



Pre-feasibility Study

PEST CONTROL SERVICE

May 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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Document Control

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2. EXECUTIVE SUMMARY

Pest control is the eradication or management of pests, a term used to describe destructive organisms that adversely affect human life by attacking crops, animals, food, etc. Common examples of pests include cockroaches, mites, ticks, mosquitoes, bed bugs, lice, nematodes, thrips, and termites (Deemak). The human response to pests depends on the magnitude of the expected or actual damage and ranges from tolerance, through deterrence and management, to attempts for complete eradication. Pest control measures may be performed as part of an integrated pest management strategy.

There are many methods to control different kinds of pests. These include using Insecticides, Rodenticides, Fogging, Heat treatment, Fumigation and Termite control. This particular study covers details for setting up a business to provide pest control services using two methods; Fumigation and Termite control. Fumigation is used to kill insects including Bed bugs, Cockroaches, Spiders, Rodents, Mosquitoes and fruit flies. Termite Control is used for killing Termites. Target market for pest control services is vast; since it covers both urban and rural areas. The study covers two types of potential customers; households and corporate offices.

Fumigation is a practice of pest control, wherein pests, that live on the surface area for example Bed bugs, Cockroaches, Spiders, Rodents, Mosquitoes and fruit flies, are killed by suffocating them with a poisonous gas (includes chlorine and formaldehyde, along with small quantities of hydrogen peroxide and other oxidizing agents or glutaraldehyde¹).

Termite control is the practice of pest control wherein pests are killed by using a special chemical solution (includes borate, fipronil or hexaflumuron and water) which would be injected in the holes drilled in the floors and on walls after inspection of the service areas.

The proposed project will provide employment opportunities to 10 to 15 people including the Owner, Entomologist, Sprayer, Drill operator and Fumigator. High return on investment and steady growth of business is expected with the entrepreneur having some prior experience in the related field of business. The legal form of this project is proposed as "Sole proprietorship". Further, the proposed project may also be established as "Partnership Concern".

This "Pre-feasibility Document" provides details for setting up a Pest Control Service business. The service capacity for this kind of business is defined in terms of covered area. The proposed business has a capacity of serving an area of 1,260,000 sq. ft. in a year. The initial capacity utilization in the first year of operations is estimated at 50%, serving 630,000 sq.ft. area.

The business will be set up in a rented building with area of 820 square feet. The project requires a total investment of PKR 6.03 million. This includes capital

¹ A chemical used as disinfectant.

investment of PKR 5.67 million and working capital of PKR 0.36 million. It is proposed that the project shall be financed through 100% equity. The Net Present Value (NPV) of project is PKR 26.84 million with an Internal Rate of Return (IRR) of 64% and a Payback period of 2.28 years. Further, this project is expected to generate Gross Annual Revenues of PKR 7.70 million during 1st year, Gross Profit (GP) ratio ranging from 47% to 63% and Net Profit (NP) ratio ranging from 10% to 51% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 38% (483,320 sq.ft) with breakeven revenue of PKR 5.90 million.

The proposed project may also be established using leveraged financing. At 50% financing at a cost of KIBOR+3%, the proposed unit provides Net Present Value (NPV) of PKR 30.25 million, Internal Rate of Return (IRR) of 64% and Payback period of 2.28 years. Further, this project is expected to generate Net Profit (NP) ratio ranging from 5% to 51% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 44% i.e. (549,558 sq. ft.) with breakeven revenue of PKR 6.72 million.

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 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 the business of “Pest Control Service”. 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 & SERVICES

Pest is a term used to describe destructive organisms that adversely affect human life by attacking crops, animals, food, etc. Common examples of pests include cockroaches, mites, ticks, mosquitoes, bed bugs, lice, nematodes, thrips, and termites. Pests particularly include creatures that damage crops, livestock, and forestry or cause nuisance to people, especially in their living and work places (homes and offices).

Figure 1 Termite (Deemak)



Pest control is process of eradication or management of pests. The human response depends on the extent of the expected or actual damage done and will range from tolerance, through deterrence and management, to attempts to completely eradicate the pest. Pest control measures may be performed as part of an integrated pest management strategy.

In homes and urban environments, pests are the rodents, insects and other organisms that share the habitat with humans, and that feed on and spoil possessions. Control of these pests is attempted through exclusion, repulsion, physical removal or chemical means. Processes of pest control are described below:

Fumigation

Fumigation is a practice of pest control, wherein pests, that live on the surface area for example Bed bugs, Cockroaches, Spiders, Rodents, Mosquitoes and fruit flies, are killed by suffocating them with a poisonous gas (includes chlorine and formaldehyde², along with small quantities of hydrogen peroxide and other oxidizing agents or glutaraldehyde). The space to be fumigated is first sealed to ensure that there are less chances for the exchange of air which could reduce the effect of the chemicals used.

Termite Control

Termite control is the practice of pest control wherein termites are killed by using a special chemical solution (includes borate, fipronil or hexaflumuron and water) which would be injected in the holes as drilled in the floors after inspection of the service areas. The area where service is to be provided is first cleaned and then selected target points are, drilled with a drilling machine, and then the chemical solution is injected with a pressure injector.

- **Signs of Termite Attack**

There are several signs that indicate that the house is attacked by the termite. Most common sign in this regard is formation of mud tunnel tubes extending over foundation walls, support piers, floor joints, etc. The mud tubes are typically about the diameter of a pencil but sometimes can also be bigger. Termites build such tubes for their shelter as they travel between their underground colonies and the structure under attack.

