			
Total Raw Material Cost (Table 22)	346.8	1,040.4	1,734.0
Packing Cost (Table 26)	15	38	68
Chicken Cat Food			
Total Raw Material Cost (Table 23)	239.7	719.1	1,198.5

Packing Cost (Table 26)	15	38	68
Fish Cat Food			
Total Raw Material Cost (Table 24)	239.7	719.1	1,198.5
Packing Cost (Table 26)	15	38	68
Beef Cat Food			
Total Raw Material Cost (Table 25)	433.8	1,301.4	2,169.0
Packing Cost (Table 26)	15	38	68

Table 19: Total Raw Material Cost Breakup (Dog Food)

Cost Item	Cost (PKR)
Chicken Meat	12,700,800
Beef	25,401,600
Other Ingredients	17,468,640
Total	55,571,040

Table 20: Total Raw Material Cost Breakup (Cat Food)

Cost Item	Cost (PKR)
Chicken Meat	9,676,800
Beef	14,515,200
Fish Meat	7,257,600
Other Ingredients	8,592,192
Total	40,041,792

Table 21: Chicken Dog Food Raw Material Cost per Pack

Cost Items	Annual Material Consumption (Kgs)	Material Consumption Ratio	Material Consumption (kg)	Cost / kg or Liter (PKR)	Annual Cost (PKR)	Food - 1 (1kg)	Food - 2 (3kg)	Food - 3 (5kg)
Chicken Meat	100,800	42.0%	42,336	300	12,700,800	126.0	378.0	630.0
Chicken Liver		5.0%	5,040	150	756,000	7.5	22.5	37.5
Eggs		5.0%	5,040	300	1,512,000	15.0	45.0	75.0
Whole Brown Rice		3.0%	3,024	100	302,400	3.0	9.0	15.0
Whole Grain Corn		3.0%	3,024	30	90,720	0.9	2.7	4.5
Oats		3.0%	3,024	150	453,600	4.5	13.5	22.5
Chicken fat		12.0%	12,096	50	604,800	6.0	18.0	30.0
Sunflower oil		1.8%	1,814	450	816,480	8.1	24.3	40.5
Sweet Potatoes		5.0%	5,040	50	252,000	2.5	7.5	12.5
Peas flour		5.0%	5,040	200	1,008,000	10.0	30.0	50.0
Carrots		5.0%	5,040	20	100,800	1.0	3.0	5.0
Vitamin E		0.2%	202	10,000	2,016,000	20.0	60.0	100.0
Water		10.0%	10,080		-	-	-	-
Total		100%	100,800			204.5	613.5	1,022.5

Table 22: Beef Dog Food Raw Material Cost per Pack

Cost Items	Annual Material Consumption (Kgs)	Material Consumption Ratio	Material Consumption (KGs)	Cost / kg or Liter (PKR)	Annual Cost (PKR)	Food - 1 (1kg)	Food - 2 (3kg)	Food - 3 (5kg)
Beef	100,800	42%	42,336	600	25,401,600	252.0	756.0	1,260.0
Beef Liver		5%	5,040	400	2,016,000	20.0	60.0	100.0
Eggs		5%	5,040	300	1,512,000	15.0	45.0	75.0
Whole Brown Rice		3%	3,024	100	302,400	3.0	9.0	15.0
Whole Grain Corn		3%	3,024	30	90,720	0.9	2.7	4.5
Oats		3%	3,024	150	453,600	4.5	13.5	22.5
Beef fat		12%	12,096	70	846,720	8.4	25.2	42.0
Sunflower oil		2%	2,016	450	907,200	9.0	27.0	45.0
Sweet Potatoes		5%	5,040	50	252,000	2.5	7.5	12.5
Peas flour		5%	5,040	200	1,008,000	10.0	30.0	50.0
Carrots		5%	5,040	30	151,200	1.5	4.5	7.5
Vitamin E		0.20%	202	10,000	2,016,000	20.0	60.0	100.0
Water		10%	10,080		-	-	-	-
Total		100%				346.8	1,040.4	1,734.0

