

## Sustaining Factors on Stone Business in Bangladesh- A Study on Entrepreneurs in Sylhet District

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### Abstract

*Sylhet is one of the resourceful districts in Bangladesh. Hard stone, one of the main geo-resources of Bangladesh after gas and coal, is very useful for construction sector. The benefits of stones can never be ignored as these precious natural assets contribute huge to the construction sector. But the entrepreneurs related with stone business are facing many obstacles. The objective of the study is to find out how the entrepreneurs are sustaining in doing stone business. To assess how they are sustaining, a set of questionnaire is developed. The survey was conducted among eighty two entrepreneurs in Sylhet city with seven different locations and the result shows that demographic factor, business related general factor and business environment factors are related in this regard. The study exemplifies a positive insight towards survival of stone business. Moreover, samples were selected here at random by applying convenience sampling technique. Interview had been conducted using standard questionnaire. Descriptive statistics, Cronbach alpha and correlations were applied to explore the results. Data were analyzed through SPSS.*

**Keywords:** Stone business, Quarry, Gravel, Bolder, Likert Scale, Demographic factor, Descriptive statistics, Multiple Regression Analysis.

### Introduction

Modern constructions would not have been anticipated without the existence of stone. Even in the ancient era, huge and hard rocks were the foundation of Pyramids and Tajmahal. Crushed stone acts as raw material for various development activities such as construction of roads, bridges, buildings, canals and many others structural designs.

In Bangladesh, the main source of sand and gravel is from in-stream quarrying and mining, which come from different parts of the Sylhet division. Most of the land in Sylhet, which has borders with India, from Goainghat Upazila to Chatak Upazila under Sunamganj District, is surrounded by almost barren hills and quarries. A sizeable amount of stones used in the country's construction sector comes from stone quarries, mostly from Sylhet. Every day, hundreds of thousands of cubic feet of stones are being extracted from the quarries (Dev, 2014).

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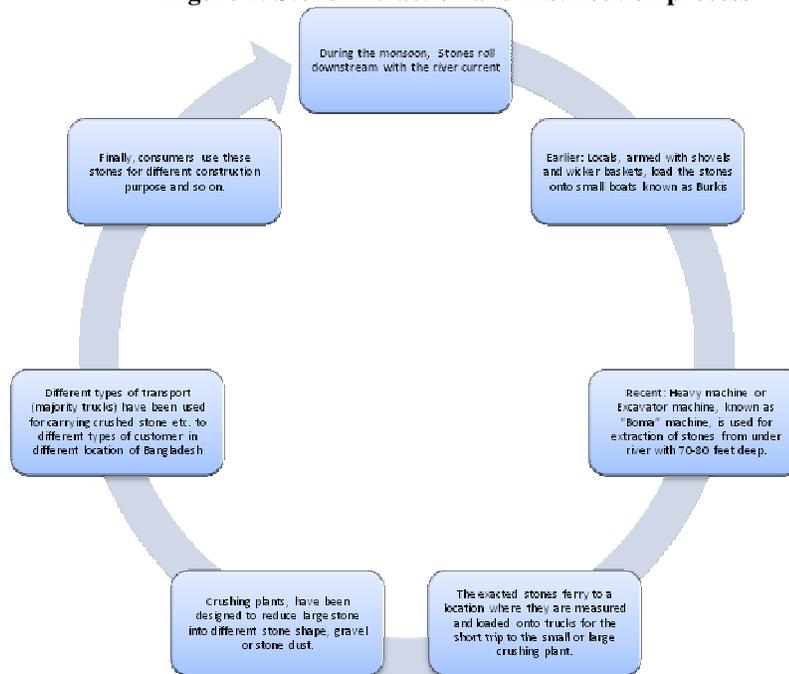
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**Brief profile of Stone Quarry in Sylhet Division**

Quarries are generally used for extracting building materials, such as dimension stone, construction aggregate, riprap, sand and gravel. The word quarry can include underground quarrying for stone, such as Chief, Single, Bothu and stone (Chowdhury, Khan and Islam 2014). There are seven major stone quarries in Sylhet. These are Bholaganj, Uthma stone quarry at Companiganj Upazila, Jaflong and Bichanakandi stone quarries at Goainghat Upazila, Lalakhali and Shreepur quarries at Jaintapur Upazila in Sylhet and Chatak stone quarry in Sunamganj. Bholaganj is the biggest stone quarry in the country. Bholaganj stone quarry is located about two km from Companiganj and twenty km from Sylhet Sadar. It stands on the bank of the river Dhaolai that separates Bangladesh from India. Bichanakandi stone quarry at Goainghat Upazila, one of the biggest quarries, supplies stones worth thousand crores of taka annually, to different parts of the country