To help determine if an infestation is active, the tubes may be broken open and checked for the presence of small, creamy-white worker termites. If a tube happens to be vacant, it does not necessarily mean that the infestation is inactive; termites often abandon sections of tube while foraging elsewhere in the structure. Some signs of termite attack are displayed in Figure 2.

² It is a chemical used as disinfectant and pesticide

Figure 2 Signs of Termite attack

Mud Tunnel Tubes on Wall



Termite Colonies

- **Impacts of Termite Attack**

Termite-damaged wood is hollowed out along the grain, with bits of dried mud or soil lining the feeding galleries. Wood damaged by moisture or other types of insects (e.g., carpenter ants) will not have this appearance. Occasionally, termites also bore tiny holes through drywall or plaster, accompanied by bits of soil around the margin.

Figure 3 shows the wood being attacked by termite.

Figure 3 Damaged wood

Sometimes there is no clear indication of infestation. Termites are cryptic creatures and infestations can go undetected for years, hidden behind walls, floor coverings, insulation, and other obstructions. Termite feeding and damage can even progress undetected in exposed wood because the outer surface usually remains intact. Confirmation of termites often requires the keen eye of an expert; however, there are chances that even the most experienced inspector can overlook signs that are hidden as shown in Figure 4.

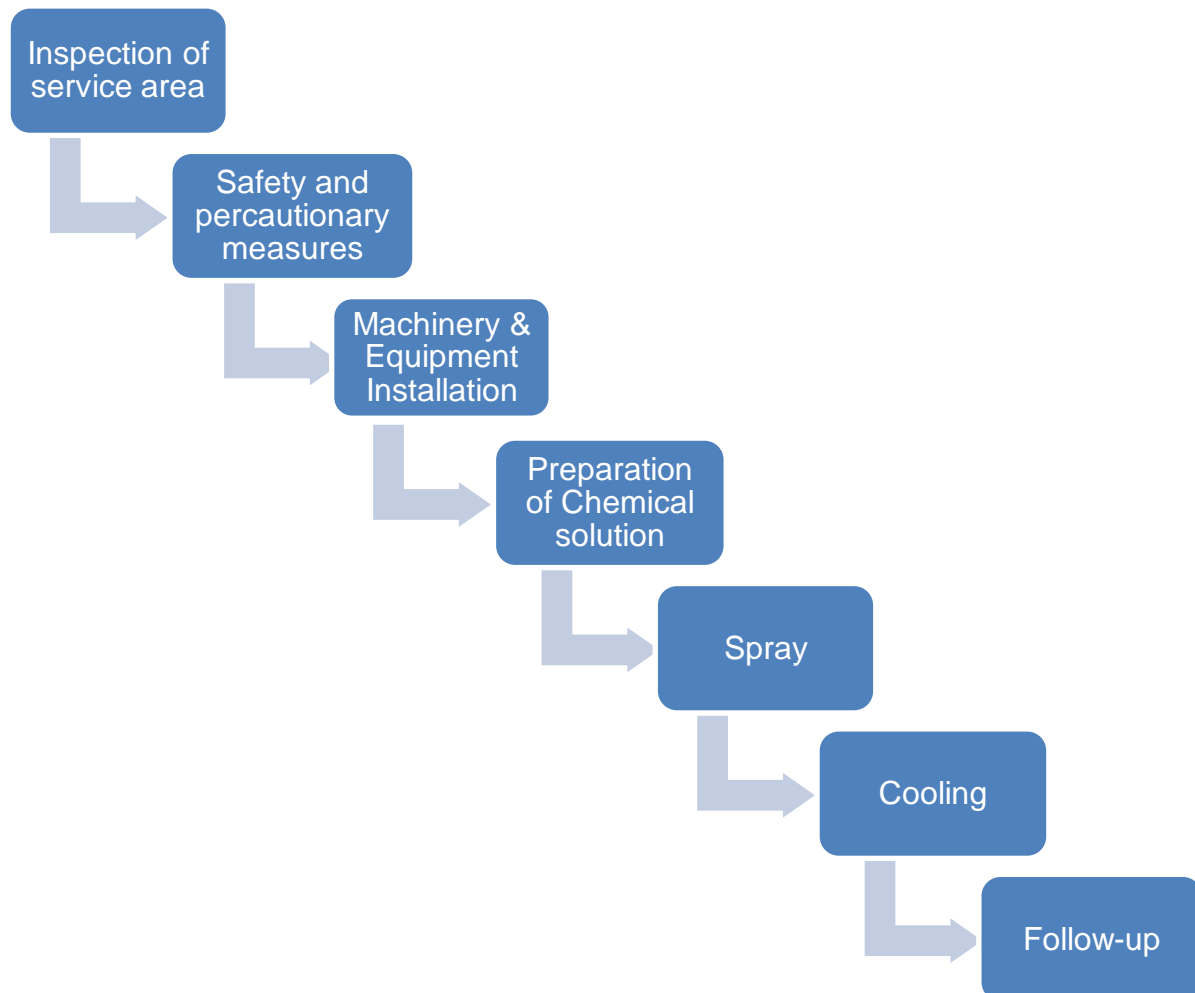
Figure 4 Hidden Signs



5.1 Service Flow

- **Fumigation Process Flow**

Figure 5 Process Flow



Brief discription of the process flow is given below:

Inspecting the Service area.

In the first step, the service provider conducts a visit of the proposed location where the services are to be rendered. While inspecting the site area, the team records readings regarding the area of the proposed location, main target points where the pests , i.e. cockroaches, Bed bugs, Spiders, Rodents, Mosquitoes, fruit flies, would be found and how much spray would be required to cover the service area effectively and efficiently. Figure 6 shows a service provider inspecting the site.