Table 23: Chicken Cat Food Raw Material Cost per Pack

Cost Items	Annual Material Consumption (Kgs)	Material Consumption Ratio	Material Consumption (KGs)	Cost / kg or Liter (PKR)	Annual Cost (PKR)	Food - 1 (1kg)	Food - 2 (3kg)	Food - 3 (5kg)
Chicken Meat	53,760	60%	32,256	300	9,676,800	180.0	540.0	900.0
Chicken Liver		5%	2,688	150	403,200	7.5	22.5	37.5
Eggs		5%	2,688	300	806,400	15.0	45.0	75.0
Whole Brown Rice		3.0%	1,613	100	161,280	3.0	9.0	15.0
Oats		3.0%	1,613	150	241,920	4.5	13.5	22.5
Chicken fat		8%	4,301	50	215,040	4.0	12.0	20.0
Peas flour		2.3%	1,236	200	247,296	4.6	13.8	23.0
Carrots		3.0%	1,613	30	48,384	0.9	2.7	4.5
Vitamin E		0.2%	107.5	10,000	1,075,200	20.0	60.0	100.0
Salt		0.5%	268.8	40	10,752	0.2	0.6	1.0
Water		10%	5,376		-	-	-	-
Total		100%				239.7	719.1	1,198.5

Table 24: Fish Cat Food Raw Material Cost per Pack

Cost Items	Annual Material Consumption (Kgs)	Material Consumption Ratio	Material Consumption (KGs)	Cost / kg or Liter (PKR)	Annual Cost (PKR)	Food - 1 (1kg)	Food - 2 (3kg)	Food - 3 (5kg)
Fish Meat	40,320	60%	24,192	300	7,257,600	180.0	540.0	900.0
Chicken Liver		5%	2,016	150	302,400	7.5	22.5	37.5
Eggs		5%	2,016	300	604,800	15.0	45.0	75.0
Whole Brown Rice		3%	1,210	100	120,960	3.0	9.0	15.0
Oats		3%	1,210	150	181,440	4.5	13.5	22.5
Fish Oil		8%	3,226	50	161,280	4.0	12.0	20.0
Peas flour		2.3%	927	200	185,472	4.6	13.8	23.0
Carrots		3.0%	1,210	30	36,288	0.9	2.7	4.5
Vitamin E		0.2%	80.6	10,000	806,400	20.0	60.0	100.0
Salt		0.5%	201.6	40	8,064	0.2	0.6	1.0
Water		10%	4,032		-	-	-	-
Total		100%				239.7	719.1	1,198.5

Table 25: Beef Cat Food Raw Material Cost per Pack

Cost Items	Annual Material Consumption (Kgs)	Material Consumption Ratio	Material Consumption (KGs)	Cost / kg or Liter (PKR)	Annual Cost (PKR)	Food - 1 (1kg)	Food - 2 (3kg)	Food - 3 (5kg)
Beef	40,320	60%	24,192	600	14,515,200	360.0	1,080.0	1,800.0
Beef Liver		5%	2,016	400	806,400	20.0	60.0	100.0
Eggs		5%	2,016	300	604,800	15.0	45.0	75.0
Whole Brown Rice		3%	1,210	100	120,960	3.0	9.0	15.0
Oats		3%	1,210	150	181,440	4.5	13.5	22.5
Chicken fat		8%	3,226	70	225,792	5.6	16.8	28.0
Peas flour		2.3%	927	200	185,472	4.6	13.8	23.0
Carrots		3.0%	1,210	30	36,288	0.9	2.7	4.5
Vitamin E		0.2%	80.6	10,000	806,400	20.0	60.0	100.0
Salt		0.5%	201.6	40	8,064	0.2	0.6	1.0
Moisture		10%	4,032		-	-	-	-
Total		100%				433.8	1,301.4	2,169.0

Table 26 provides detail of packing cost.

