

2010

# Pre-Feasibility Study – Marble Quarry Project



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## SUMMARY

- 1.1 This feasibility study is conducted for establishment of **Marble Quarrying Project**.
- 1.2 The initial cost of the project is Rs. 102,368,150/=, including initial working capital of Rs. 10,868,150/=.
- 1.3 The project break-even sales are Rs. 38,631,732.
- 1.4 The internal rate of return is 51%.
- 1.5 Payback period of the project is approximately 2 years and 08 months.
- 1.6 Gross profit / (loss) for year 1, year 2, year 3, year 4 and year 5 is Rs. 13.1 million, 23.02 million, 42.04 million, 54.3 million and 63.09 million, respectively.
- 1.7 Gross profit / (loss) percentage is 27.48, 38.07, 49.63, 54.29 and 56.9 for year 1, year 2, year 3, year 4, and year 5, respectively.
- 1.8 Net profit / (loss) before tax for year 1, year 2 year 3, year 4 and year 5 is Rs. 7.09 million, 16.55 million, 35.10 million, 46.95 million and 55.28 million, respectively.
- 1.9 Net profit / (loss) before tax percentage is 14.79, 27.38, 41.41, 46.94 and 49.88 for year 1, year 2, year 3, year 4, and year 5 respectively.
- 1.10 Return on capital employed (ROCE) is 6.44 %, 13.9%, 27.6%, 27.7% and 37.23% for year 1, year 2, year 3, year 4 and 5, respectively.
- 1.11 Return on owner's equity (ROE) is 6.93 %, 16.18%, 34.30%, 34.40% and 42.06% for year 1, year 2, year 3, year 4 and year 5, respectively.

# 1. INTRODUCTION

Marble is one of the emerging industries of Pakistan. According to estimates Pakistan has over 297 billion tons of marble and granite reserves and more than 100 types of colours and varieties of marble and granite are available in Pakistan.

This study aims at providing ample information to the potential investors that would help them in preparing realistic business plan for the Marble Quarry.

## 1.1. OBJECTIVES

This feasibility study aims at both financial and socio economic viability with in-depth financial analysis and sustainable socio economic benefits.

## 2. MARBLE - The Product

Marble is a crystalline, compact variety of metamorphosed limestone, consisting primarily of calcite ( $\text{CaCO}_3$ ), dolomite ( $\text{CaMg}(\text{CO}_3)_2$ ) or a combination of both minerals. Pure calcite is white, but mineral impurities add color in variegated patterns. Extensive deposits are located in Italy, India, Pakistan, Spain, Greece, Brazil, China, Afghanistan, Turkey, Great Britain, and in the United States. Commercially the term Marble is extended to include any rock composed of calcium carbonate that takes polish including ordinary limestone. The term is further extended in the loose designation of stones such as alabaster, serpentine and other soft rocks. Specific gravity of Marble ranges between 2.68 to 2.72, determining the density of the stone.

Marble is a durable stone in dry atmosphere only when protected from rain. The surface of Marble crumbles readily when exposed to moist or acidic environment. Purest form of Marble is statuary Marble, which is white with visible crystalline structure. The distinctive luster of statuary Marble is caused by the reflection of penetrated light from the surfaces of inner crystals.

### 2.1. MARKET POTENTIAL

The international marble and granite trade was valued at \$2.5 billion in 2005, with production of about 19.6 million tons. Italy is the world leader in marble, granite, and stone sector, exporting over 38% of finished material and importing 18% of the world trade. Pakistan's production is 1.3 m tons annually, with less than 10% exported (0.03% of world trade in 2002). China, which is physically near the major mining sites in Pakistan, is the biggest importer of Raw & Finished marble slabs and tiles (nearly double that of USA) in the world.

### 2.2. OPPORTUNITY RATIONALE

Pakistan has enormous mineral resources including Marble. Marble is used for both construction purposes and Handicrafts manufacturing, whereas, Onyx which is a semi-transparent and generally used by handicrafts manufacturing industry.

Availability of high quality Marble reserves in Pakistan in great quantities and the demand of its products in the export markets i.e. European Union countries, Central Asian countries etc. make this sector highly attractive. Foreign tourists are the main customers of the products made of marble and onyx and it has reached an all-time record Rs.763 million in 2004.

Formalization of PASDEC (Pakistan Stone Development Company) to for development Marble & Granite sector indicates government's interest in this sector which is a positive and encouraging gesture for the investors in this industry.

