



Pre-feasibility Study

SETTING-UP OFFICES AND CLINICS OF DENTISTS

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

This information memorandum is to introduce the subject matter and provide a general idea and information on the said matter. Although, the material included in this document is based on data/information gathered from various reliable sources; however, it is based upon certain assumptions, which may differ from case to case. The information has been provided on as is where is basis without any warranties or assertions as to the correctness or soundness thereof. Although, due care and diligence has been taken to compile this document, the contained information may vary due to any change in any of the concerned factors, and the actual results may differ substantially from the presented information. SMEDA, its employees or agents do not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. The contained information does not preclude any further professional advice to be obtained by the user. The prospective user of this memorandum is encouraged to carry out additional diligence and gather any information which is necessary for making an informed decision, including taking professional advice from a qualified consultant/technical expert before taking any decision to act upon the information.

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2. EXECUTIVE SUMMARY

Dentist is a specialist doctor skilled in and licensed to practice the prevention, diagnosis, and treatment of diseases, injuries, and malformations of the teeth, jaws, and mouth. Dentists also make and insert false teeth.¹

The proposed project of dental clinic will provide services of dentures, crowning, braces, fillings, scaling, extraction, root canal therapy and dental implants.

Based on data from Pakistan Medical Commission (formerly Pakistan Medical and Dental Council), Pakistan has 28,736 licensed dentists². Considering the estimated population of 220 million, this translates into 0.13 dentists per 1000 persons in Pakistan. Comparing to it, in European Union (EU), this ratio is between 0.4 and 1.2 dentists per 1000 population.³ In USA, this ratio is 0.61 dentist per 1000 persons.⁴ This shows that per capita availability of dentists in Pakistan is less than that in the developed countries. Further, there is an increasing demand for dentists due to deteriorating nature of people's teeth because of impure food, lesser care for teeth due to busy life schedules, frequent snacking, increased consumption of carbonated and sugar-based drinks. People also go to a dentist for their smile makeover and to improve their face aesthetics. This indicates the opportunities for qualified professional dentists to establish a dental clinic.

This "pre-feasibility document" provides details for setting-up offices and clinics for dentists, which has a capacity to treat 4,253 patients in a year at 100% capacity utilization. The initial capacity in "Year One" is estimated to be 50%, treating 2,127 patients.

The proposed business will ideally be located in cities like Karachi, Lahore, Peshawar, Islamabad, Rawalpindi, Multan, Quetta, Sailkot, Gujranwala, Hyderabad, Sukkur, Mardan, Muzaffarabad, etc. Locating the clinic in these cities would be beneficial since it will be close to large population segments. The proposed unit can also be set up in other small cities/towns. Operating hours of business have been assumed at 10 hours a day (4 hours in morning and 6 hours in the evening) for 280 days in a year.

The clinic will be set up in a rented building with area of 900 square feet. The project requires a total investment of PKR 4.01 million. This includes capital investment of PKR 3.01 million and working capital of PKR 1.0 million. It is proposed that the project shall be financed through 100% equity. The Net Present Value (NPV) of project is PKR 44.78 million with an Internal Rate of Return (IRR) of 108% and a Payback period of 1.35 years. Further, this project is expected to generate Gross Annual Revenues of PKR 13.3 million during 1st year, Gross Profit (GP) ratio ranging from 45% to 63% and Net Profit (NP) ratio ranging from 16% to 34% during the projection period of ten years.

¹ <https://www.merriam-webster.com/dictionary/dentist>

² <https://www.pmc.gov.pk>

³ <https://www.oecd-ilibrary.org/sites/9172ab9f-en/index.html?itemId=/content/component/9172ab9f-en>

⁴ <https://www.ada.org/en/science-research/health-policy-institute/dental-statistics/workforce#:~:text=What%20is%20the%20dentist%2Dto,dentistry%20per%20100%2C000%20U.S.%20population>

The proposed project will achieve its estimated breakeven point at capacity of 30% (1,255 patients) with breakeven revenue of PKR 7.86 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 49.92 million, Internal Rate of Return (IRR) of 107%, and Payback period of 1.38 years. Further, this project is expected to generate Net Profit (NP) ratio ranging from 15% to 34% during the projection period of ten years. The proposed project will achieve its estimated breakeven point at capacity of 30% i.e. (1,276 patients) with breakeven revenue of PKR 8 million.

The proposed business will provide employment opportunities to 6 people; including the Dentist doctor. The human resource includes a licensed dentist, an assistant (diploma holder), receptionist, a security guard, an office boy and a janitor. High return on investment and steady growth is expected with dentist having prior experience. The legal form of this project is proposed as "Sole Proprietor", the business may also be established as "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 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 “Setting-up Offices and Clinics of Dentists”. 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

Dentist is a specialist doctor skilled in and licensed to practice the prevention, diagnosis, and treatment of diseases, injuries, and malformations of the teeth, jaws, and mouth and who makes and inserts false teeth. Dentistry is the profession or art of a dentist. It is divided into the following categories:

- ***Orthodontics***

Orthodontic treatment helps teeth line up correctly, using braces or other devices.

- ***Periodontics***

Periodontics is the study, diagnosis, and treatment of diseases and injuries to the gums, connective tissues, and bones surrounding the teeth.

Services

Brief description of the services provided in the clinic is as under:

- **Dentures**

Dentures are the replacements for missing teeth that can be taken out and put back into the mouth as per the person's need and convenience. It may be partial as well as full denture, as shown in Figure 1.

Figure 1: Dentures



- **Crowning**

Crowns are fixed prosthetic devices. Unlike devices like dentures, which can be taken out and cleaned daily, crowns are cemented onto the existing teeth. A crown is used when a tooth is fractured or damaged while a bridge is used when one or more teeth are missing, as shown in Figure 2.