Table 26: Packing Cost

Cost Item	Wrapper Cost/Kg (PKR)	Consumption per Pack (gram)	Cost per Pack (PKR)
Pack - 1 (1kg)	1,500	10	15
Pack - 1 (3kg)		25	38
Pack - 1 (5kg)		45	68

9.4.5. Fixed Cost Estimate

Table 27 provides details of fixed cost for the project.

Table 27: Fixed Cost Estimate

Fixed Cost	Cost (PKR)
Staff Salaries	11,916,000
Administration benefits expense	1,599,600
Building rental expense	1,620,000
Distribution cost	2,147,563
Promotional expense	859,025
Insurance expense	119,483
Depreciation expense	1,658,082
Amortization of pre-operating costs	167,706
Bad debt expense	429,513
Total Cost (PKR)	20,516,971

9.4.6. Human Resource Requirement

For the 1st year of operations, the production unit shall require the workforce at a salary cost as projected in Table 28.

Table 28: Human Resource Requirement

Designation	No of Persons	Average Monthly Salary (PKR)	Total Salary (PKR)
Owner	1	150,000	1,800,000
Production Manager	1	100,000	1,200,000
Production Supervisor	1	50,000	600,000
HR and Admin Manager	1	70,000	840,000
HR and Admin Officer	1	40,000	480,000
Procurement Manager	1	70,000	840,000
Procurement Assistant	1	50,000	600,000
Store Incharge	2	50,000	1,200,000
Helper Store Incharge	2	25,000	600,000
Sales and Marketing Manager	1	80,000	960,000
Sales Officer	2	50,000	1,200,000
Finance and Accounts Manager	1	70,000	840,000

Accounts Officer	2	50,000	1,200,000
Labor Skilled	4	35,000	1,680,000
Labor Un-Skilled	2	25,000	600,000
Driver	1	25,000	300,000
Office Boy	2	22,000	528,000
Security Guard	2	22,000	528,000
Total	28		15,996,000

10. CONTACT DETAILS

Details of suppliers of machinery and pet food are provided in Table 29.

Table 29: Suppliers of Raw Material

Supplier Name	Item	Origin	Contact / Email	Website
Bloom Engineering	Machinery	Karachi	0342 2560358	https://bloomengg.com/product/pet-food-making-machines-dog-cat-biscuits-making-machinery/
Made in China	Machinery	China		https://www.made-in-china.com/
Alibaba	Machinery	China		https://www.alibaba.com/?spm=a2700.details.scGlobalHomeHeader.4.4c79772d80qhVa
PetsOne	Pet Food	Lahore	0304 111 7387	https://petsone.pk/
Pet Mania	Pet Food	Karachi	021 35161114	https://www.petmania.pk/
Seasons Foods Pvt. Ltd	Pet Food	Lahore	(042) 35970758	https://www.seasonsgroup.com.pk/seasons-foods-pvt-ltd/
The Pets Mall	Pet Food	Peshawar	0347 9700299	
PetsPark.pk	Pet Food	Quetta	0323-5272323	www.petspark.pk

11. USEFUL LINKS

Table 30: Useful Links

Organization	Link
Small and Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
National Business Development Program (NBDP)	www.nbdp.org.pk
Government of Pakistan	www.pakistan.gov.pk
Ministry of Industries and Production	www.moip.gov.pk
Government of Punjab	www.punjab.gov.pk
Trade Development Authority of Pakistan	www.tdap.gov.pk
Securities and Exchange Commission of Pakistan	www.secp.gov.pk
State Bank of Pakistan	www.sbp.gov.pk
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	www.fpcci.com.pk
Punjab Small Industries Corporation	www.psic.gop.pk
Sindh Small Industries Corporation	www.ssic.gos.pk/
Khyber Pakhtunkhwa Small Industries Corporation	www.small_industries_de.kp.gov.pk/
Azad Kashmir Small Industries Corporation	www.sic.ajk.gov.pk/
Industries and Commerce Department Balochistan	www.dgicd.gob.pk/
Pakistan Animal Welfare Society (PAWS)	http://pawspakistan.org/
University of Veterinary and Animal Sciences Lahore	www.uvas.edu.pk/index.php
Animal Quarantine Department	http://www.agd.gov.pk/
Todd's Welfare Society – Animal Rescue	https://toddswarefaresociety.pk/
RPK Critter Care & Animal Hospital	www.rpkccs.business.site
Pakistan Veterinary Medical Council	http://pvmc.gov.pk/
Pakistan Kennel Club	https://pakistankennelclub.com.pk/
Kennel Club of Pakistan	www.kcp.com.pk