### 2.3. NATURE OF WORK ON MARBLE

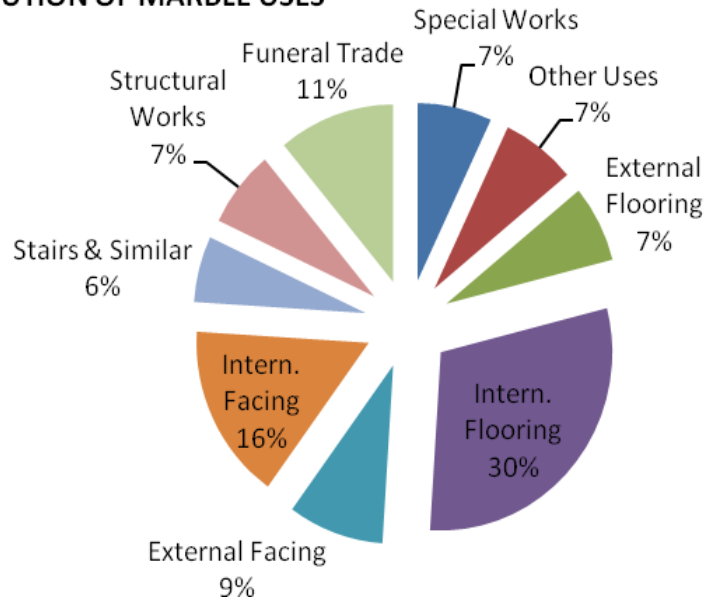
#### MARBLE OR CALCAREOUS STONES

Restricted choice of Marble for external applications is due to its porosity. They hardly sustain color and shine due to rainfalls and environmental pollution etc. Marble is preferred over Granite for special works that include sculptures, decorative items, fireplaces etc. due to their comparative softness.

## USES OF DIMENSIONAL STONE

Major categories for usage of dimensional stones are architectural works, funeral trade and sculptures etc. In the architectural work that include construction and structural works total share of the dimensional stone is 70% while in the decorative, sculptures and memorial art etc. its share is 30%. According to their peculiar characteristics, including weather effects, color fading, load tolerance, edge cuts, water absorption, color choice, hygienic factor, hardness etc; various type of dimensional stones are used in different locations and places.

### DISTRIBUTION OF MARBLE USES



## 3. MINING AND QUARRING INDUSTRY

### 3.1. WORLD MARBLE TRADE

From a global view point the natural stone industry is growing rapidly. Since the beginning of the 1990's, production has risen annually by an average 7.3% and international trade has even increased by an average 8.7%. Worldwide natural stone extraction is meanwhile estimated at 150 million tons gross per year. Annual production after deduction of waste and cutting losses amounts to about 820 million square-meters – referred to a slab thickness of 2 cm. The total production value is estimated at 40 billion US \$.

Technological changes in the last seventy years have increased the world production and consumption of dimensional stone. There are over 40 dimensional stone producing countries in the world. Amongst the 12 largest producing countries, 6 are in Europe and the same number in Asia and Africa.

Dimensional stone processing is being done with different levels of technology in different countries but a few leading countries such as Italy, China, Spain, Japan, Taiwan, Portugal, Germany, France, USA, and Greece have developed highly efficient technology with good forward and backward linkages. India has also improved this sector considerably in the last two decades. Consumption on the other hand is more wide spread phenomena with over 50 countries of the world making use of dimensional stone in considerable quantities. The quarrying and working of stone, already practiced in ancient times by the Egyptians and the Greeks, was greatly developed in Italy under the Romans. However towards the end of the 18th century, economic activity in the stone sector developed for the first time with the invention of gunpowder and the use of mechanical cutting. Dimensional stones are produced in more than 42 countries of the world while 12 of these producers are dominant in the international market i.e. 6 European countries and 3 each from Asia and Africa. Technological advances in the last seventy years had increased the world production and consumption of dimensional stones to 150 million tons while, consumption came to about 8.8 billion square feet (820 million square meters), generating overall turnover of \$40 billion<sup>2</sup>. The majority of world consumption comes from material that is quarried in different countries than those where it is eventually installed. The leading producers -- China, India, Italy, Spain and Portugal account for 53% of world quarrying production. The driving force in the sector was international trade, which is just under 29.6 million tons and equal to about 4.8 billion square feet (450 million equivalent square meters) and has reached US\$ 8.6 billions mark in 2004 with an annual average increase of 13% while China has shown the largest increase in its export value i.e almost 28% annually over 4 years. Italy, China and Spain are the major players in the international market and exported more than 55% of the dimensional stone's products (blocks and processed) by value. Other major exporters include Brazil, Spain, India, Turkey and Portugal.

As far as product composition is concerned, in case of marble, 53% is exported directly from the mines while other 47% includes 45% of indoor and out door floorings and stairs while 55% in handicrafts and other construction materials. Major importers of Marble products (processed and unprocessed) are Italy, USA, Japan, Germany, Italy and China and more than 60% of the products are directed toward these countries.