Figure 2: Crown and Bridge

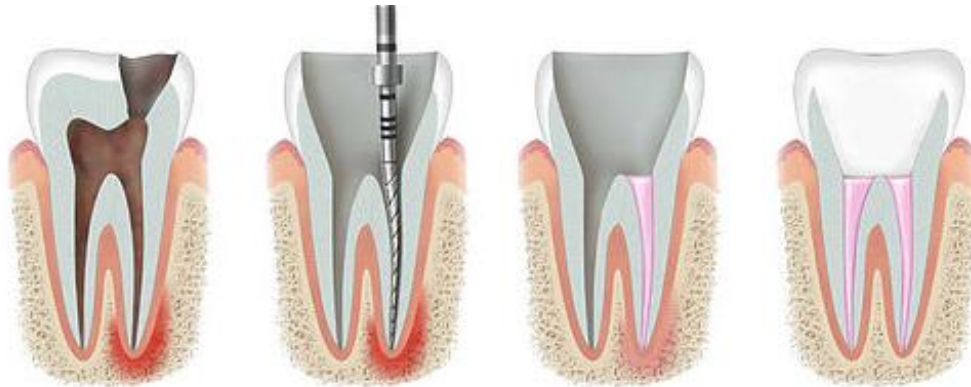


- **Root Canal Therapy**

Root Canal is a treatment to remove damaged or diseased tooth pulp; the innermost layer of the tooth that contains nerves and blood vessels. The procedure involves removing the damaged area of the tooth (the pulp) and cleaning and disinfecting it, then filling and sealing it as shown in Figure 3. The common causes affecting the pulp are a cracked tooth, a deep cavity, repeated dental treatment to the tooth or trauma to it. The term "root canal" comes from cleaning of the canals inside the tooth's root. If

left untreated, it can lead to infection and inflammation which can cause an abscess, which may result in the whole tooth having to be extracted.

Figure 3: Root Canal Therapy



- **Dental filling or Restoration:**

Restoration refers to fabrication of a tooth using metal and/or tooth-colored materials. Dental filling is a type of restorative dentistry treatment used to repair minimal tooth fractures, tooth decay or otherwise damaged surfaces of the teeth. Dental filling materials, which include composite, porcelain and silver amalgam, may be used to even out tooth surfaces for better biting or chewing. Figure 4 shows teeth before and after restoration.

Figure 4: Dental Filling



- **Scaling**

Dental Scaling is a non surgical procedure to clean teeth and treat gum diseases as shown in Figure 5. In scaling, a dentist removes tartar and plaque from teeth's surface and gum pockets, smoothing out the roots which helps in reattaching gums to teeth.

Figure 5: Scaling

- **Braces**

Dental braces are a way of straightening or moving teeth, to improve how they look and how they work. Braces work by putting pressure on the teeth, to slowly move them in the right direction. As the pressure takes effect, the bone in the jaw changes to allow the teeth and their roots to move. These are removed after the teeth are aligned. Most braces are made of metal, but some are made of ceramic or plastic. Figure 6 shows braces fixed on a person's teeth.

Figure 6: Braces

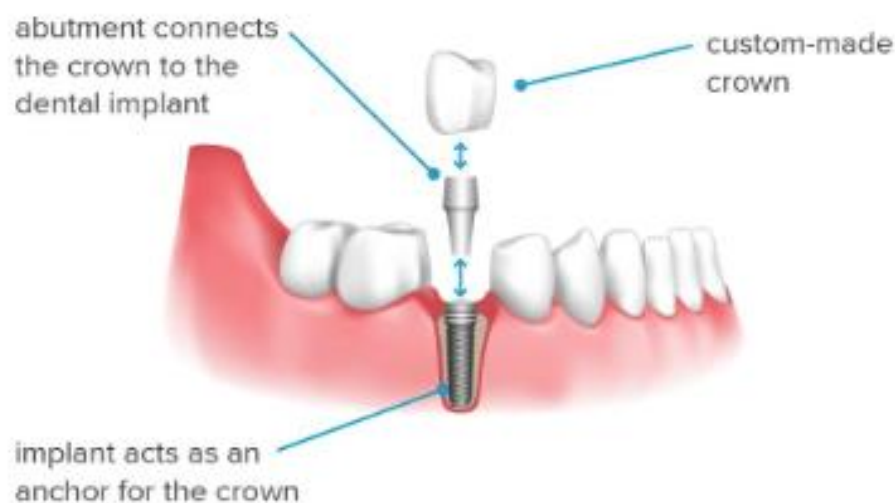
- **Extraction**

Extraction is permanent removal of a tooth from its spot in the jaw bone. It can be done manually, by using forceps, or through surgery, when a tooth is invisible or broken. It is recommended only to prevent infection from spreading to other teeth or when a tooth cannot be saved through other procedures i.e root canal therapy. Sometimes, extra teeth also have to be removed.

Figure 7: Tooth Extraction

- **Dental Implant**

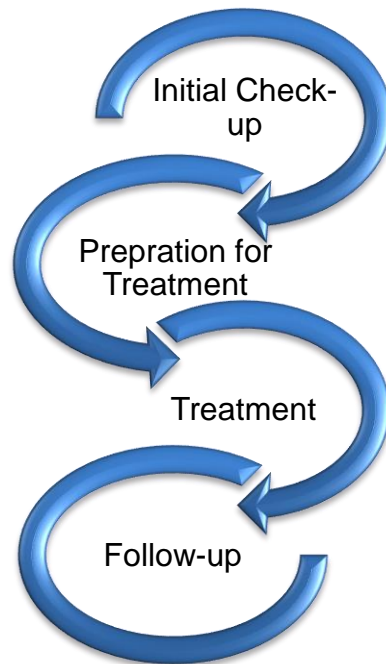
A dental implant is a prosthetic post, like a tooth root, that is positioned into the jawbone beneath the gum line that allows the dentist to mount a crown or denture into that area. The root is replaced with an implant and the tooth with a denture or crown. An implant does not come loose like a denture can, but can be either fixed or removable. Dental implants can be of a single missing tooth or several teeth. It has three parts as shown in Figure 8.

Figure 8: Dental Implant

5.1 Service Flow

A general service flow of a dentist performing clinical procedures is given in Figure 9.