12. ANNEXURES

12.1. Income Statement

Income Statement										SMEDA
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue										
Chicken Dog Food	19,345,150	23,876,058	28,672,047	34,193,047	40,535,933	47,804,502	56,129,500	65,648,681	76,512,076	84,310,145
Beef Dog Food	31,049,000	38,321,097	46,018,620	54,879,947	65,060,187	76,725,991	90,088,033	105,366,180	122,801,838	135,317,710
Chicken Cat Food	11,710,420	14,454,329	17,353,830	20,699,435	24,537,595	28,940,955	33,972,669	39,741,531	46,314,102	51,035,684
Fish Cat Food	8,977,440	11,079,267	13,303,702	15,864,195	18,807,615	22,182,686	26,044,403	30,459,444	35,505,569	39,121,712
Beef Cat Food	14,820,500	18,290,328	21,962,566	26,189,598	31,048,777	36,620,548	42,995,728	50,284,318	58,614,758	64,584,539
	85,902,510	106,021,078	127,310,765	151,826,222	179,990,107	212,274,682	249,230,332	291,500,153	339,748,343	374,369,789
Cost of sales										
Dog Food										
Chicken Meat	6,350,400	7,688,641	9,231,961	11,008,088	13,048,253	15,387,619	18,065,748	21,127,140	24,621,817	27,100,413
Beef	12,700,800	15,377,282	18,463,922	22,016,175	26,096,506	30,775,237	36,131,496	42,254,279	49,243,634	54,200,827
Other Ingredients	8,734,320	10,574,932	12,697,610	15,140,489	17,946,526	21,164,082	24,847,573	29,058,201	33,864,769	37,273,822
Cat Food										
Chicken Meat	4,838,400	5,858,012	7,033,875	8,387,114	9,941,526	11,723,900	13,764,379	16,096,868	18,759,480	20,647,934
Beef	7,257,600	8,787,018	10,550,812	12,580,672	14,912,289	17,585,850	20,646,569	24,145,302	28,139,220	30,971,901
Fish Meat	3,628,800	4,393,509	5,275,406	6,290,336	7,456,145	8,792,925	10,323,285	12,072,651	14,069,610	15,485,950
Other Ingredients	4,296,096	5,201,427	6,245,495	7,447,059	8,827,247	10,409,846	12,221,622	14,292,678	16,656,855	18,333,645
Packing Cost	2,272,223	2,750,847	3,303,053	3,938,470	4,668,555	5,505,270	6,463,534	7,558,573	8,809,015	9,695,789
Total Material Cost	50,078,639	60,631,668	72,802,134	86,808,402	102,897,048	121,344,728	142,464,206	166,605,692	194,164,399	213,710,282
Electricity Cost	1,619,875	1,766,258	1,925,869	2,099,903	2,289,664	2,496,574	2,722,181	2,968,175	3,236,399	3,528,862
Direct Salaries	4,080,000	4,475,760	4,909,909	5,386,170	5,908,628	6,481,765	7,110,497	7,800,215	8,556,836	9,386,849
Machinery Maintenance - Cost	741,000	815,594	897,697	988,065	1,087,531	1,197,009	1,317,507	1,450,137	1,596,117	1,756,793
Total cost of sales	56,519,514	67,689,280	80,535,608	95,282,540	112,182,871	131,520,076	153,614,391	178,824,218	207,553,750	228,382,785
Gross Profit	29,382,996	38,331,798	46,775,156	56,543,681	67,807,236	80,754,606	95,615,941	112,675,935	132,194,593	145,987,005
General administration & selling expenses										