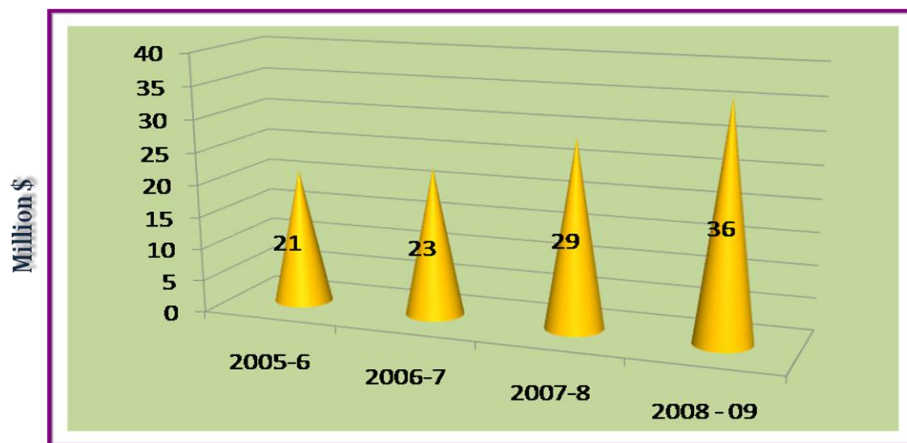
### 3.2. PAKISTAN DIMENSIONAL STONE INDUSTRY

Marble is included in the list of largest minerals extracted among coal, chromites, rock salt, lime stone, china clay, dolomite, fire clay, gypsum, silica sand etc. Since 1990 mining & quarrying as consistently contributed 0.5 percent to the Gross Domestic Product. Production of Marble has grown substantially in the last twenty five years with total standing at about 5 million tons in 2003. It has been accompanied with high quarry wastage ranging from 61-73% in addition to poor quality, mainly due to unwieldy blasting techniques.



Processing industry is using wide array of technological options for basic as well as finishing stage, all of vintage age. Due to technological imbalance, wastages are around 52% to 55%. Presently the processing industry relies upon local manufacturers of machinery and equipment with a very few calibrated and high efficiency machines from reputable international suppliers.

The Marble Processing industry is closely related to the development of building materials, the modernization and vitalization of which leads to the progress of the tile industry. It shows a trend towards increasing use in modern architecture. The tile manufacturing industry uses such natural resources such as marble, feldspar, silica, clay, which are richly available in the world over. The project envisages tiles manufacturing unit of marble on the basis of its abundant availability in the Pakistan. Its process technology is relatively simple, with the result that the investment cost of the construction of production facilities is also comparatively low, while it is a labour-intensive industry having the effect of increased employment. So it becomes one of the essential basic industries to be fostered in the developed countries. The trend shows increase in export of marble tiles, contributing to fostering the business as one of the important export-oriented industries. Its export has high merit in countries, where the construction of high buildings is brisk with the progress towards urbanization or where urbanization is projected. Exports of marble have an increasing trend over the period of time.



Source (Export Promotion Bureau)

### 3.3. CONTRIBUTION TOWARDS NATIONAL GDP

(Value in '000' Rs)

Type of Minerals	Average Daily Employment (Nos)	Employment Cost	Gross Value of Production	Intermediate Cost	Census Value Added	Contribution to GDP
1	2	3	4	5	6	7
All Minerals	86,729	8,699,281	170,471,728	5,097,776	165,373,952	162,715,095
Barytes	504	23,520	191,758	17,983	173,775	147,040
Bauxite	26	1,415	306	12	294	149
Bentonite	302	4,380	9,334	806	8,528	6,749
Chalk	148	12,530	91,526	3,952	87,574	84,476
China Clay	151	4,501	18,591	5,112	13,479	13,254
Chromite	582	25,329	70,690	1,205	69,485	64,423
Coal	24,159	1,577,496	4,171,155	517,748	3,653,407	3,513,736
Crude Oil	10,951	1,560,422	47,244,170	1,530,424	45,713,746	44,775,896
Copper Ore	1,195	148,583	2,934,312	232,984	2,701,328	2,647,705
Dolomite	997	35,514	154,763	27,626	127,137	123,359
Feld Spar	157	15,415	31,345	2,612	28,733	24,406
Fire Clay	189	16,284	25,565	243	25,322	24,536
Fuller Earth	507	1,935	6,118	206	5,912	5,872
Granite	84	5,104	38,788	1,427	37,361	36,619
Gypsum	1,425	64,577	351,758	11,190	340,568	334,322
Lake Salt/ Sea Salt	174	7,340	7,628	360	7,268	6,733
Laterite	970	12,709	25,170	2,077	23,093	20,954
Lime Stone	9,316	590,269	1,212,668	266,747	945,921	891,666
Magnesite	28	2,072	6,041	1,498	4,543	4,396
Marble	7,827	315,552	1,371,811	48,042	1,323,769	1,245,988
Natural Gas	18,195	3,900,506	111,260,979	2,305,990	108,954,989	107,668,220
Ocher	64	2,628	473	81	392	365
Phosphate	278	13,684	13,374	1,446	11,928	8,118
Quartz	47	1,432	8,490	538	7,952	7,716
Rock Salt	4,227	203,457	509,295	54,980	454,315	433,720
Shale Clay	1,440	10,841	15,418	3,694	11,724	9,432
Silica Sand	2,700	91,156	367,664	31,327	336,337	321,279
Slate Stone	210	10,112	104,132	7,652	96,480	95,042
Soap Stone	515	21,735	50,716	11,826	38,890	31,026
Sulphur	316	14,835	126,786	5,974	120,812	120,294
Surpentine	45	3,948	50,904	2,014	48,890	48,604