**Extraction variations in seasons**

The dry season, especially from October to April, is the best time for extraction. During this time, about 450,000 cubic feet stones of various categories are collected everyday from the quarries in Sylhet area. The pace of extraction slows down with the onset of monsoon. However, about 100,000 cft stones can be collected every day during off-season. During the peak season, about one thousand trucks carry about 400,000 cft stones every day from the quarries of Sylhet and the government earns about Tk. 784,000 revenue a day from the trucks carrying the stones. The government gets about Tk. 2.36-crore revenue every month from the quarries in Sylhet region during the peak season. The miners pay Tk. 1.96 per cubic feet stone to the government for extracting stones from the quarries.

**Figure 1: Stone Extraction and Distribution process**

*Source: Author*

### Objectives of the study

- To find out the degree of effect on the demographic factors that sustain the stone business.
- To gather general information of the businessperson associated with stone business.
- To determine the degree of effect on business environmental factors and continuation of stone business.

### Literature review

The British East India Company's Resident Collector Robert Lindsay wrote about extracting limestone and iron ore from the Khasia hills. Stones that rolled downstream with the current have long been collected and sold by locals (Zainal, 2009).

The Piyan and Dauki rivers in Goainghat Upazila in Sylhet, a source of 75 percent of the country's stone supply and Jaflong and Bholaganj are the main sources for natural stone (Khan, 2009). Stone extraction is a common practice for the people of Jaflong. At the crack of dawn, around 10,000 people—men, women and children—arrive at the Dauki and Piyan River every day, to collect stones. On an average they extract about 35 million cubic feet (cft) of stones every year from Jaflong. Jaflong is one of the prime zones for both in-stream and off-channel extraction of sand, gravel and stones (Dev, 2009).

With more than a hundred stone extracting and crushing companies operating in and around Jaflong, the entire area has turned into a huge stone quarry. The mining companies see Jaflong as an exploitable resource, rather than a scenic treasure. The stone mining industry employs around ten thousand workers in Jaflong in the winter, the peak of the quarrying season. An estimated two hundred stone crushing plants have been set up in the area, and these churn out thousands of square feet of stone chips every day. Trucks carry the broken stone to construction sites throughout the country (Zainal, 2009).

An estimated eight lakh people are engaged in seven quarries in the Sylhet region, including Jaflong, Bholaganj and Bichhanakandi, in extracting stones, loading and transporting those to different parts of the country. Around one lakh people, including women are engaged in different jobs around the Bholaganj quarry. Among them, more than 50,000 are involved in stone collection by small country boats locally known as 'Barki'. Motors (shallow engines) are also put in operation for collecting stones. More than 1,000 mills work throughout the day in these quarries in Sylhet region. About 20-30 laborers work in each mill for a 12-hour shift. There are female workers, too. A male worker gets Tk. 350 per shift while a female laborer gets Tk. 250 per shift (Dev, 2009).

Stone extraction goes on in the Companiganj Upazila (Bholaganj quarry) for about eight months a year, except the rainy season. On an average 300 truck load of stones are sent to Sylhet and other parts of Bangladesh every day. Based on this, local people get involved in stone and crushing business (Chowdhury, Khan and Islam 2014).

More than 250 crushers around tourist spot Jaflong, some 55km north of Sylhet city, are crushing stones illegally occupying land belonging to Roads and Highways Department (RHD) and Bangladesh Forest Department. Many unauthorized crushers have occupied land along the Sylhet-Tamabil highway. Most of the stone crushing machines were set up uprooting trees and removing vegetation on the land of RHD (Siddiquee, 2014).

Export of stone chips, an important construction ingredient, to India doubled in the last two years, thanks to its high demand from Tripura and Meghalaya, the two north-eastern states of the neighboring country. Although India is a natural source of stone, the two states import the construction material from Bangladesh since it is cost effective for the users there. They also point to the fact that the Indian construction contractors prefer collecting Bangladeshi stone to the one available in different parts of their own country, as transportation costs much more than it costs in case of the import from Bangladesh. In 2008, Bangladesh exported around one crore cubic feet (cft) of crushed stone to the Indian states and the demand was created due to huge construction works in those regions. The annual sales of stone chips to India were between 50 and 60 lakh cft two years back. Besides earning foreign currency, crushed stone exports have also created job opportunities for around 10 lakh people directly and indirectly (Khan, 2009).