Management Staff	11,916,000	13,071,852	14,339,822	15,730,784	17,256,670	18,930,567	20,766,832	22,781,215	24,990,993	27,415,119
Administration benefits expense	1,599,600	1,754,761	1,924,973	2,111,695	2,316,530	2,541,233	2,787,733	3,058,143	3,354,783	3,680,197
Building rental expense	1,620,000	1,782,000	1,960,200	2,156,220	2,371,842	2,609,026	2,869,929	3,156,922	3,472,614	3,819,875
Distribution cost	2,147,563	2,917,347	3,855,820	5,061,209	6,604,074	8,572,693	11,078,368	14,261,641	18,295,483	22,189,276
Electricity Cost	318,498	347,279	378,662	412,880	450,191	490,873	535,232	583,599	636,337	693,840
Travelling expense	595,800	653,593	716,991	786,539	862,834	946,528	1,038,342	1,139,061	1,249,550	1,370,756
Communications expense (phone, mail, internet, etc.)	357,480	392,156	430,195	471,924	517,700	567,917	623,005	683,436	749,730	822,454
Office vehicles running expense	595,800	655,777	721,792	794,453	874,427	962,453	1,059,340	1,165,980	1,283,356	1,412,547
Office expenses (stationery, entertainment, janitorial services, etc)	714,960	784,311	860,389	943,847	1,035,400	1,135,834	1,246,010	1,366,873	1,499,460	1,644,907
Promotional expense	859,025	1,060,211	1,273,108	1,518,262	1,799,901	2,122,747	2,492,303	2,915,002	3,397,483	3,743,698
Insurance expense	119,483	101,560	83,638	65,715	47,793	29,871	11,948	223,393	189,884	156,375
Depreciation expense	1,658,082	1,658,082	1,658,082	1,658,082	1,658,082	1,658,082	1,137,017	3,039,498	3,039,498	3,039,498
Amortization of pre-operating costs	167,706	167,706	167,706	167,706	167,706	-	-	-	-	-
Bad debt expense	429,513	530,105	636,554	759,131	899,951	1,061,373	1,246,152	1,457,501	1,698,742	1,871,849
Subtotal	23,099,509	25,876,740	29,007,931	32,638,448	36,863,101	41,629,199	46,892,211	55,832,263	63,857,910	71,860,391
Operating Income	6,283,487	12,455,058	17,767,225	23,905,234	30,944,135	39,125,408	48,723,730	56,843,673	68,336,683	74,126,614
Gain / (loss) on sale of machinery & equipment	-	-	-	-	-	-	1,852,500	-	-	-
Gain / (loss) on sale of office equipment	-	-	-	-	-	-	410,750	-	-	-
Gain / (loss) on sale of office vehicles	-	-	-	-	-	-	83,325	-	-	-
Earnings Before Interest & Taxes	6,283,487	12,455,058	17,767,225	23,905,234	30,944,135	39,125,408	51,070,305	56,843,673	68,336,683	74,126,614
Subtotal	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	6,283,487	12,455,058	17,767,225	23,905,234	30,944,135	39,125,408	51,070,305	56,843,673	68,336,683	74,126,614
Tax	1,319,220	3,479,270	5,338,528	7,486,831	9,950,447	12,813,892	16,994,606	19,015,285	23,037,838	25,064,314
NET PROFIT/(LOSS) AFTER TAX	4,964,268	8,975,788	12,428,697	16,418,403	20,993,689	26,311,516	34,075,699	37,828,388	45,298,844	49,062,300