### 3.4. REGIONAL DISTRIBUTION

Currently in Pakistan, Quarrying of Marble is being carried out in Baluchistan, NWFP, Sindh, Punjab, and FATA & Northern Areas. Details of some potential areas bearing huge reserves of marble are as under:-

REGIONAL DISTRIBUTION		
PROVINCE / REGION	RESERVES	POTENTIAL AREA
Baluchistan	Marble & Lime Stone	Quetta, Mastung , Loralai, Bolan, Chaghi, Zhob, Khuzdar, Lasbella, Sibi, Ziarat etc.
Baluchistan	Granite	Chaghi , Zhob
NWFP	Marble & Lime Stone	Buner, Dir, Chital , Mardan , Noshera, Sawabi , Malakand, Manshera etc
NWFP	Granite	Buner, Dir, Manshera, Chitral
Punjab	Lime Stone	Khushab, Mianwali , DG Khan, Kohat etc
Sindh	Granite	Nagar Parkar
Sindh	Lime Stone / Marble	Dadu, Thatta,
Northern Areas	Granite & Marble	Gilgit , Chillas , Hunza, Skurdu
FATA	Marble & Granite	Mohammad Agency , Bajore Agency, North Waziristan, South Waziristan

## 4. SWOT ANALYSIS

### STRENGTH

- a) Large deposits of superior quality Marble in the country.
- b) Large variety of types and colours.
- c) Accessibility to major Marble deposits.
- d) Significant number of mines.
- e) Availability of hard working & low-cost granite processing labor.
- f) Availability of improved technology.
- g) Good entrepreneurial and mechanical skills available within the country
- h) Availability of required infrastructure facilities

### WEAKNESSES

- a) Untimely and inappropriate arrangement of finance.
- b) Constraint of research and development and production capabilities due to absence of economies of large scale and research and development.
- c) Use of Primitive method of quarrying
- d) Lack of quality production
- e) Incapability of meeting consistent supply
- f) Low production because of non - scientific quarrying
- g) Incapability of product grading
- h) Poor infrastructure due to which trucks may not carry heavy loads in the hilly areas.

### OPPORTUNITIES

- a) Rehabilitation in Afghanistan.
- b) Higher Value of Pakistani Marble internationally
- c) Large and established world markets.
- d) Ample opportunity for exports.
- e) Growing size of middle income group in Pakistan
- f) Export potential for Central Asian Republics and Middle East
- g) On average 38% of the marble excavated from the mines in any country is exported in the same year which shows high potential for export. This figure is at 3% for Pakistan.
- h) Marble industry has been defined as zero-rated by the custom authorities of Pakistan, therefore, has no import tariffs and custom duty on import of machinery, specialized trucks and other tools.
  - i. Usage of Marble wastage, by handicraft manufacturers.

### THREATS

- a) Lack of high - skilled work force like Master Quarry.
- b) Huge cost sophisticated equipment
- c) Smuggling and dumping from Iran, India and China.
- d) Continuous depreciation of rupee against top world currencies

## 5. Project Cost

Initial cost of the project has been estimated as follows.

<b>Project Cost</b>	
<b>DESCRIPTION</b>	<b>COST (Rs.)</b>
Plant, Machinery and Equipment	82,000,000
Mine development expenses	2,000,000
Building and civil works	3,000,000
Furniture and Fixtures	1,000,000
Vehicles	3,500,000
	<b>91,500,000</b>
<b>NET INITIAL WORKING CAPITAL</b>	10,868,150
<b>PROJECT COST</b>	<b>102,368,150</b>

## 6. ASSUMPTIONS FOR FINANCIAL PROJECTIONS

### 6.1. INFLATION EFFECTS

No Inflationary effects have been taken while preparing the projections. If it is taken it will results positive effects on financial results.

### 6.2. MACHINERY REQUIREMENTS

A balanced mix of imported & local machinery has been selected to maintain optimum level of productivity and efficiency. The machinery selected is well proven in the filed and extensively used in the marble and granite sector. Following is the detail of plant, machinery and equipment.

MACHINERY REQUIREMENTS					
S.No	Machinery Details for Model Quarry	Sets	Quantity	Unit Cost Rs.	Total Cost Rs.
1	<b>Chain Saw complete with tool kit</b>		1	11,000,000	11,000,000
	50 KW and Above				
	Min. Arm Length 3.40 meters				
	Spare Widia (price & quantity should be mentioned separately). Each set containing for 1 year Consumption/1500 hrs. according to Chain on 3.40 meters arm,				
2	<b>Diamond Wire Saw (with operational &amp; maintenance manuals and part books &amp; toolkit)</b>	1	2	2,200,000	4,400,000
	50 HP (Fixed RPM)				
a	Additional Rail Length 3m	1			
b	Spare fly wheel and guides for diamond wire	1			
d	Spare Fly Wheel Protection Rubber	500 mtr			
e.	Spare driving pulley with Guides	2	2	1,200,000	2,400,000
3	<b>Diamond Wire Saw (with operational &amp; maintenance manuals and part books &amp; toolkit)</b>	1			
	25 HP (Fixed RPM )				
a	Additional Rail Length 3m	1			
b	Spare Fly wheel with guide for diamond wire	1			
c	Spare driving pulley	1	500	7,000	3,500,000
4	<b>Diamond Wire 28 beads/m with accessories (Sintered)</b>	500mtr			
a	Wire cutter	1			
b	Hydraulic Manual Press	1			
c	Wire assembling machine	1			
d	Steel cable with spacer, springs & locks for reassembling 1000m diamond wire (4.9mm) (Complete Accessories for assembling of 1000 meter wire)	1000 mtr			
e.	Joints and sleeves for 1000 meter wire	1000mtr			