Figure 9: Service flow



Initial Checkup

When the patient arrives at clinic *he/she* is asked for basic initial check-up which includes temperature check, blood pressure check and his/her general medical history. After this initial check-up, the patient is referred to the treatment room for further procedure. It is ensured that a person suffering from any transferable diseases, such as HIV (Aids) and Hepatitis C, is treated with intensive care and the equipment is disposed off properly to avoid further spread or *he/she* must be referred to an advanced laboratory where facilities required to restrain the spread are available. It is pertinent to mention that the dental treatment cost of HIV infected patients is very high as the entire equipment has to be disposed off after single use. It has been assumed that this dental clinic does not provide services for people infected with such diseases.

Preparation for Treatment

For detailed treatment, dental clinic is equipped with the required tools and instruments. These instruments have to be sterilized before doing procedures. Safety measures are taken i.e. wearing gloves, gowns and goggles to avoid exposure to hazards i.e. injury due to sharp edges, radiation and/or spread of contagious diseases.

Treatment

The required procedures are performed by a dentist using a dental unit. The dental unit consists of specific parts that include dental chair, spittoon, stool, lighting, hydric

box, aspiration, cuspidor and other elements. Figure 10 shows a dental unit used by every dentist.

Figure 10: Dental Unit



Parts of a Dental Unit

- **Dental Chair**

The dental chair is one of the most important parts of every dental unit, both for the patient and for the dentist. Each chair is formed by a seat, a headrest, a backrest and armrests.

- **Spittoon/ Cuspidor**

The spittoon is a container that is placed next to the dental chair so the patient can rinse and salivate during the process. The cuspidor cup is made with porcelain, it is removable and autoclavable (autoclaving is the process of sterilization of an equipment in an autoclave).

- **Aspirator System**

The aspirator is a small tube used for suction of saliva that accumulates in the mouth or small particles of the cavity.

- **Pedal**

The pedal in a dental unit helps in rotation of the different instruments, for example adjusting the chair or light.

- **Instrument Tray or Table**

The instrument tray holds all needed instruments for the dentist to work with i.e tweezers, forceps, syringes etc.

- **Lighting Lamp**

It is a high intensity lamp that concentrates the entire beam of light inside the patient's oral cavity to be able to work without any problem.

Follow-up

Normally patients need revisits after initial dental treatment e.g. filling, dentures, braces. The patient is seen after one or two weeks for post treatment instructions and observation of healing.

5.2 Installed and Operational Capacities.

The proposed project shall, at maximum capacity of 100%, will treat 4,253 patients annually. The unit would operate in a single shift of 10 hours per day (4 hours in morning and 6 hours in evening) for 280 days in a year. However, during first year of operation, the proposed unit is expected to attain 50% of its installed capacity and will treat 2,127 patients during first year of operation. The operations of proposed business have been assumed to increase at a rate of 10% annually, reaching at full capacity during 6th year of its operations. Table 1 depicts the installed and operational capacities of the proposed unit.

Table 1: Installed and Operational Capacity

Services	Total Time / Treatment (hour) (Table 2) (A)	Ratio of Patients Per Year (B)	No. of Patients at 100% Capacity C=(A*B)	No. of Patients at 50% Capacity (C*50%)
Crowning	1.2	12%	288	144
Braces	37.0	3%	2	1
Fillings	0.6	20%	960	480
Scaling	0.5	8%	448	224
Denture	1.0	11%	308	154
Extraction	0.3	21%	1,764	882
Root Canal Therapy	1.4	23%	455	228
Implants	2.0	2%	28	14
Total		100%	4,253	2,127

Table 2: Treatment Time

Services	Initial Treatment Time Including Consultation (hr) (A)	Further Visits Per Treatment (No.) (B)	Time per Further Visit (hr) (c)	Further Visits Time (hr) D=(B*C)	Total Time Per Treatment (hr) (A+D)
Crowning	0.7	2	0.25	0.5	1.2
Braces	1.0	12	3.00	36.00	37.0
Fillings	0.6	-	-	-	0.6
Scaling	0.5	-	-	-	0.5
Denture Per Tooth	0.5	3	0.17	0.5	1.0
Extraction	0.3	-	-	-	0.3
Root Canal	0.8	2	0.3	0.7	1.4
Implant	1.0	2	0.5	1.0	2.0
Total					44.0

6. CRITICAL FACTORS

Patients choose their dentist based on a variety of factors. The following factors should be taken into account while making the investment decision:

- Professional competence of the dentist
- Location of the dental office/ clinic
- Cost of medical services
- State-of-the-art medical equipment
- Cleanliness and optimal sterilization of tools, devices and equipment

7. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

For business success, it is necessary to determine the target market. So the proposed business would ideally be located in cities like Karachi, Lahore, Peshawar, Islamabad, Rawalpindi, Multan, Muzaffarabad, Gilgit, Quetta, Sialkot, Gujranwala, Mardan, Hyderabad, Sukkur, etc. Locating the proposed business in these cities provides the advantage of being close to huge population. Such clinics may also be established in smaller cities and towns.

8. POTENTIAL TARGET CUSTOMERS / MARKETS

Based on data from Pakistan Medical Commission (formerly Pakistan Medical and Dental Council), Pakistan has 28,736 licensed dentists.⁵ With a population of about 220 million, there are 0.13 dentists per 1000 persons in Pakistan. Compared to it, in European Union (EU), this ratio is between 0.4 and 1.2 dentists per 1000 persons⁶. This ratio in USA is 0.61 dentists per 1000 persons.⁷

The number of dentists per 1000 persons in rural areas of Pakistan is only 0.005.⁸ These ratios indicate the need to have more dentists to provide dental and oral health services in Pakistan. Further, there is an increasing demand for dentists due to deteriorating nature of people's teeth because of impure food, lesser care for teeth due to busy life schedules, frequent snacking, general reduced immunity levels, increased consumption of carbonated and sugar-based drinks, etc. People also go to a dentist for their smile makeover and to improve their face aesthetics. Currently in Pakistan, the service segment for clinical procedures has a greater share than aesthetics' segment, but with improving quality of life and growing number of younger people requesting for aesthetical procedures, the demand for aesthetic services is increasing. All these factors make establishment of dental clinic an attractive investment opportunity for qualified dentists.

9. PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of "Setting-up Offices and Clinics of Dentists". 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 Initial Project Cost Estimates

The details of initial project cost calculated for the proposed business are shown in Table 3.

Table 3: Initial Project Cost Estimate

Description	Cost	Reference
Land	-	9.1.1
Building/Infrastructure	308,300	9.1.2

⁵ <https://www.pmc.gov.pk>

⁶ <https://www.oecd-ilibrary.org/sites/9172ab9f-en/index.html?itemId=/content/component/9172ab9f-en>

⁷ <https://www.ada.org/en/science-research/health-policy-institute/dental-statistics/workforce#:~:text=What%20is%20the%20dentist%2Dto,dentistry%20per%20100%2C000%20U.S.%20population>

⁸ <https://www.pda.org.pk/docs/'Dentist-population%20ratio%20in%20rural%20areas%20miserably%20low'%20-%20Pakistan%20-%20DA>

Dental equipment	1,150,000	9.1.3
Office equipment	591,000	9.1.4
Furniture & fixtures	313,000	9.1.5
Office Vehicle	80,800	9.1.6
Dental Instruments	53,010	9.1.7
Pre-operating costs	235,402	9.1.8
Security Against Building	270,000	9.1.9
License Fee	5,000	9.1.10
Total Capital Cost	3,006,512	
Working Capital		
Raw Material inventory	388,630	
Up front bulding rent	90,000	
Upfront insurance payment	25,020	
Cash	500,000	
Total Working Capital	1,003,650	
Total Investment	4,010,162	

9.1.1. Land

The business will be established in a rented building to avoid the high cost of land. Suitable places for setting up a business like this can be easily found on rent. Therefore, no land cost has been added to the project cost. The required space breakup is shown in Table 4.

Table 4: Land Area Breakup

Description	Number	Area (Sq. Ft.)	Area %
Consultation Office	1	150	17%
Treatment/Procedure Room	1	300	33%
Reception	1	100	11%
Waiting Area	1	150	17%
Store Room	1	120	13%
Washrooms	2	80	9%
Total		900	100%

9.1.2. 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 10 KW for which an electricity connection under the commercial supply tariff will be required. Building rent of PKR 90,000 per month has been included in the operating cost. Building renovation cost is shown in Table 5.

Table 5 Renovation Cost Details

Cost Item	Unit of Measurement	Total Units	Cost per Unit	Total Cost (PKR)
Paint Cost	Liters	34	500	17,100
Labour Cost	Sq. Feet	3,420	10	34,200
Wall Racks	No.	6	5,000	30,000
Curtains	No.	4	2,000	8,000
Blinds	No.	8	15,000	120,000
Tiles	Sq. Feet	300	300	90,000
Labour Cost	Sq. Feet	300	30	9,000
TOTAL (PKR)				308,300

9.1.3. Dental Equipment

Table 6 provides details of dental equipment required for the project.

Table 6: Dental Equipment

Cost Item	Number of Items	Unit Cost (PKR)	Total Cost (PKR)
Dental Unit (3450 W)	1	500,000	500,000
Dental Air Compressor (2300 W)	1	50,000	50,000
Dental Autoclave (Sterilizer) (550 W)	1	350,000	350,000
Dental X-Ray Machine - Portable	1	150,000	150,000
Obturation System	1	100,000	100,000
Total			1,150,000

9.1.4. Office Equipment

The office equipment requirement proposed for the unit is given in Table 7.

Table 7: Office Equipment

Cost Item	No.	Unit Cost (PKR)	Total Cost (PKR)
Laptop Computers	2	80,000	160,000
Printers	1	40,000	40,000
Security System (4 Cameras 2 MP)	4	2,000	8,000
DVR	1	12,000	12,000
LED	1	40,000	40,000
Air Conditioners (1.5 ton Inverter)	3	90,000	270,000
Ceiling Fan	5	5,000	25,000
Exhaust Fan	3	2,000	6,000
Water Dispensers	1	20,000	20,000
Wi-Fi / Internet Routers	1	5,000	5,000
Waste Bin For Medical Disposal	1	5,000	5,000
Total Cost (PKR)			591,000

9.1.5. Furniture and Fixture

Table 8 gives details of the furniture and fixture required for the project.

Table 8: Furniture and Fixtures

Cost Item	Number of Items	Unit Cost (PKR)	Total Cost (PKR)
Executive Tables - Dentist Room	1	30,000	30,000
Office Table	1	25,000	25,000
Executive Chairs - Doctor Room	1	20,000	20,000
Reception Counter	1	40,000	40,000
Sofa Set (Waiting Area)	3	35,000	105,000
Waiting Area Table	1	15,000	15,000
Office Chair	1	10,000	10,000
Patient Stool	2	3,500	7,000

Cabinets	5	12,000	60,000
Mirror	1	1,000	1,000
Total Cost (PKR)			313,000

9.1.6. Office Vehicle

Details of vehicles required for the project is given in Table 9.

Table 9: Office Vehicle

Cost Item	Number of Vehicles	Unit Cost (PKR)	Total (PKR)
Motorcycle	1	80,000	80,000
Registration Charges	1%		800
Total Cost (PKR)			80,800

9.1.7. Dental Instruments

List of dental instruments required for the clinic is given in Table 10.