Figure 6 Service Area Inspection**Safety & Precautionary Measures**

After carefully inspecting the site, the team starts preparation for fumigation. The first step is to ensure all the safety and precautionary measures to protect the team members from any kind of damage during the spray. For this purpose, the team uses safety glasses, helmets, respirators, dusters, masks and other safety equipment according to the location and need. At this step, the spray machine is also tested for proper functioning. Figure 7 shows the safety and precautionary measures taken by the team.

Figure 7 Safety and Precautionary Measures**Machinery and Equipment Installation**

After taking all the safety measures, the team initiates steps to start the spray. For this purpose, the team installs necessary equipment like fogger, and sprayer. This is the basic equipment that the pest control team requires to start further process.

Figure 8 shows equipment used in fumigation.

Figure 8 Equipment Installation**Preparation of Solution**

After installing all the basic equipment required to start the process the team prepares the required mixture of spray. For the proposed unit, the required mixture would be made by mixing Chlorine (as in hypochlorite solutions or “bleach”) and formaldehyde, with some use being made of hydrogen peroxide and other oxidizing agents, or glutaraldehyde. Solution is prepared in ratio of 1:250 litres (chemical to water). This solution covers an area of approximately 4500 square feet (1 Kanal).

Spray

Once the mixture is ready, it is sprayed using thermal fogger. The team sprays at pre-determined target points carefully and ensures that proper fumigation is done at the targeted areas. The process of spraying is displayed in Figure 9.

Figure 9: Spraying**Cooling**

After spraying the targeted areas, the next step is cooling which is done by cold fogger. Cold fogger transforms the liquid into droplets that are dispersed in the atmosphere using large volume of air at low air pressure.

Follow-up

After completing the spray, the site is sealed for a certain period of time so that the poisonous solution does not get mixed with air and its effectiveness is not reduced. After a certain period of time, the area is reopened to check the results, and any further services required, are provided.

- **Termite Control Process Flow**

Figure 10: Process Flow



Brirf description of the process flow is as follows.

Inspection of Service Area

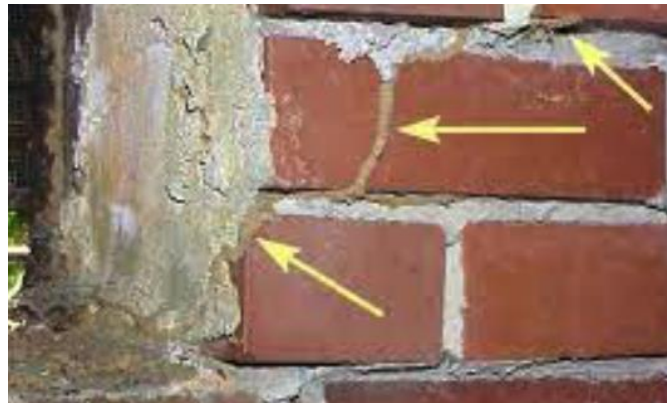
In the first step, the service provider conducts a visit of the proposed location where the services are to be rendered. While inspecting the site, the team records readings of the area of the proposed location. Main target points where the pests would be found are identified and the quantity of chemical solution, required to cover the area effectively and effciently, is assessed. Figure 11 shows process of the service provider inspecting the site.

Figure 11: Site Inspection**Safety & Precautionary Measures**

After inspecting the site carefully, the team would start preparation for services to be provided. The first step in rendering the services is to consider all the safety and precautionary measures to protect the team members from any damage during the work. For this purpose, the team uses safety glasses, helmets, respirators, dusters and other safety equipment according to the location and need. At this step, the team also checks the pressure injector machine. Figure 12 shows the safety gear to be used before provision of service.

Figure 12: Safety Gear**Marking Target Points**

After taking all the safety and precautionary measures, the team identifies the spots. These spots may be found in foundations of building, on walls, support piers, floor joints etc. The target spots, as identified by the team, are marked (by using marker/tape). Figure 13 displays the target spots selected by the team.

Figure 13: Target Spots**Drilling**

Once the team has marked all the target points, holes are drilled at the identified spots in the floor and the walls with a drill machine. Where target spots are identified in foundation, drilling is done about minimum 2-4 feet away from the foundation and maximum 10 to 12 feet apart. For target spots identified on floor and walls, drilling is done at the identified spots. Drilling process is shown in Figure 14.

Figure 14: Drilling**Preparation of Solution**

Once the drilling process is done, the team prepares chemical solution in a bucket which will be injected in the drilled holes. The solution is prepared by using any chemical (borate, fipronil or hexaflumuron) with water in ratio of 1:100 litres. On average, this solution covers an area of approximately 2,250 square feet (10 Marla). Figure 15 shows the preparation of solution.

Figure 15: Solution Prepration**Injecting Solution into Holes**

The prepared solution is injected into the holes drilled on the marked targeted points. Pressure injector machine is used to inject the solution into the holes. It also helps in reducing the wastage of solution. The way in which solution is injected is shown in Figure 16.

Figure 16: Injecting Solution**Follow Up**

After completing the process, the site is sealed for a certain period of time so that the solution easily penetrates into the area and is fully effective. The service provider after a certain period of time, revisits the site to check if any follow-up is required.

5.2 Service and Operational Capacities

The proposed project shall, at maximum capacity of 100%, serve an area of 1,260,000 sq.ft annually. During the first year of operation, the proposed unit is expected to achieve 50% of its overall service capacity which comes equal to

630,000 sq.ft area. The unit would operate in a single shift of 8 hours for 280 days in a year. Table 1 shows the installed and operational capacities of the proposed unit.