5	<b>Stitch drills with one Jack hammer designed for 20 feet drilling equipped with 3 meter long guide bar (with operational &amp; maintenance manuals and part books)</b>	1 Sets	1	2,000,000	2,000,000
a.	Horizontal	2			
b.	Vertical	1			
c.	With Fixing Wedges & Chains				
6	<b>Manual Jack Hammers (similar as being used in 5(a) &amp; 5(b))</b>	1	2	50,000	100,000
a	Spare set of springs, pauls, air piston, riffle bar & oiler (according to jack hammer specification)	1			
b	Integral drill rods (80,160,240,400,560 & 640 cm) 4nos each	8 sets			
7	<b>Sharpening Grinder pneumatic (with operational &amp; maintenance manuals and part books) for Drill Rods and Button Bits Sharpening</b>	1	1	600,000	600,000
a	Grinding Wheels	20			
8	<b>Compressor 650 -750CFM (with operational &amp; maintenance manuals and part books)</b>	1	1	4,000,000	4,000,000
a.	Air hose wire braided rubber pipe (high pressure) (1" dia & 3/4" dia air hose pipe) and Air Tank 2000ltr-1 No	800 meters each			
b.	Oil filters as specified with compressor(2000hrs consumption)	8 sets			
9	<b>Hydraulic Jacking Plant with Jacking Capacity of 300 tons (along with operational &amp; maintenance manuals and part books)</b>	1	1	650,000	650,000
a	Cylinders (small size)	2			
b	Cylinders (large size)	2			
10	<b>Plugs and Feathers</b>	1	1	200,000	200,000
a	Plugs & feathers small (1.5 feet)	100			
b	Plugs & feathers large (2.3 feet)	100			
11	<b>Hydro pushing plant (with operational &amp; maintenance manuals and part books) with Pushing Capacity of upto 250 to 300 tons</b>	1	1	625,000	625,000
a	Rubber Bags (500x500 mm)	100			
b	Rubber Bags (1000x1000 mm)	100			
12	<b>DTH pneumatic (with operational &amp; maintenance manuals and part books) Model 180 with Atlas Capco Hammer Cop-32 air consumption 5100 liter per minute and 7 bar pressure Or Equivalent</b>	1	1	1,500,000	1,500,000
a	Drilling bits dia 90mm	2			
b	Consumable hammer	2			
c	Spare key	1			
d	Drill Rods with each DTH Machine	20mtr			
13	<b>Generator 250 KVA Prime Power (with operational &amp; maintenance manuals and part books) Complete with Canopy and Trolley</b>	1	1	2,000,000	2,000,000
a	Fast Moving Consumable Part (Air Filters/ Fuel filters etc ) for One year Consumption	8set			
b	<b>Generator Control Panel / Distribution Box and Cables (Annex-A)</b>				

14	<b>Excavator 350 HP (with operational &amp; maintenance manuals and part books) 350- 400 HP</b>	1	1	17,000,000	17,000,000
a	Quarry bucket (as suited with machine) (additional)	1	1	2,100,000	2,100,000
b	Hydraulic Hammer suited with machine	1	1	2,500,000	2,500,000
c	Quarry Hook/Ripper	1	1	1,600,000	1,600,000
d	Fast Moving Consumable Part (Air Filters/ Fuel filters etc ) for One year Consumption	1			
15	<b>Wheel Loader 35 tons (with operational &amp; maintenance manuals and part books) 350 to 400 HP</b>	1	1	17,000,000	17,000,000
a	Fork lift (as suited with machine model)	1	1	1,500,000	1,500,000
b	Quarry Bucket (additional)	1	1	2,000,000	2,000,000
c	Tire Safety Chains	1	1	1,500,000	1,500,000
d	Fast Moving Consumable Part (Air Filters/ Fuel filters etc ) for One year Consumption				
16	<b>Welding Plant</b>	1	1	2,000,000	2,000,000
17	<b>Gas Welding Plant with Complete kit</b>		1	50,000	50,000
18	<b>Welding Plant electric</b>		1	15,000	15,000
19	<b>Oxygen Cylinder</b>		1	15,000	15,000
20	<b>Water Pump 5.5 HP (3'x3')</b>		1	150,000	150,000
21	<b>Diesel Tank</b>		1	100,000	100,000
22	<b>Gas Welding Plant with Complete kit</b>		1	15,000	15,000
23	<b>Water Pump 6.5 HP(petrol)</b>		1	15,000	15,000
24	<b>Generator 15 KVA</b>		1	765,000	765,000
25	<b>Water Tank 1500 Gallon</b>		1	200,000	200,000
<b>Total</b>					<b>82,000,000</b>