12.2. Balance Sheet

Calculations											SMEDA
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Assets											
<i>Current assets</i>											
Cash & Bank	1,000,000	1,388,341	3,325,605	5,809,395	8,537,287	11,416,343	14,261,769	30,883,961	66,897,888	110,020,888	170,433,463
Accounts receivable	-	7,669,866.96	9,466,167.70	11,367,032.57	13,555,912.66	16,070,545.26	18,953,096.63	22,252,708.19	26,026,799.42	30,334,673.51	33,425,874.06
Finished goods inventory	-	1,177,490	1,410,193	1,677,825	1,985,053	2,337,143	2,740,002	3,200,300	3,725,505	4,324,036	4,757,975
Equipment spare part inventory	61,750	74,468	89,806	108,303	130,609	157,510	189,951	229,075	276,256	333,154	-
Raw material inventory	1,043,305	1,390,318	1,837,446	2,411,504	3,146,190	4,083,746	5,277,150	6,792,651	8,713,144	10,555,687	-
Pre-paid building rent	135,000	148,500	163,350	179,685	197,654	217,419	239,161	263,077	289,384	318,323	-
Total Current Assets	2,359,537	11,950,545	16,376,205	21,619,460	27,600,498	34,312,577	41,673,078	63,845,163	106,118,859	156,043,137	208,617,312
<i>Fixed assets</i>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	948,870	853,983	759,096	664,209	569,322	474,435	379,548	284,661	189,774	94,887	-
Machinery & equipment	7,410,000	6,298,500	5,187,000	4,075,500	2,964,000	1,852,500	741,000	14,046,475	11,939,504	9,832,533	7,725,561
Furniture & fixtures	1,035,000	879,750	724,500	569,250	414,000	258,750	103,500	1,961,957	1,667,663	1,373,370	1,079,076
Office vehicles	333,300	283,305	233,310	183,315	133,320	83,325	33,330	507,817	431,644	355,472	279,299
Office equipment	1,643,000	1,396,550	1,150,100	903,650	657,200	410,750	164,300	3,114,488	2,647,315	2,180,142	1,712,969
Security against building	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000	405,000
Total Fixed Assets	11,775,170	10,117,088	8,459,006	6,800,924	5,142,842	3,484,760	1,826,678	20,320,398	17,280,901	14,241,403	11,201,905
<i>Intangible assets</i>											
Pre-operation costs	838,531	670,825	503,119	335,412	167,706	-	-	-	-	-	-
Total Intangible Assets	838,531	670,825	503,119	335,412	167,706	-	-	-	-	-	-
TOTAL ASSETS	14,973,239	22,738,457	25,338,330	28,755,796	32,911,046	37,797,337	43,499,756	84,165,562	123,399,760	170,284,540	219,819,217
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable	-	2,800,951	3,395,063	4,083,195	4,878,925	5,797,813	6,857,616	8,078,756	9,484,566	11,070,501	11,542,879
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Total Current Liabilities	-	2,800,951	3,395,063	4,083,195	4,878,925	5,797,813	6,857,616	8,078,756	9,484,566	11,070,501	11,542,879
<i>Other liabilities</i>											
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	14,973,239	14,973,239	14,973,239	14,973,239	14,973,239	14,973,239	14,973,239	20,342,206	20,342,206	20,342,206	20,342,206
Retained earnings	-	4,964,268	6,970,028	9,699,363	13,058,883	17,026,286	21,668,901	55,744,600	93,572,988	138,871,832	187,934,132
Total Equity	14,973,239	19,937,506	21,943,267	24,672,601	28,032,121	31,999,524	36,642,139	76,086,806	113,915,194	159,214,038	208,276,338
TOTAL CAPITAL AND LIABILITIES	14,973,239	22,738,457	25,338,330	28,755,796	32,911,046	37,797,337	43,499,756	84,165,562	123,399,760	170,284,540	219,819,217