External business environment and their factors help visualize the analysis of business survival and growth in an attempt to enhance understanding of how environmental factors work together

with the variables of business survival and growth to determine the future of business organization (Ogundele and Opeifa, 2004).

Environmental changes are continuously exerting new pressures on company performance and in order to adapt with these changes, companies often formulate and implement strategies to reorganize and reform the way products are manufactured and distributed to final consumers. Thus, the impact of environmental factors on business performance towards profit objective is found to have increasingly stronger interrelationships which require more sophisticated business strategies (Abayomi Olarewaju and Ayobami Folarin, 2012).

## Research Methodology

The research is descriptive in nature. Both primary and secondary sources of information have been used. Primary data has been gathered to analyze and interpret the results. Businessperson associated with stone business of Sylhet district in Bangladesh, is the target population. The sampling frame is the two Upazila of Sylhet district, Companiganj and Goainghat, consists of seven important stone business locations as such Bholaganj, Pawra, Kolabari, Jaflong, Bichanakandi, Hadarpar and Salutikor. Convenient sampling technique has been applied for questionnaire survey. Questionnaire has been designed with two parts, Part A (Demographic and general information of businessperson such as name, age, gender, location of business firm, education, sources of startup capital, present capital, types of stone business and so on) and Part B (Eight business environmental factors consisting of thirty-seven variables were designed in a Likert scale format which is given five point rating scale ranges from strongly disagree to strongly agree). Questionnaire has been distributed to eighty-two respondents; average personal interviewing time was 20-30 minutes. The survey was conducted over a period of 45 days in the month of July-August 2014. Statistical tools such as descriptive statistics and multiple regression analysis have been employed to analyze and interpret the findings through Statistical Packages for Social Sciences (SPSS) version 20.

## Findings and Analysis

**Table I: Respondents' Profile**

	Frequency	Percentage
Valid survey cases	82	100
<u>Gender</u>		
Male	82	100
<u>Age</u>		
Lowest thru 25	14	17.1
26 to 35	46	56.1
36 to 45	14	17.1
46 thru Highest	8	9.8
<u>Marital Status</u>		
Married	55	67.1
Unmarried	27	32.9

<u>Education Level</u>		
Below SSC	18	22.0
SSC	33	40.2
HSC	24	29.3
Graduate	7	8.5
<u>Father's Profession</u>		
Farmer	16	19.5
Unrelated Business	31	37.8
Teacher	6	7.3
Stone Business	15	18.3
Private service	3	3.7
Other combination	11	13.4

*Source: Field Survey 2014*

The profile of the respondents is presented in table I. All respondents are male; 56.1 percent belong to the age group 26 to 35, 67.1 percent are married, no one has completed post-graduation but 40.2 percent have completed Secondary School Certificate (SSC). Only 18.3 percent respondent's father has stone business, but almost 38 percent have unrelated business.

**Table II: Respondents' Business Related Profile**

	Frequency	Percentage
Valid survey cases	82	100
<u>Location of Business Firm</u>		
Bholaganj, Pawra and Kolabari	37	45.1
Jaflong	24	29.3
Bichanakandi and Hadarpar	20	24.4
Salutikor	1	1.2
<u>Types of Stone Business</u>		
Storing and selling bolders, single and butho	30	36.6
Digging and selling	16	19.5
Crushing Machines	13	15.9
All (Digging-Storing-Crushing-Selling)	6	7.3
Storing and selling bolders, single, butho and Crushing machines	5	6.1
Storing and selling bolders, single, butho and Digging and selling	6	7.3
Other combinations	6	7.3
<u>Sources of Startup Capital</u>		
Self	22	26.8
Family	25	30.5
Relatives	1	1.2
Self and family	8	9.8
Self and bank	8	9.8
Self, family and bank	9	11.0
Other	9	11.0
<u>Startup Capital</u>		