Table 10: Dental Instruments

Instrument	Average No. of Units	Cost/ Unit (PKR)	Total Cost (PKR)
Arti Forcep	3	200	600
Mouth mirror	2	150	300
Bird beak pliers	1	550	550
Band remover	1	900	900
Band seater	1	320	320
Articulator	2	810	1,620
Endo Scale	2	180	360
Endo probe	3	200	600
Amalgam Carver	2	80	160
Amalgam gun	1	280	280
Amalgam plugger	1	80	80
Bracket replacing tweezer	2	220	440
Scaler	3	180	540

Dental drill	1	1,170	1,170
Dental Syringe (2.2 ml)	4	600	2,400
Bone chisel set	2	280	560
Bone Curettes	2	190	380
Bone File	2	200	400
Forcep kit	1	8,100	8,100
Heavy wire cutter	2	1,500	3,000
Impression trays pack	4	810	3,240
Bone Nibbler	2	630	1,260
BP handle non magnet	3	230	690
Bracket placing tweezer	3	220	660
Bracket removing pliers	2	810	1,620
Buccal tube pliers	1	260	260
Burnisher	1	80	80
Cement spatula A type	2	180	360
Cement spatula B type	2	100	200
Dental probe	3	180	540
Discoid carver	2	130	260
Distal end cutter	2	1,440	2,880
Inter dental scaler	2	200	400
Inter dental scaler A plus	2	250	500
Ligature placer	1	180	180
Ligature tucker	1	170	170
Local Capsule Applier	1	1,800	1,800
Loop forming applier	1	800	800

Luxator elevator	1	5,400	5,400
Methew pliers	3	540	1,620
Needle holder	3	200	600
Ortho Band pusher	1	320	320
Peri Scaler	2	200	400
Perioral elevator	2	270	540
Plaster cutter	2	600	1,200
Plaster knife	2	90	180
Plaster Spatula	2	100	200
Plastic filling instrument T type	3	100	300
Positioning Gauge	2	540	1,080
Separator placing plier	2	600	1,200
Surgical Scissor	2	200	400
Switcher Scissor	2	200	400
Tissue Forcep	3	170	510
Total			53,010

9.1.8. Pre-Operating Cost

Details of pre operating cost required for the project is given in Table 11.

Table 11: Pre-Operating Cost

Description	No.	Hiring Before Year 0 (Month)	Monthly salary (PKR)	Total Salary (PKR)
Utilities expenses				45,402
Dentist's Salary	1	1	150,000	150,000
Security Guard's Salary	1	1	20,000	20,000
Office Boy's Salary	1	1	20,000	20,000
Total				235,402

9.1.9. Security against Building

Details of security against rented building for the project is given in Table 12.

Table 12: Security against Building

Description	Months	Rent per Month (PKR)	Total (PKR)
Security	3	90,000	270,000

9.1.10. License Fee

Table 13: License Fee

Cost Item	Frequency	Total Cost (PKR)
Punjab Healthcare Commission	5 years	5,000
Total Cost (PKR)		5,000

License fee has been accounted for by assuming operations of business in Punjab. It may differ for other provinces. License fee charged by Punjab and Sindh Healthcare Commission are same i.e. PKR 5,000 for single practitioner and PKR 20,000 for multiple practitioners.⁹

9.2 Breakeven Analysis

Table 14 shows calculation of breakeven analysis.

Table 14: Breakeven Analysis

Description	Amount First Year (PKR)	Ratios
Sales (PKR) – A	13,327,000	100%
Variable Cost (PKR) – B	7,707,838	58%
Contribution (PKR) (A-B) = C	5,619,162	42%
Fixed Cost (PKR) – D	3,315,362	25%
Contribution Margin		42%
Breakeven Revenue (PKR)		7,863,064
Number of patients at Breakeven		1,255
Breakeven Capacity		30%

⁹ <https://www.phc.org.pk/licensingfee.aspx>
<http://shcc.org.pk/page.aspx/licensing/licensing-fee>

9.3 Revenue Generation

Based on 50% capacity utilization, sales revenue during the first year of operations is shown in Table 15.

Table 15: Revenue Generation

Item	Service Charges per Patient (PKR)	Number of Patients	Total Revenue (PKR)
Crowning	12,000	144	1,728,000
Braces	100,000	1	100,000
Fillings	5,500	480	2,640,000
Scaling	7,000	224	1,568,000
Denture	10,000	154	1,540,000
Extraction	3,500	882	3,087,000
Root Canal Therapy	8,000	228	1,824,000
Implants	60,000	14	840,000
Total Revenue (PKR)			13,327,000

9.4 Variable Cost

Variable costs of the project have been provided in Table 16.

Table 16: Variable Cost

Description of Costs	Amount (PKR)
Raw Material Cost (Table 17)	3,141,000
Consumables (Table 18)	1,522,560
Direct Human Resource Cost (Table 20)	2,400,000
Electricity	252,255
Utilities (Water, Gas, Internet)	54,000
Office vehicles running and maintenance expense	176,023
Office expenses (stationery, entertainment, janitorial services, etc.)	162,000
Total Variable Cost (PKR)	7,707,838

Table 17: Raw Material Cost

Cost Item	No. of Patients	Raw Material Cost Per Patient (PKR)	Raw Material Cost (PKR)
Crowning - Porcelain	144	8,000	1,152,000
Braces - stainless steel wire	1	22,000	22,000
Fillings- Glass ionomer	480	1,500	720,000
Denture - Impression Paste	154	1,500	231,000
Root Canal – Sealer	228	2,000	456,000
Implant	14	40,000	560,000
Total Cost (PKR)			3,141,000

Raw material including scales, dentures, crowns and implants are procured from suppliers, who have their own workshops, according to the required specifications for each patient.