Table 1: Service Capacity

No of Teams	Team Members	Total Workers	Team Capacity (sq. ft)	Time Consumed (hrs)	Capacity per hr (sq. ft.)	Time Available/ year (hrs)	Annual Service Capacity (sq. ft.)
2	3	6	1,125	4	281.25	4,480	1,260,000

The available 4,480 hours have been calculated based on two teams working for 8 hours daily for 280 days in a year (i.e. $2 \times 8 \times 280$). It has been assumed that a team of 3 members can serve an area of 1,125 square feet in 4 hours.

6. CRITICAL FACTORS

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

- Technical know-how
- Basic knowledge
- Availability of quality raw materials
- Market linkages
- Availability of skilled workforce
- Strict checks on quality standards
- Proper supervision of the process
- Marketing campaign
- Frequent follow-ups

7. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

For the success of this business, it is necessary to determine the target market. The proposed business should ideally be located in metropolitian cities like Karachi, Lahore, Faisalabad, Peshawar, Islamabad or meduim cities like Rawalpindi, Quetta, Sailkot, Gujranwala, Hyderabad, Multan, etc. Locating the business in these cities would provide advantage of being close to large customer base which will help in getting consistent orders.

Proposed target market is homes and corporate offices. People living in the above-mentioned cities spend substantial sums of money on the decoration of their houses

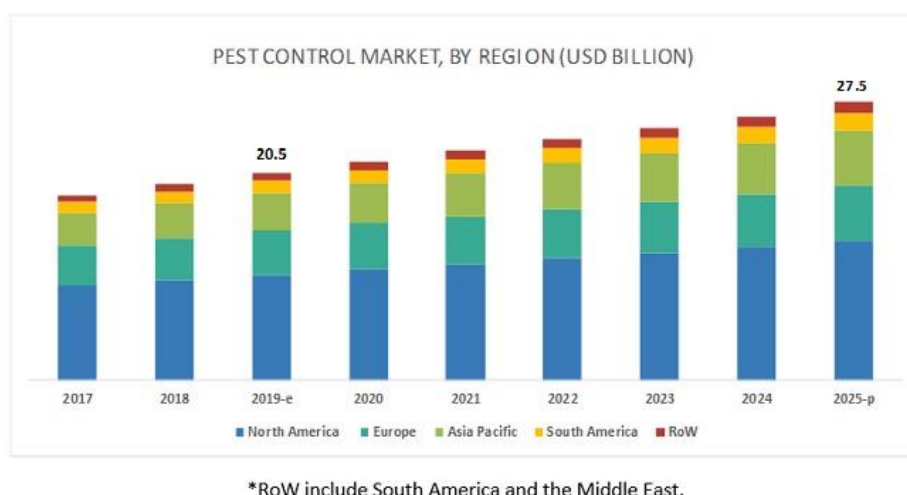
which also includes wood working (like wooden flooring) due to which they become more sensitive towards pest attack.

8. POTENTIAL TARGET CUSTOMERS / MARKETS

Pests attacks in homes and offices is a routine feature of people's lives. Once an infestation is discovered, people are quick to make the smart choice of hiring a professional pest control service provider to take care of the problem. According to a research conducted by Allied Market Research³ the global pest control market was valued at \$20.6 billion in 2019, and is projected to reach \$30.0 billion by 2027, growing at a CAGR of 5.2% from 2020 to 2027.

According to an other research⁴ the pest control market is estimated to be valued at USD 20.5 billion in 2019 and is projected to reach USD 27.5 billion by 2025, at a CAGR of 5.04% during the forecast period. Region wise pest control market value is shown in Figure 17.

Figure 17: Pest control market by region



Further research shows that termite control market was worth USD 3.3 Billion in 2021 and is estimated to be growing at a cumulative annual growth rate (CAGR) of 5.6% to reach USD 4.33 billion by 2026⁵. Termites are damaging to humans, livestock and the environment. Hence, various preventive and control measures to control the proliferation of termite have been driving the growth of this market, globally.

As the global market trends for pest control service providers are rising, the market prospects of the proposed business are promising which brings good opportunity for potential investors to invest in the proposed business.

³ <https://www.alliedmarketresearch.com/press-release/pest-control-market.html>

⁴ <https://www.wboc.com/story/43490848/pest-control-market-projected-to-garner-significant-revenues-by-2025>

⁵ <https://www.marketdataforecast.com/market-reports/termite-control-market>

9. PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of the proposed business of “Pest control service”. 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 considering the relevant assumptions and the target market

9.2 Financial Feasibility Analysis

The financial feasibility analysis provides the information regarding projected IRR, NPV and payback period of the study which is shown in Table 2.

Table 2: Financial Feasibility Analysis

Description	Project
IRR	64%
NPV (PKR)	26,842,242
Payback Period (years)	2.28
Projection Years	10
Discount rate used for NPV	15%

9.3 Financial Feasibility Analysis with 50% Debt

The financial feasibility analysis provides the information regarding projected IRR, NPV and payback period of the study on the basis of Debt: Equity Model (50:50), which is shown in Table 3.

Table 3: Financial Feasibility Analysis with 50% Debt

Description	Project
IRR	64%
NPV (PKR)	30,250,739
Payback Period (years)	2.28
Projection Years	10
Discount rate used for NPV	13%

9.4 Initial Project Cost Estimates

The details of initial project cost calculated for the Pet control Service provider are shown in Table 4.

Table 4: Initial Project Cost

Description	Cost
Land	-
Building/Infrastructure	481,420
Plant & Machinery	1,768,500
Office equipment	490,000
Furniture & fixtures	419,000
Office vehicles	2,265,000
Pre-operating costs	101,318
Security Against Building	147,000
Total Capital Costs	5,672,238
Working Capital	
Consumables inventory	38,275
Raw material inventory	35,000
Upfront insurance payment	33,975
Cash	250,000
Total Working Capital	357,250
Total Investment	6,029,488

9.4.1. Land

The Pest Control Service will be established in a rented building, having an area of 820 sq. ft., to avoid the high cost of land. Suitable units for setting up a business like this can be easily available on rent. Therefore, no land cost has been added to the project cost. The required space breakup is shown in Table 5.