### 6.3. Building and Infrastructure

Following is the detail of building and civil works

Detail of Building and Civil Works			
DESCRIPTION	COVERED AREA SQUARE FEET	RATE	COST
Offices/Prefabricated Containers	800	1,000	800,000
Residential Setup /Prefabricated Containers	2,000	1,000	2,000,000
Bath Rooms	200	1,000	200,000
<b>Total</b>	<b>3,000</b>		<b>3,000,000</b>

Following is the detail of furniture, fixtures & Office Equipments

Detail of Furniture, Fixtures & Office Equipments			
ITEM	QTY	UNIT COST	TOTAL COST
Beds , Mattress and Blankets	30	8000	240,000
Chairs	20	3000	60,000
Tables (10 @ Rs 2,000)	10	5000	50,000

Cabinets	8	20000	160,000
Office equipments (including 2 Computers @ Rs. 80,000)	3	80000	240,000
Printer , Photo Copier, Scanner, Camera, Fridge,	5	50000	250,000
<b>Total</b>	<b>76</b>		<b>1,000,000</b>

Following is the Detail of Vehicles

<b>Detail of Vehicles</b>		
VEHICLE	QTY	COST
Toyota 4x4	1	2,500,000
Suzuki Jeep (Project Manager)	1	1,000,000
<b>Total</b>	<b>2</b>	<b>3,500,000</b>

Whereas, the Mine development expenses are taken as Rs. 2,000,000/-

## 6.4. WORKING CAPITAL

Net Initial Working capital is calculated on the basis of following assumptions:

### Operating Expenses

First Six months operating expenses excluding depreciation have been taken in working capital computation.

### Administration Marketing and Other Expenses

First three months administration, marketing and other expenses excluding depreciation and technical institute expenses, have been taken.

### Accrued Expenses

Normally it takes 30 days to deposit the utilities bills. One month utilities, wages, salaries and benefits have been taken as accrued expenses in the working capital computation.

### Accounts Receivable

Accounts receivable are estimated at 60 days of net sales.

## 6.5. OPERATING EXPENSES

<b>Salaries</b>				
S.No	STAFF	NO. OF EMPLOYEES	SALARIES PER MONTH	ANNUAL SALARIES
1	Quarry Master	1	60,000	720,000
	<b>Engineers</b>			
2	Mining	1	50,000	600,000
3	Mechanical	2	50,000	1,200,000
	<b>Supervisors and others</b>			
4	Compressor operator	1	20,000	240,000
5	Excavator Operator	1	20,000	240,000
6	Drill/Chain / Wire saw operator	5	20,000	1,200,000
7	Loader operator	1	25,000	300,000
8	Heavy duty drivers	2	15,000	360,000



9	Store Keeper	1	20,000	240,000
10	Electrician	1	20,000	240,000
11	Labor's	10	10,000	1,200,000
<b>Total</b>		<b>26</b>	<b>310,000</b>	<b>6,540,000</b>

Salaries are increased @ 10% per annum.

a). **Fuel power and lubricant**

<b>Fuel Power and Lubricant</b>		
<b>ITEM</b>	<b>Liters/Kgs Consumption Per annum</b>	<b>Price Per Liter/kg</b>
<b>Diesel</b>	100,000	72
<b>Lubricant oil</b>	1,200	250
<b>Hydraulic oil</b>	1,200	500
<b>Grease</b>	1,200	200

		<b>Years</b>				
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Capacity Utilization</b>	<b>100%</b>	<b>50%</b>	<b>60%</b>	<b>80%</b>	<b>90%</b>	<b>95%</b>
Diesel	7,200,000	3,600,000	4,320,000	5,760,000	6,480,000	6,840,000
Lubricant oil	300,000	150,000	180,000	240,000	270,000	285,000
Hydraulic oil	600,000	300,000	360,000	480,000	540,000	570,000
Grease	240,000	120,000	144,000	192,000	216,000	228,000
		4,170,000	5,004,000	6,672,000	7,506,000	7,923,000
		<b>4,170,000</b>	<b>5,004,000</b>	<b>6,672,000</b>	<b>7,506,000</b>	<b>7,923,000</b>

It is taken at actual based upon the capacity utilization and are increased @ 10% per annum in subsequent years.

**Stores spares and loose tools**

The Plant will be maintained and spares and stores are consumed for this @ 1.8% of plant and machinery with 5% increase in coming years

**Carriage outwards**

Carriage outwards is taken as Rs.1200 per ton.

**Repair and maintenance**

Cost of repair and maintenance is assumed @ 5% of fixed assets excluding land and plant and machinery with 5% increase in coming years

**Water charges**

Water charges are assumed at a lump sum amount of 30,000 per annum with 5% increase in coming years

**Insurance**

Insurance will be necessary to cover in case of accidents etc. 0.75% of plant and machinery and 2% of vehicles value will be charged with 5% increase in coming years.