Table 18: Consumables

Cost Item	Basis	Units	Unit Cost (PKR)	Total
Surgical Face Mask (Box)	No of employess and Patients	76	250	19,035
Surgical Gloves (Pair)	No of Patients	43	1,300	55,302
Medical Overall	Dentist and Assisstant	6	700	4,200
Sweeper Kit	Annual Consumption	1	22,270	22,270
Cotton Absorbent (Packs) 500 g Pack	20 g per patient	106	400	42,540
Anaethisia Cartridge (Table 19)	No of doses	334	2,500	835,000
Paper Napkin	Annual Consumption	100	150	15,000
X-ray film	No of Patients	2,127	40	85,080
Base plate	Annual Consumption	50	1,485	74,250
Hand Sanitizers (Liter)	Annual Consumption	5	500	2,500
Gloves Latex (Pair)	No of Patients	2,127	17	36,159

Impression tray full mouth	No of Patients	1,074	32	34,010
KN 95 Mask	Annual Consumption	50	600	30,000
Safety Glasses	Annual Consumption	10	180	1,800
Surgical Gown	Annual Consumption	25	225	5,625
Surgical Cap	Annual Consumption	20	450	9,000
Disposable Syringes	No of doses	334	6	2,004
Surgical Sponge	No of Patients	2,127	65	138,255
Polybib Towel	Annual Consumption	100	540	54,000
Sterilization Pouches	Annual Consumption	10	1,000	10,000
Prophy brush Cup	Scaling and Dentures	378	10	3,780
Dental Dam	Annual Consumption	100	200	20,000
Disinfectants for Machine Cleaning	Annual Consumption	2	6,000	12,000
Detergents (Liters)	Annual Consumption	10	200	2,000
Insecticides (Liters)	Annual Consumption	5	150	750
Air Fresheners	Annual Consumption	12	250	3,000
Cotton Rolls	Annual Consumption	100	50	5,000
Total Cost (PKR)				1,522,560

Table 19: Anaesthesia Cartridges Consumption

Procedure	Dose per procedure	No of Patients
Extraction	4	882
Root canal	2	455
Total		1,337

Doses per Cartridge	4
Cartridges Required	334
Cost per Cartridge	2,500
Total Cost	835,000

Table 20: Direct Human Resource Cost

Staff			No.	Salary Per Month (PKR)	Annual Salary (PKR)
Dentist			1	150,000	1,800,000
Dentist's Assistant (Diploma Holder)			1	50,000	600,000
Total					2,400,000

9.5 Fixed Cost Estimate

Table 21 shows the estimated fixed cost of the project.

Table 21: Fixed Cost Estimate

Description of Costs	Annual cost (PKR)
Administration expense	1,080,000
Administration benefits expense	348,000
Building rental expense	1,080,000
Electricity	232,571
Promotional expense	66,635
Insurance expense	25,020
Depreciation expense	435,055
Amortization of pre-operating costs	47,080
Amortization of legal, licensing, and training costs	1,000
Total Fixed Cost (PKR)	3,315,361

9.6 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 22.

Table 22: Financial Feasibility Analysis

Description	Project
IRR	108%
NPV (PKR)	44,775,300
Payback Period (years)	1.35
Projection Years	10
Discount rate used for NPV	15%

9.7 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 23.

Table 23: Financial Feasibility Analysis with 50% Debt

Description	Project
IRR	107%
NPV (PKR)	49,918,088

Payback Period (years)	1.38
Projection Years	10
Discount rate used for NPV	13%

9.8 Human Resource

For the 1st year of operations, the proposed business shall require the workforce at a salary cost shown in Table 24.

Table 24: Human Resource Requirement

Post	No. of Employees	Monthly Salary (PKR)	Total Salary per Month (PKR)	Annual Salary (PKR)
Dentist (Owner)	1	150,000	150,000	1,800,000
Dentist's Assistant (Diploma Holder)	1	50,000	50,000	600,000
Receptionist/Admin	1	30,000	30,000	360,000
Sweeper	1	20,000	20,000	240,000
Security Guard	1	20,000	20,000	240,000
Office Boy	1	20,000	20,000	240,000
Total	6			3,480,000

10. CONTACT DETAILS

Names of some relevant suppliers of dental equipment and supplies are provided in Table 25.

Table 25: Suppliers of Dental Equipment & Supplies

Name	Item	Contact No	E.mail/Website
Advance Systems, Karachi, Islamabad, Lahore	Dental Equipment	02134553632 0512854026 04237429665	www.advancesystems.com.pk
Humayun Dental Supplies – Lahore	Dental Instruments	03004158222	www.humayundental.com
Mehran Dental – Karachi	Dental Supplies	021-32244538- 9 03322802313	https://mehrandental.com
Ibrahim Dental Supplies – Quetta	Dental Supplies	9281-2842719/ 2840494	www.ibrahimdental supplies.enic.pk
Afridi Dental Supplier – Peshawar	Dental Supplies	0307 7245947	-
Smile Corporation, Sialkot	Dental Supplies	03013070845	https://www.smilecorpo.com

11. USEFUL LINKS AND CONTACTS

Table 26 Useful Links

Name of Organization	Website
Small and Medium Enterprises Development Authority (SMEDA)	www.smeda.org.pk
National Business Development Program (NBDP)	www.nbdp.org.pk
Ministry of National Health Services Regulations and Coordination	www.nhsrsc.gov.pk/
Government of Punjab	punjab.gov.pk/
Government of Sindh	sindh.gov.pk/
Government of Balochistan	balochistan.gov.pk/
Government of Khyber Pakhtunkhwa	kp.gov.pk/
Government of Gilgit Baltistan	gilgitbaltistan.gov.pk/
Government of Azad Jamu & Kashmir	ajk.gov.pk/
Ministry of National Health Services Regulations and Coordination	www.nhsrsc.gov.pk
World Health Organization	www.who.int
Pakistan Medical Commission	www.pmc.gov.pk
Pakistan Dental Association	https://www.pda.org.pk
Security and Exchange Commission of Pakistan	www.secp.gov.pk
State Bank of Pakistan	www.sbp.gov.pk

Table 27: Health Care Commissions

Name of Organization	Website	Contact
Islamabad Healthcare Regulatory Authority	https://ihra.gov.pk	051-9199902
Punjab Healthcare Commission	https://www.phc.org.pk	042-99333161
Sindh Healthcare Commission	http://shcc.org.pk	111-117-422
Khyber Pakhtunkhwa Healthcare Commission	http://hcc.kp.gov.pk	091-9213242
Balochistan Healthcare Commission	https://balochistan.gov.pk/departments/health/	081-9202287
Directorate of Health Services Gilgit Baltistan	-	05811-920280
Department of Health Services Azad Jammu & Kashmir	https://health.ajk.gov.pk	0582-2920015