Table 5: Land Area Breakup.

Description	Length	Width	Area Sq. Ft.	Area %
Executive office	12	10	120	15%
Staff Work Stations	20	15	300	37%
Waiting Area	12	10	120	15%
Store Room	12	12	144	18%
Washrooms	6	6	72	9%

Kitchen	8	8	64	8%
Total			820	100%

9.4.2. Building

There will be no cost of building construction as the proposed business will be started in a rented facility. However, there will be a renovation cost; required to make the building usable for the business. The proposed project requires electricity load of 3-4 KW which for which an electricity connection under the commercial supply tariff (A2) will be required. Building rent of PKR 49,000 per month has been included in the operating cost. Building renovation cost is shown in Table 6.

Table 6: Renovation Cost Details

Cost Item	Unit Of Measurement	Total Liter / Area / Number	Cost/Unit/ Sq.feet (PKR)	Total Cost (PKR)
Paint Cost	Ltr	303	500	151,700
Labour Cost	Feet	30,340	8	242,720
Wall Racks	Units	5	15,000	75,000
Curtains	Units	2	5,000	10,000
Blinds	Units	1	2,000	2,000
Total (PKR)				481,420

Machinery and Equipment

Table 7 provides details of machinery and equipment required for the project.

Table 7: Machinery and Equipment

Cost Item	Quantity	Unit Cost (PKR)	Total Cost (PKR)
Spray Machine	4	15,000	60,000
Thermal Fogger	4	150,000	600,000
Drill machines ⁶	4	50,000	200,000
Pressure Injector	4	50,000	200,000
Cold Fogger	4	150,000	600,000
Tool Kits (Table 8)	5	21,700	108,500
Total Cost (PKR)			1,768,500

⁶ One set of drill machines include a hand drill and a hammer drill costing PKR 20,000 and PKR 30,000 respectively.

Table 8: Tool Kits

Tools	Total Cost (PKR)
Flashlight	1,000
Magnifying Glass	500
Mirror	200
Stethoscope	15,000
First Aid Kit	5,000
Total Cost (PKR)	21,700

9.4.3. Office Equipment

Table 9 presents the office equipment requirement proposed for the unit.

Table 9: Office Equipment

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
Laptops	2	80,000	160,000
Desktop Computers	2	25,000	50,000
Printer	1	40,000	40,000
CCTV Cameras (2MP)	4	2,000	8,000
Digital Video Recorder (DVR)	1	12,000	12,000
LCD TV	1	15,000	15,000
Air Conditioners	2	90,000	180,000
Water Dispenser	1	20,000	20,000
Wi-Fi / Internet Router	1	5,000	5,000
Total Cost (PKR)			490,000

Furniture and Fixtures

Table 10 gives details of the furniture and fixture required for the project.

Table 10: Furniture and Fixtures

Cost Item	Number of Items	Unit Cost (PKR)	Total Cost (PKR)
Office Table	3	20,000	60,000
Executive Chairs	3	20,000	60,000
Office Chairs	13	12,000	156,000
Visitors Chairs	6	10,000	60,000

Sofa Set	1	35,000	35,000
Racks	4	12,000	48,000
Total Cost (PKR)			419,000

9.4.4. Office Vehicle

Details of vehicles required for the project is given in Table 11.

Table 11: Office Vehicle

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
Motorcycle	1	80,000	80,000
Pickups	2	1,050,000	2,100,000
Registration Charges –Motorcycle			1,000
Registration Charges –Pickup		4%	84,000
Total	3		2,265,000

9.4.5. Pre-Operating Cost

Details of pre operating cost required for the project is given in Table 12.

Table 12: Pre-Operating Cost

Staff	No.	Hiring Before Year 0 (1 Months)	Unit Cost (PKR)	Total (PKR)
Entmologist	1	1	70,000	70,000
Office Boy	1	1	20,000	20,000
Utilities expense				11,318
Total Cost				101,318

Utilities include electricity charges incurred before starting of operations.

9.4.6. Security against Building

Details of advance security against building rent for the project is given in Table 13.

Table 13: Security against Building

Description	Months	Rent	Total
Security against Building	3	49,000	147,000
Total Cost			147,000

9.5 Breakeven Analysis

Table 14 shows calculation of breakeven analysis.

Table 14: Breakeven Analysis

Description	Amount First Year (PKR)	Ratios
Sales (PKR) – A	7,700,000	100%
Variable Cost (PKR) – B	4,459,856	58%
Contribution (PKR) (A-B) = C	3,240,144	42%
Fixed Cost (PKR) – D	2,485,756	32%
Contribution Margin	42%	
Breakeven Revenue	5,907,243	
Total Service Capacity (sq. ft.)	1,260,000	
Breakeven Service Area (sq. ft.)	483,320	
Breakeven Capacity		38%

9.6 Revenue Generation

Based on 50% capacity utilization, assumptions taken, service charges and sales revenue during the first year of operations are shown in Table 15, Table 16 and Table 17.