12.3. Cash Flow Statement

Calculations											SMEDA
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<i>Operating activities</i>											
Net profit		4,964,268	8,975,788	12,428,697	16,418,403	20,993,689	26,311,516	34,075,699	37,828,388	45,298,844	49,062,300
Add: depreciation expense		1,658,082	1,658,082	1,658,082	1,658,082	1,658,082	1,658,082	1,137,017	3,039,498	3,039,498	3,039,498
amortization of pre-operating costs		167,706	167,706	167,706	167,706	167,706	-	-	-	-	-
Equipment inventory	(61,750)	(12,718)	(15,338)	(18,497)	(22,306)	(26,901)	(32,441)	(39,123)	(47,181)	(56,899)	333,154
Consumables Inventory	(1,043,305)	(347,013)	(447,128)	(574,058)	(734,686)	(937,556)	(1,193,403)	(1,515,501)	(1,920,493)	(1,842,543)	10,555,687
Pre-paid building rent	(135,000)	(13,500)	(14,850)	(16,335)	(17,969)	(19,765)	(21,742)	(23,916)	(26,308)	(28,938)	318,323
Accounts payable		2,800,951	594,112	688,132	795,730	918,888	1,059,804	1,221,139	1,405,810	1,585,935	472,378
Cash provided by operations	(1,359,537)	388,341	8,907,291	12,183,153	15,786,774	19,905,342	24,514,327	30,883,961	36,013,927	43,123,000	60,412,576
<i>Financing activities</i>											
Short term debt principal repayment		-	-	-	-	-	-	-	-	-	-
Issuance of shares	14,973,239	-	-	-	-	-	-	5,368,968	-	-	-
Purchase of (treasury) shares											
Cash provided by / (used for) financing activities	14,973,239	-	-	-	-	-	-	5,368,968	-	-	-
<i>Investing activities</i>											
Capital expenditure	(12,613,701)	-	-	-	-	-	-	(19,630,737)	-	-	-
Cash (used for) / provided by investing activities	(12,613,701)	-	-	-	-	-	-	(19,630,737)	-	-	-
NET CASH	1,000,000	388,341	8,907,291	12,183,153	15,786,774	19,905,342	24,514,327	16,622,191	36,013,927	43,123,000	60,412,576

13. KEY ASSUMPTIONS

13.1. Operating Cost Assumptions

Table 31: Operating Cost Assumptions

Description	Details
Building rent growth rate	10%
Furniture and fixture depreciation	15%
Vehicle depreciation	15%
Office equipment depreciation	15%
Inflation rate	10.07%
Wage growth rate	9.7%
Electricity price growth rate	9%
Office equipment price growth rate	9.57%
Office vehicle price growth rate	6.2%

13.2. Revenue Assumptions

Table 32: Revenue Assumptions

Description	Details
Sale price growth rate	10.1%
Initial capacity utilization	50%
Capacity growth rate	5%
Maximum capacity utilization	90%

13.3. Financial Assumptions

Table 33: Financial Assumptions

Description	Details
Project life (Years)	10
Debt: Equity	0:100
Discount Rate used for NPV	18%

13.4. Debt related Assumptions

Table 34: Debt Related Assumptions

Description	Details
Project life (Years)	10
Debt: Equity	0:100
Discount Rate used for NPV	18%
Debt Tenure	5 years

Grace Period	1 Year
Interest Rate (KIBOR+3%)	11.3%

13.5. Cash Flow Assumptions

Table 35: Cash Flow Assumptions

Description	Details
Accounts receivable cycle (in days)	25
Accounts payable cycle (in days)	15

Small and Medium Enterprises Development Authority

HEAD OFFICE

4th Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road, Lahore
Tel: (92 42) 111 111 456, Fax: (92 42) 36304926-7

www.smeda.org.pk, helpdesk@smeda.org.pk

REGIONAL OFFICE PUNJAB	REGIONAL OFFICE SINDH	REGIONAL OFFICE KPK	REGIONAL OFFICE BALOCHISTAN
3 rd Floor, Building No. 3, Aiwan-e-Iqbal Complex, Egerton Road Lahore, Tel: (042) 111-111-456 Fax: (042) 36304926-7 helpdesk.punjab@smeda.org.pk	5 TH Floor, Bahria Complex II, M.T. Khan Road, Karachi. Tel: (021) 111-111-456 Fax: (021) 5610572 helpdesk-khi@smeda.org.pk	Ground Floor State Life Building The Mall, Peshawar. Tel: (091) 9213046-47 Fax: (091) 286908 helpdesk-pew@smeda.org.pk	Bungalow No. 15-A Chaman Housing Scheme Airport Road, Quetta. Tel: (081) 831623, 831702 Fax: (081) 831922 helpdesk-qta@smeda.org.pk