12. ANNEXURES

12.1. Income Statement

Income Statement										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	13,327,000	17,593,056	22,596,890	28,429,212	35,207,517	43,043,849	47,376,929	52,146,207	57,395,592	63,173,415
<i>Cost of sales</i>										
<i>Material Cost</i>										
Crown - Porcelain	1,152,000	1,523,323	1,957,731	2,453,495	3,040,976	3,721,873	4,096,542	4,508,927	4,962,825	5,462,416
Braces - stainless steel wire	22,000	24,215	26,652	58,671	64,577	71,077	78,233	86,108	94,776	104,317
Fillings- Glass ionomer	720,000	950,976	1,221,159	1,536,102	1,902,078	2,326,171	2,560,338	2,818,079	3,101,766	3,414,010
Denture - Impression Paste	231,000	305,435	392,515	492,033	609,810	746,313	821,442	904,134	995,150	1,095,328
Root Canal - Sealer	456,000	600,964	772,916	970,731	1,203,475	1,470,011	1,617,992	1,780,869	1,960,144	2,157,465
Implant	560,000	748,453	880,533	968,587	1,100,667	1,232,747	1,232,747	1,232,747	1,232,747	1,232,747
Consumables	1,522,560	1,675,831	1,844,531	2,030,214	2,234,589	2,459,538	2,707,131	2,979,649	3,279,600	3,609,747
Direct Human Resource Cost	2,400,000	2,632,800	2,888,182	3,168,335	3,475,664	3,812,803	4,182,645	4,588,362	5,033,433	5,521,676
Electricity	252,255	275,051	299,906	327,008	356,559	388,780	423,912	462,220	503,989	549,533
Total cost of sales	7,315,815	8,737,048	10,284,126	12,005,175	13,988,393	16,229,312	17,720,981	19,361,094	21,164,430	23,147,239
Gross Profit	6,011,185	8,856,008	12,312,764	16,424,037	21,219,124	26,814,537	29,655,948	32,785,113	36,231,162	40,026,176
<i>General administration & selling expenses</i>										
Administration expense	1,080,000	1,184,760	1,299,682	1,425,751	1,564,049	1,715,761	1,882,190	2,064,763	2,265,045	2,484,754
Administration benefits expense	348,000	381,756	418,786	459,409	503,971	552,856	606,484	665,312	729,848	800,643
Building rental expense	1,080,000	1,188,000	1,306,800	1,437,480	1,581,228	1,739,351	1,913,286	2,104,614	2,315,076	2,546,584
Electricity	232,571	253,588	276,504	301,491	328,735	358,442	390,833	426,151	464,661	506,651
Utilities (Water, Gas, Internet)	54,000	59,238	64,984	71,288	78,202	85,788	94,110	103,238	113,252	124,238
Office vehicles running and maintenance expense	176,023	232,369	298,460	375,493	465,021	568,523	625,754	688,747	758,081	834,394
Office expenses (stationery, entertainment, janitorial services, etc.)	162,000	177,714	194,952	213,863	234,607	257,364	282,329	309,714	339,757	372,713
Promotional expense	66,635	87,965	112,984	142,146	176,038	215,219	236,885	260,731	286,978	315,867
Insurance expense	25,020	20,117	15,214	10,311	5,408	33,652	26,719	22,786	15,722	8,658
Depreciation expense	435,055	435,055	437,591	437,591	443,413	544,881	502,630	642,269	650,659	650,659
Amortization of pre-operating costs	47,080	47,080	47,080	47,080	47,080	-	-	-	-	-
Amortization of legal, licensing, and training costs	1,000	1,000	1,000	1,000	1,000	1,441	1,441	1,441	1,441	1,441
Subtotal	3,707,385	4,068,643	4,474,037	4,922,901	5,428,753	6,073,279	6,562,661	7,289,768	7,940,520	8,646,603
Operating Income	2,303,800	4,787,366	7,838,727	11,501,136	15,790,371	20,741,258	23,093,287	25,495,345	28,290,642	31,379,573
Gain / (loss) on sale of office equipment	-	-	-	-	-	-	147,750	-	-	-
Gain / (loss) on sale of office vehicles	-	-	-	-	-	-	20,200	-	-	-
Earnings Before Interest & Taxes	2,303,800	4,787,366	7,838,727	11,501,136	16,250,371	20,741,258	23,261,237	25,495,345	28,290,642	31,379,573
Earnings Before Tax	2,303,800	4,787,366	7,838,727	11,501,136	16,250,371	20,741,258	23,261,237	25,495,345	28,290,642	31,379,573
Tax	235,570	856,209	1,863,554	3,145,397	4,807,629	6,379,439	7,261,432	8,043,370	9,021,724	10,102,850
NET PROFIT/(LOSS) AFTER TAX	2,068,230	3,931,156	5,975,173	8,355,739	11,442,742	14,361,818	15,999,805	17,451,975	19,268,918	21,276,723