Table 15: Revenue Generation Assumption

Particulars	Ratio
Fumigation Services	50%
Termite Control Services	50%
Total	100%

Table 16: Service Charges

Services	Area (sq. ft.) (A)	Charges (PKR) (B)	Charges/ sq. ft. (PKR) (B/A)
Fumigation Services	2,250	20,000	8.89
Termite Control Services	2,250	35,000	15.56

Table 17: Revenue Generation

Product	Total Area Covered (sq. ft.)	Ratio of Service Provision	Services Rendered (sq. ft.)	Price/sq. ft.(PKR)	Total Revenue (PKR)
Fumigation	630,000	50%	315,000	8.89	2,800,000
Termite Control	630,000	50%	315,000	15.56	4,900,000
Total (PKR)					7,700,000

9.7 Variable Cost

Variable costs of the project have been provided in Table 18.

Table 18: Variable Cost

Description of Costs	Amount (PKR)
Material Cost (Table 19)	840,000
Labour (Table 20)	2,640,000
Uniform and Consumables (Table 21)	106,500
Fuel Cost (Table 22)	352,800
Vehicle maintenance cost (Table 23)	156,000
Communications expense (phone, fax, mail, internet, etc.)	90,000
Office vehicles running and maintenance expense	48,735
Electricity	135,821
Office expenses (stationery, entertainment, janitorial services, etc.)	90,000
Total Variable Cost	4,459,856

Table 19: Material Cost

Material	Average Cost/ Liter (PKR)	Coverage Area (sq. ft.) ⁷	Cost (Rs / sq. ft.)	Service Area (sq. ft.)	Cost (PKR)
Fumigant	5,000	4,500	1.11	315,000	350,000
Termiticite	3,500	2,250	1.56	315,000	490,000
Total(PKR)					840,000

⁷ 1 litre of fumigant covers approximately 4,500 square feet while 1 litre of Terimiticite covers approximately 2,250 square feet.

Some of the fumigants available in the market are Alpha Cypermethrin, Chlorine, Formaldehyde, Glutaraldehyde, Hydrogen Peroxide and other oxidizing agents. Termiticides are Fendona, Deltamethrine, Alphaguard, Borate, Fipronil and Hexaflumuron.

Table 20: Direct Labour Cost

Description	No. of Employees	Monthly Salary (PKR)	Total Monthly Salary (PKR)	Annual Salary (PKR)
Entomologist	1	70,000	70,000	840,000
Driver cum Sprayer	2	25,000	50,000	600,000
Drill Operator	2	25,000	50,000	600,000
Fumigator	2	25,000	50,000	600,000
Total			220,000	2,640,000

Table 21: Uniform and Consumables

Particulars	No of Units/ Packs	Cost per unit	Total Cost
Uniform	6	5,000	30,000
Consumables			
Gloves	1,960	25	49,000
Sticky Traps	50	500	25,000
Masks	10	250	2,500
Total			106,500

Table 22: Fuel Cost

Particulars	No. Amount, Cost(PKR)
No of vehicles – (A)	2
Mileage/Liter (KM) – (B)	10
Fuel Charges/Liter (PKR) – (C)	112
Average Distance per Day (KMs) - (D)	15
Fuel Consumption per KM (Liters) – E=(D/B)	1.5
No of Days – (F)	280
Distance Covered at full capacity – G=(D*F)	4200
Capacity utilization for the year – H	50%
Fuel Consumption - I (E*G*H)	3,150

Fuel Cost/Liter – J	112
Fuel Cost (I*J)	352,800

Table 23: Vehicle Maintenance Cost

Particulars	No., Amount, Cost (PKR)
No of vehicles - (A)	2
Oil Change per month - (B)	1,500
General maintenance - (C)	5,000
Charges per Month - D= A*(B+C)	13,000
Annual Maintenance (D*12)	156,000

9.8 Fixed Cost Estimate

Table 24 shows the estimated fixed cost of the project.

Table 24: Fixed Cost Estimate

Description of Costs	Amount (PKR)
Administration expense	900,000
Building rental expense	588,000
Promotional expense	154,000
Depreciation expense	789,517
Insurance Expense	33,975
Amortization of pre-operating costs	20,264
Total	2,485,756

9.9 Human Resource

For the 1st year of operations, the proposed business shall require the workforce at a salary cost shown in Table 25.

Table 25: Human Resource Requirement

Post	No. of Employees	Monthly Salary (PKR)	Total Salary per Month	Annual Salary (PKR)
Entmologist	1	70,000	70,000	840,000
Driver cum Sprayer	2	25,000	50,000	600,000
Drill Operator	2	25,000	50,000	600,000
Fumigator	2	25,000	50,000	600,000
Accountants	1	35,000	35,000	420,000
Security Guard	1	20,000	20,000	240,000
Office Boy	1	20,000	20,000	240,000
Total				3,540,000

10. CONTACT DETAILS

Contact details of some suppliers of the relevant machinery and equipment are provided in Table 26.

Table 26: Contact Details of Suppliers/ Service Providers

Cost Item	City	Contact Number	Web Address
Spray Machine, Thermal Fogger	Karachi	0333-3099401	https://hafiservices.com/
Service square	Islamabad	051 2350555	https://servicesquare.com.pk/contact
Drill machine	Lahore	042 37630077	https://lcihmm.business.site/
Tools Kits	Lahore	042 37232363	http://www.aljasim.com.pk/
Pest Control Islamabad	Islamabad	0300 4960 841	https://scout-pest-control-islamabad.business.site
Pest Control Services	Karachi/ Lahore	0300 0205 326	https://www.ecoservices.com.pk
Safe Home Pest Management	Peshawar	0300 2622226	https://safe-home-pest-management.business.site
CNG Pest Control	Quetta	0300 2040 400	http://cngpestcontrol.com