**Excise duty and Royalty**

Excise duty is taken @ Rs. 5/- per ton and royalty charges are taken as @ Rs. 30 per ton

**Contingencies**

Contingencies are assumed to be 5% of fuel, power and lubricant cost and stores consumed.

**6.6. ADMINISTRATION MARKETING AND OTHER EXPENSES**

Salaries are increased @ 10% per annum

<b>Salaries</b>				
<b>S.No</b>	<b>STAFF</b>	<b>No. of Employees</b>	<b>Monthly Salaries</b>	<b>Annual Salaries</b>
1	Project Manager	1	80,000	960,000
2	Accounts Officer	1	40,000	480,000
3	Marketing Officer	1	40,000	480,000
4	Drivers	2	10,000	240,000
5	Peon	2	10,000	240,000
6	Security Guards	3	10,000	360,000
	<b>TOTAL</b>	<b>10</b>	<b>190,000</b>	<b>2,760,000</b>

- **Electricity**
  - Electricity needs will be catered from Generator cost already accounted for in Operating Expenses.
- **Communication**
  - Communication includes telephone, telex and fax charges of office and managers. These are taken @ 2500 per month with 5% increase in coming years.
- **Printing & Stationary**
  - Printing and stationery includes leaflets, cards, and stationery required by administration staff. These are taken @ Rs. 3,000 per month with 5% increase in coming years.
- **Vehicle up – keep**
  - Fuel, repair and maintenance of vehicles @ 8,000/- per month
- **Legal and Professional Charges**
  - These include audit, tax and consultancy charges and are taken @ Rs. 200,000/- per annum with 5% increase in coming years.
- **Newspapers and Periodicals**
  - These are taken @ Rs. 6,000/- per month with 5% increase in coming years.
- **Entertainment**
  - Refreshment for customers and employees of office @ Rs. 10,000/- per month
- **Bank Charges**
  - Bank charges include TT, DD and other bank charges. These are taken @ 0.5% of sales.

## 6.7. DEPRECIATION ON ASSETS

Depreciation on the assets has been charged at the following rates:

- Plant and Machinery - 20%
- Building - 5%
- Furniture & Fixtures - 10%
- Vehicles - 20%

## 6.8. Production Schedule and Pricing

Sale price per ton has been taken as Rs. 12,000/-, Rs. 10,000/- and Rs. 8,000/- for large medium and small squared blocks respectively.

Quarry at 100% efficiency will produce following tons.

Sale Price		
	Production (tons)	Sales price per ton
Squared Blocks (Large) 20% of Production	2,000	12,000
Squared Blocks (Medium) 40% of Production	4,000	10,000
Squared Blocks (Small) 40% of Production	4,000	8,000
<b>Total Production</b>	<b>10,000</b>	

PRODUCTION SCHEDULE						
Description		Years				
		1	2	3	4	5
Capacity Utilization	<b>100%</b>	<b>50%</b>	<b>60%</b>	<b>80%</b>	<b>90%</b>	<b>95%</b>
Production per year	10,000	5,000	6,000	8,000	9,000	9,500
Squared Blocks (Large) 20% of Production	2,000	1,000	1,200	1,600	1,800	1,900
Squared Blocks (Medium) 40% of Production	4,000	2,000	2,400	3,200	3,600	3,800
Squared Blocks (Small) 40% of Production	4,000	2,000	2,400	3,200	3,600	3,800

<b>10,000</b>	<b>5,000</b>	<b>6,000</b>	<b>8,000</b>	<b>9,000</b>	<b>9,500</b>
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### TAXATION

No tax has been taken in the first three years as initial depreciation allowance is available. In 4<sup>th</sup> and 5<sup>th</sup> year tax @ 25% of net profits is taken.