12.2. Balance Sheet

Statement Summaries											SMEDA
Balance Sheet											
	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
Assets											
<i>Current assets</i>											
Cash & Bank	500,000	1,986,556	3,766,977	5,894,082	8,250,420	9,479,883	12,618,401	13,632,150	15,895,446	18,253,910	21,641,757
Pre-paid building rent	90,000	99,000	108,900	119,790	131,769	144,946	159,440	175,385	192,923	212,215	-
Pre-paid insurance	25,020	20,117	15,214	10,311	5,408	33,652	26,719	22,786	15,722	8,658	-
Total Current Assets	1,003,650	2,591,439	4,482,428	6,733,335	9,233,945	10,660,791	13,897,430	15,022,864	17,406,342	19,897,786	21,641,757
<i>Fixed assets</i>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	308,300	277,470	246,640	215,810	184,980	154,150	123,320	92,490	61,660	30,830	701,584
Medical Equipment	1,150,000	920,000	690,000	460,000	230,000	1,657,340	1,325,872	994,404	662,936	331,468	-
Dental Instruments	53,010	26,505	58,081	29,041	69,726	34,863	83,705	41,852	100,486	50,243	120,632
Furniture & fixtures	313,000	266,050	219,100	172,150	125,200	78,250	31,300	449,047	381,690	314,333	246,976
Office Vehicles	80,800	68,680	56,560	44,440	32,320	20,200	8,080	115,920	98,532	81,144	63,756
Office equipment	591,000	502,350	413,700	325,050	236,400	147,750	59,100	1,022,488	869,115	715,742	562,368
Security against building	270,000	270,000	270,000	270,000	270,000	270,000	270,000	270,000	270,000	270,000	270,000
Total Fixed Assets	2,766,110	2,331,055	1,954,081	1,516,491	1,148,626	2,362,553	1,901,377	2,986,201	2,444,419	1,793,759	1,965,316
<i>Intangible assets</i>											
Pre-operation costs	235,402	188,322	141,241	94,161	47,080	-	-	-	-	-	-
Legal, licensing, & training costs	5,000	4,000	3,000	2,000	1,000	7,206	5,765	4,323	2,882	1,441	-
Total Intangible Assets	240,402	192,322	144,241	96,161	48,080	7,206	5,765	4,323	2,882	1,441	-
TOTAL ASSETS	4,010,162	5,114,816	6,580,750	8,345,987	10,430,651	13,030,550	15,804,571	18,013,388	19,853,643	21,692,987	23,607,073
Liabilities & Shareholders' Equity											
<i>Current liabilities</i>											
Accounts payable	-	70,539	87,953	106,920	128,167	152,856	179,734	195,986	213,873	233,562	233,918
Total Current Liabilities	-	70,539	87,953	106,920	128,167	152,856	179,734	195,986	213,873	233,562	233,918
<i>Other liabilities</i>											
Total Long Term Liabilities	-	-	-	-	-	-	-	-	-	-	-
<i>Shareholders' equity</i>											
Paid-up capital	4,010,162	4,010,162	4,010,162	4,010,162	4,010,162	4,010,162	4,010,162	4,010,162	4,010,162	4,010,162	4,010,162
Retained earnings	-	1,034,115	2,482,636	4,228,904	6,292,322	8,867,532	11,614,675	13,807,240	15,629,607	17,449,263	19,362,993
Total Equity	4,010,162	5,044,277	6,492,798	8,239,067	10,302,484	12,877,694	15,624,837	17,817,402	19,639,770	21,459,425	23,373,155
TOTAL CAPITAL AND LIABILITIES	4,010,162	5,114,816	6,580,750	8,345,987	10,430,651	13,030,550	15,804,571	18,013,388	19,853,643	21,692,987	23,607,073

12.3. Cash Flow Statement

Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<i>Operating activities</i>											
Net profit		2,068,230	3,931,156	5,975,173	8,355,739	11,442,742	14,361,818	15,999,805	17,451,975	19,268,918	21,276,723
Add: depreciation expense		435,055	435,055	437,591	437,591	443,413	544,881	502,630	642,269	650,659	650,659
amortization of pre-operating costs		47,080	47,080	47,080	47,080	47,080	-	-	-	-	-
amortization of training costs		1,000	1,000	1,000	1,000	1,000	1,441	1,441	1,441	1,441	1,441
Raw Material Inventory	(261,750)	(84,364)	(91,512)	(102,343)	(120,164)	(137,217)	(69,925)	(76,964)	(84,712)	(93,240)	1,122,190
Consumable Inventory	(126,880)	(12,773)	(14,058)	(15,474)	(17,031)	(18,746)	(20,633)	(22,710)	(24,996)	(27,512)	300,812
Pre-paid building rent	(90,000)	(9,000)	(9,900)	(10,890)	(11,979)	(13,177)	(14,495)	(15,944)	(17,538)	(19,292)	212,215
Advance insurance premium	(25,020)	4,903	4,903	4,903	4,903	(28,244)	6,932	3,933	7,064	7,064	8,658
Accounts payable		70,539	17,414	18,968	21,246	24,689	26,878	16,252	17,888	19,688	356
Other liabilities		-	-	-	-	-	-	-	-	-	-
Cash provided by operations	(503,650)	2,520,671	4,321,138	6,356,009	8,718,386	11,761,541	14,836,898	16,408,443	17,993,390	19,807,727	23,573,056
<i>Financing activities</i>											
Issuance of shares	4,010,162	-	-	-	-	-	-	-	-	-	-
Cash provided by / (used for) financing activities	4,010,162	-	-	-	-	-	-	-	-	-	-
<i>Investing activities</i>											
Capital expenditure	(3,006,512)	-	(58,081)	-	(69,726)	(1,664,546)	(83,705)	(1,587,455)	(100,486)	-	(822,216)
Acquisitions											
Cash (used for) / provided by investing activities	(3,006,512)	-	(58,081)	-	(69,726)	(1,664,546)	(83,705)	(1,587,455)	(100,486)	-	(822,216)
NET CASH	500,000	2,520,671	4,263,057	6,356,009	8,648,660	10,096,995	14,753,194	14,820,989	17,892,904	19,807,727	22,750,840

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 rate	10.1%
Wage growth rate	9.7%
Electricity price growth rate	9%
Office equipment price growth rate	9.6%
Office vehicle price growth rate	6.2%

13.2. Revenue Assumptions

Table 29: Revenue Assumptions

Description	Details
Service charges growth	10.1%
Initial year capacity utilization	50%
Capacity utilization growth rate	10%
Maximum capacity utilization	100%

13.3. Financial Assumptions

Table 30: Financial Assumptions

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

13.4. Debt Related Assumptions**Table 31: 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%

13.5. Cash Flow Related Assumptions**Table 32: Cash Flow Related Assumptions**

Description of Cost	Details
Accounts Receivable (Days)	-
Accounts Payable (Days)	5

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