11. USEFUL WEB LINKS

Table 27: Useful Web Links

Organization	Website
Small and Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
National Business Development Program	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
Government of Khyber Pakhtunkhwa	http://www.kp.gov.pk
Government of Sindh	www.sindh.gov.pk
Government of Balochistan	www.balochistan.gov.pk
Government of Gilgit Baltistan	https://gilgitbaltistan.gov.pk
Government of Azad Jammu & Kashmir	https://ajk.gov.pk
Security 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
Technical Education and Vocational Training Authority	www.tevta.org
Punjab Vocational Training Council (PVTC)	www.pvtc.gop.pk
Punjab Small Industries Corporation (PSIC)	www.psic.gop.pk

12. ANNEXURES

12.1 Income Statement

Statement Summaries										SMEDA
Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actuals Year 10
Revenue	7,700,000	10,006,920	12,643,743	15,649,342	19,066,767	22,943,676	24,848,001	26,910,385	29,143,947	31,562,895
Cost of goods sold	4,103,335	4,678,809	5,322,589	6,783,364	7,641,033	8,595,757	9,269,750	9,996,905	10,781,438	11,627,905
Gross Profit	3,596,665	5,328,111	7,321,154	8,865,978	11,425,734	14,347,919	15,578,251	16,913,481	18,362,509	19,934,990
<i>General administration & selling expenses</i>										
Administration expense	900,000	965,700	1,036,196	1,185,961	1,272,536	1,365,431	1,465,108	1,572,061	1,686,821	1,809,959
Rental expense	588,000	646,800	711,480	782,628	860,891	946,980	1,041,678	1,145,846	1,260,430	1,386,473
Utilities expense	127,786	139,031	151,265	164,577	179,060	194,817	211,961	230,613	250,907	272,987
Travelling & Comm. expense (phone, fax, etc.)	90,000	96,570	103,620	118,596	127,254	136,543	146,511	157,206	168,682	180,996
Office vehicles running expense	48,735	52,293	56,110	64,220	68,908	73,938	79,336	85,127	91,341	98,009
Office expenses (stationary, etc.)	90,000	96,570	103,620	118,596	127,254	136,543	146,511	157,206	168,682	180,996
Promotional expense	154,000	200,138	252,875	312,987	381,335	458,874	496,960	538,208	582,879	631,258
Insurance expense	33,975	28,879	23,783	18,686	13,590	8,494	3,398	69,214	58,832	48,450
Depreciation expense	789,517	789,517	789,517	789,517	789,517	789,517	542,392	1,428,595	1,428,595	1,428,595
Amortization expense	20,264	20,264	20,264	20,264	20,264	-	-	-	-	-
Subtotal	2,842,276	3,035,761	3,248,729	3,576,032	3,840,608	4,111,137	4,133,853	5,384,075	5,697,170	6,037,723
Operating Income	754,389	2,292,349	4,072,425	5,289,946	7,585,126	10,236,783	11,444,398	11,529,406	12,665,340	13,897,268
Gain / (loss) on sale of assets	-	-	-	-	-	-	1,130,875	-	-	-
Earnings Before Interest & Taxes	754,389	2,292,349	4,072,425	5,289,946	7,585,126	10,236,783	12,575,273	11,529,406	12,665,340	13,897,268
Interest expense	-	-	-	-	-	-	-	-	-	-
Earnings Before Tax	754,389	2,292,349	4,072,425	5,289,946	7,585,126	10,236,783	12,575,273	11,529,406	12,665,340	13,897,268
Tax	-	-	-	-	-	-	-	-	-	-
NET PROFIT / (LOSS) AFTER TAX	754,389	2,292,349	4,072,425	5,289,946	7,585,126	10,236,783	12,575,273	11,529,406	12,665,340	13,897,268

12.2 Balance Sheet

Statement Summaries											SMEDA
Balance Sheet											Rs. in actuals
	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	250,000	1,458,240	3,202,778	5,350,207	7,431,855	9,982,703	12,959,316	16,751,786	29,653,045	43,677,527	59,763,674
Equipment spare part inventory	38,275	51,836	68,972	90,519	117,496	151,145	177,496	208,442	244,785	287,464	-
Raw material inventory	35,000	49,489	68,032	91,614	121,442	158,995	187,345	220,749	260,110	306,489	-
Pre-paid building rent	-	53,900	59,290	65,219	71,741	78,915	86,806	95,487	105,036	115,539	-
Pre-paid insurance	33,975	28,879	23,783	18,686	13,590	8,494	3,398	69,214	58,832	48,450	-
Total Current Assets	357,250	1,642,343	3,422,854	5,616,244	7,756,125	10,380,252	13,414,362	17,345,679	30,321,807	44,435,469	59,763,674
<i>Fixed assets</i>											
Building/Infrastructure	481,420	433,278	385,136	336,994	288,852	240,710	192,568	144,426	96,284	48,142	-
Machinery & equipment	1,768,500	1,503,225	1,237,950	972,675	707,400	442,125	176,850	3,030,898	2,576,263	2,121,629	1,666,994
Furniture & fixtures	419,000	356,150	293,300	230,450	167,600	104,750	41,900	718,092	610,379	502,665	394,951
Office vehicles	2,265,000	1,925,250	1,585,500	1,245,750	906,000	566,250	226,500	4,614,255	3,922,116	3,229,978	2,537,840
Office equipment	490,000	416,500	343,000	269,500	196,000	122,500	49,000	839,774	713,808	587,842	461,876
Security against building	147,000	147,000	147,000	147,000	147,000	147,000	147,000	147,000	147,000	147,000	147,000
Total Fixed Assets	5,570,920	4,781,403	3,991,886	3,202,369	2,412,852	1,623,335	833,818	9,494,445	8,065,850	6,637,255	5,208,660
<i>Intangible assets</i>											
Pre-operation costs	101,318	81,055	60,791	40,527	20,264	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
Total Intangible Assets	101,318	81,055	60,791	40,527	20,264	-	-	-	-	-	-
TOTAL ASSETS	6,029,488	6,504,801	7,475,531	8,859,141	10,189,240	12,003,587	14,248,180	26,840,124	38,387,657	51,072,724	64,972,335
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable	-	98,118	111,271	126,054	162,980	183,150	204,825	221,496	239,624	259,351	261,694
Total Current Liabilities	-	98,118	111,271	126,054	162,980	183,150	204,825	221,496	239,624	259,351	261,694
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	6,029,488	6,029,488	6,029,488	6,029,488	6,029,488	6,029,488	6,029,488	6,029,488	6,029,488	6,029,488	6,029,488
Retained earnings	-	377,194	1,334,772	2,703,599	3,996,772	5,790,949	8,013,866	20,589,139	32,118,545	44,783,884	58,681,152
Total Equity	6,029,488	6,406,683	7,364,260	8,733,087	10,026,261	11,820,438	14,043,354	26,618,627	38,148,033	50,813,373	64,710,640
TOTAL CAPITAL AND LIABILITY	6,029,488	6,504,801	7,475,531	8,859,141	10,189,240	12,003,587	14,248,180	26,840,124	38,387,657	51,072,724	64,972,335