## 7. The Financials

### 7.1. Projected Cash Flow Statement

<b>MODEL QUARRY PROJECTED CASH FLOW STATEMENT</b>						
		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>CASH FLOW FROM OPERATING ACTIVITIES</b>						
Profit / (Loss) before taxation		7,098,700	16,559,290	35,107,956	46,950,435	55,289,802
Adjustment for - Depreciation		17,350,000	17,350,000	17,350,000	17,350,000	17,350,000
Adjustment for - Financial charges		240,000	302,400	423,360	500,094	554,271
Profit before working capital changes		24,688,700	34,211,690	52,881,316	64,800,529	73,194,073
Accounts receivable		(4,000,000)	(1,040,000)	(2,016,000)	(1,278,900)	(902,948)
Stores and Spares		(369,000)	(18,450)	(19,373)	(20,341)	(21,358)
		(4,369,000)	(1,058,450)	(2,035,373)	(1,299,241)	(924,306)
Increase/(Decrease) in accrued liabilities		807,500	13,125	80,356	88,307	97,048
		21,127,200	33,166,365	50,926,299	63,589,595	72,366,815
Payment of financial charges		(240,000)	(302,400)	(423,360)	(500,094)	(554,271)
Payment of tax		-	-	-	(11,737,609)	(13,822,451)
<b>Net cash flow from operating activities</b>		<b>20,887,200</b>	<b>32,863,965</b>	<b>50,502,939</b>	<b>51,351,892</b>	<b>57,990,094</b>
<b>CASH FLOW FROM INVESTING ACTIVITIES</b>						
Purchase of fixed assets	(91,500,000)	-	-	-	-	-
Net cash flow from Investing activities	(91,500,000)	-	-	-	-	-
<b>CASH FLOW FROM FINANCING ACTIVITIES</b>						
Equity contribution	102,368,150	-	-	-	-	-
Payment of Profits	-	-	-	(35,259,567)	(35,231,523)	(64,955,034)
Net cash flow from financing activity	102,368,150	-	-	(35,259,567)	(35,231,523)	(64,955,034)
<b>Net cash flow for the year</b>	<b>10,868,150</b>	<b>20,887,200</b>	<b>32,863,965</b>	<b>15,243,372</b>	<b>16,120,369</b>	<b>6,964,940</b>
Cash and bank balances at the beginning of year	-	10,868,150	31,755,350	64,619,315	79,862,687	95,983,056
<b>Cash and bank balances at the end of the year</b>	<b>10,868,150</b>	<b>31,755,350</b>	<b>64,619,315</b>	<b>79,862,687</b>	<b>95,983,056</b>	<b>89,018,116</b>

## 7.2. Projected Income Statement

<b>MODEL QUARRY - PROJECTED PROFIT AND LOSS ACCOUNT</b>					
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>SALES</b>	<b>48,000,000</b>	<b>60,480,000</b>	<b>84,672,000</b>	<b>100,018,800</b>	<b>110,854,170</b>
Operating cost	(34,810,800)	(37,457,410)	(42,650,065)	(45,716,265)	(47,761,937)
<b>GROSS PROFIT</b>	<b>13,189,200</b>	<b>23,022,590</b>	<b>42,021,936</b>	<b>54,302,535</b>	<b>63,092,233</b>
Administration marketing and other expenses	6,090,500	6,463,300	6,913,980	7,352,100	7,802,430
Income from training institute	-	-	-	-	-
<b>NET PROFIT BEFORE TAX</b>	<b>7,098,700</b>	<b>16,559,290</b>	<b>35,107,956</b>	<b>46,950,435</b>	<b>55,289,802</b>
Provision for taxation 25%	-	-	-	(11,737,609)	(13,822,451)
<b>PROFIT / (LOSS) AFTER TAX</b>	<b>7,098,700</b>	<b>16,559,290</b>	<b>35,107,956</b>	<b>35,212,826</b>	<b>41,467,352</b>
Un- appropriated profit / (loss) b/f	-	7,098,700	23,657,990	23,506,378	23,487,682
	7,098,700	23,657,990	58,765,946	58,719,205	64,955,034
Appropriation of profits	-	-	35,259,567	35,231,523	64,955,034
<b>Un-appropriated profit / (loss) carried forward to balance sheet</b>	<b>7,098,700</b>	<b>23,657,990</b>	<b>23,506,378</b>	<b>23,487,682</b>	<b>-</b>

### 7.3. Projected Balance Sheet

MODEL QUARRY - PROJECTED BALANCE SHEET						
	Year 0	Years				
		1	2	3	4	5
<b>CAPITAL AND LIABILITIES</b>						(PKR)
<b>CAPITAL AND RESERVES</b>						
Equity	102,368,150	102,368,150	102,368,150	102,368,150	102,368,150	102,368,150
Accumulated profit / loss		7,098,700	23,657,990	23,506,378	23,487,682	-
	102,368,150	109,466,850	126,026,140	125,874,528	125,855,832	102,368,150
<b>CURRENT LIABILITIES</b>						
Accrued liabilities	-	807,500	820,625	900,981	989,288	1,086,335
<b>Total Liabilities</b>	<b>102,368,150</b>	<b>110,274,350</b>	<b>126,846,765</b>	<b>126,775,509</b>	<b>126,845,120</b>	<b>103,454,485</b>
<b>ASSETS</b>						
<b>FIXED ASSETS</b>						
Fixed Assets	91,500,000	91,500,000	91,500,000	91,500,000	91,500,000	91,500,000
Less: Accumulated depreciation	-	17,350,000	34,700,000	52,050,000	69,400,000	86,750,000
	91,500,000	74,150,000	56,800,000	39,450,000	22,100,000	4,750,000
<b>CURRENT ASSETS</b>						
Accounts receivable	-	4,000,000	5,040,000	7,056,000	8,334,900	9,237,848
Store and spares	-	369,000	387,450	406,823	427,164	448,522
Cash and bank balances	10,868,150	31,755,350	64,619,315	79,862,687	95,983,056	89,018,116
	10,868,150	36,124,350	70,046,765	87,325,509	104,745,120	98,704,485
<b>Total Assets</b>	<b>102,368,150</b>	<b>110,274,350</b>	<b>126,846,765</b>	<b>126,775,509</b>	<b>126,845,120</b>	<b>103,454,485</b>

## IMPORTANT CONTACTS

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