12.3 Cash Flow Statement

Statement Summaries											SMEDA
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Rs. in actuals Year 10
<i>Operating activities</i>											
Net profit	-	754,389	2,292,349	4,072,425	5,289,946	7,585,126	10,236,783	12,575,273	11,529,406	12,665,340	13,897,268
Add: depreciation expense	-	789,517	789,517	789,517	789,517	789,517	789,517	542,392	1,428,595	1,428,595	1,428,595
amortization expense	-	20,264	20,264	20,264	20,264	20,264	-	-	-	-	-
Deferred income tax	-	-	-	-	-	-	-	-	-	-	-
Accounts receivable	-	-	-	-	-	-	-	-	-	-	-
Finished good inventory	-	-	-	-	-	-	-	-	-	-	-
Equipment inventory	(38,275)	(13,561)	(17,136)	(21,547)	(26,977)	(33,648)	(26,351)	(30,946)	(36,342)	(42,679)	287,464
Raw material inventory	(35,000)	(14,489)	(18,543)	(23,582)	(29,829)	(37,553)	(28,350)	(33,404)	(39,360)	(46,379)	306,489
Pre-paid building rent	-	(53,900)	(5,390)	(5,929)	(6,522)	(7,174)	(7,891)	(8,681)	(9,549)	(10,504)	115,539
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	(33,975)	5,096	5,096	5,096	5,096	5,096	5,096	(65,816)	10,382	10,382	48,450
Accounts payable	-	98,118	13,152	14,783	36,926	20,170	21,676	16,671	18,128	19,727	2,343
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(107,250)	1,585,434	3,079,310	4,851,027	6,078,421	8,341,797	10,990,479	12,995,489	12,901,259	14,024,482	16,086,147
<i>Financing activities</i>											
Issuance of shares	6,029,488	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financ	6,029,488	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(5,672,238)	-	-	-	-	-	-	(9,203,019)	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
Cash (used for) / provided by invest	(5,672,238)	-	-	-	-	-	-	(9,203,019)	-	-	-
NET CASH	250,000	1,585,434	3,079,310	4,851,027	6,078,421	8,341,797	10,990,479	3,792,470	12,901,259	14,024,482	16,086,147

13. KEY ASSUMPTIONS

13.1 Operating Cost Assumptions

Table 28: Operating Cost Assumptions

Description	Details
Building rent growth rate	10%
Furniture and fixture depreciation	15%
Vehicle depreciation	15%
Office equipment depreciation	15%
Inflation growth rate	8.3%
Wage growth rate	8.3%
Electricity price growth rate	8.8%
Office equipment price growth rate	8%
Office vehicle price growth rate	10.7%

13.2 Revenue Assumptions

Table 29: Revenue Assumptions

Description	Details
Service charges growth b	8.3%
Initial year capacity utilization	50%
Capacity utilization growth rate	10%
Maximum capacity utilization	100%

13.3 Variable Cost Assumptions

Table 30: Variable Cost Assumptions

Cost Items	Cost/Rate	Rationale
Fumigant	1.11	Average material cost per sq. ft.
Termiticide	1.56	Average material cost per sq. ft.
Vehicle maintenance cost	1%	% of revenue
Office vehicles running and maintenance expense	5%	% of administration expense
Communication expense	10%	% of administration expense
Cost of goods sold growth	8.3%	Average rate of last 3 years have

rate	been taken from Pakistan Economic Survey 2019-20
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13.4 Fixed cost Assumptions

Table 31: Fixed Cost Assumptions

Cost Items	Rate	Rationale
Office expenses (stationary, entertainment, janitorial services, etc.)	10%	% of administration expense.
Promotional expense	2%	% of revenue.
Insurance Expense	1.5%	% of cost of vehicles.

13.5 Financial Assumptions

Table 32: Financial Assumptions

Description	Details
Project life (Years)	10
Debt: Equity	0:100
Discount Rate	15%

13.6 Debt Related Assumptions

Table 33: Debt Related Assumptions

Description of Cost	Details
Project Life (Years)	10
Debt: Equity	50:50
Discount Rate	13%
Debt Tenure	5 years
Grace Period	1 Year
Interest Rate (KIBOR+3%)	11.3%

13.7 Cash Flow Assumptions

Table 34: Cash Flow Assumptions

Description	Details
Accounts receivable cycle (in days)	-
Accounts payable cycle (in days)	10

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