Lowest thru Tk. 1000000	32	39.0
Tk. 1000001 to Tk. 2000000	28	34.1
Tk. 2000001 to Tk. 3000000	6	7.3
Tk. 3000001 to Tk. 4000000	4	4.9
Tk. 4000001 to Tk. 5000000	9	11.0
Tk. 5000001 thru Highest	3	3.7
<u>Continuation of stone business</u>		
Lowest thru 5 yrs	40	48.8
6 to 10 yrs	27	32.9
11 to 15 yrs	13	15.9
16 yrs thru Highest	2	2.4
<u>Present Capital</u>		
Lowest thru Tk. 2500000	36	43.9
Tk. 2500001 to Tk. 5000000	10	12.2
Tk. 5000001 to Tk. 7500000	11	13.4
Tk. 7500001 to Tk. 10000000	5	6.1
Tk. 10000001 to Tk. 12500000	7	8.5
Tk. 15000001 thru Highest	13	15.9
<u>Number of labor</u>		
Lowest thru 25	42	51.2
26 to 50	15	18.3
51 to 75	2	2.4
76 to 100	6	7.3
126 to 150	7	8.5
151 to Highest	10	12.2
<u>Own Vehicle For Transporting Goods</u>		
Yes	53	64.6
No	29	35.4
<u>Types of Vehicle</u>		
No vehicle	29	35.4
Big Tractor	32	39.0
Truck	12	14.6
Engine Boat	1	1.2
Paddle Boat	4	4.9
Big tractor and truck	4	4.9
<u>Types of Customer</u>		
Individual user	6	7.3
Seller / Agencies	55	67.1
Industrial user	1	1.2
Individual user and Seller / Agencies	4	4.9
Seller / Agencies and Industrial user	2	2.4
All (industrial user, seller / agencies and industrial user)	14	17.1
<u>District-wise Major Buyer of Product</u>		
Dhaka	24	29.3
Dhaka and Narayanganj	13	15.9

Narayanganj	1	1.2
Chittagong	2	2.4
Dhaka and Barishal	3	3.7
Dhaka and Chittagong	8	9.8
Dhaka and Sylhet	5	6.1
Other combination	26	31.7

*Source: Field Survey 2014*

Respondents' business related information is depicted in table II. Business firm belonging to Comaniganj Upazila is 45.1 percent and 55.9 percent is from Goainghat Upazila, 36.6 percent businessperson possesses storing and selling bolders, shingles and butho sort of business type, 30.5 percent had self financing for conducting business and almost 27 percent had managed their capital by self financing. 39 percent have initial investment of lowest through than Tk. 10, 00,000 whereas 34 percent had initial capital of Tk. 10, 00,001 to Tk. 20, 00,000. 48.8 percent of the business firm is conducting business from lowest through 5 years and almost 33 percent of them are doing business from 6 to 10 years. Initial investment has turned up with a good amount of return. 43.9 percent business firms' present capital is lowest through Tk. 25, 00,000. Business firm is maintaining labor, lowest through 25 is 51.2 percent, 64.4 percent business firm has its own transport for carrying goods with 39 percent having big tractor, 67 percent of its customers are sellers or agencies and major buyer is from capital city of Bangladesh, Dhaka district (29.3 percent).

**Table III: Descriptive Statistics of Business Environmental Factors**

	Number of items	Mean	Std. Deviation
Economic Factors	7	23.9878	4.60674
Environmental Factors	6	17.9024	2.64626
Marketing Factors	4	15.2561	1.68370
Human Resource Factors	5	14.9024	2.48755
Political and Legal Factors	5	14.3659	4.35610
Socio-cultural Factors	4	14.2561	3.62028
Technological Factors	3	10.3415	2.82064
Communication Factors	3	9.5366	1.84053

Descriptive statistics of different business environmental factors (table III) depicts that economic factors and environmental factors have the highest mean consecutively 23.98 and 17.90.

**Table IV: Multiple regression analysis**

Variables	B	t-value	Sig.
(Constant)	-11.976	-7.719	.000
Types of Stone Business	.233	3.711	.000
Respondent's age	.468	10.072	.000
Sources of Startup Capital	.344	7.338	.000
Number of labor at present	.363	6.278	.000
Environmental Factors	.196	4.146	.000
Present capital	.239	4.615	.000
Own vehicle for transporting goods	.145	2.835	.006
Adjusted R <sup>2</sup>	0.835		
F- Value	59.668		
Significant	0.000		

From table IV, the result shows the multiple regression analysis, with several independent variables and the dependent variable (continuation of stone business). This analysis was conducted to predict the percentage of dependent variable, where independent variables are recorded simultaneously. Almost eighty-four percent (83.5%) of the overall variance (continuation of stone business) was explained by the independent variables (types of stone business, businessperson's age, sources of startup capital, number of labor, environmental factors, present capital and own transportation facilities). Businessperson's age (B = .468, t = 10.07), number of labor at present (B = .363, t = 6.28), sources of startup capital (B = .344, t = 7.34), and present capital (B = .239, t = 4.62) is significant and positively act upon the continuation of stone business.

**Table V: Collinearity statistics of multiple regression analysis**

Variables	Tolerance	VIF
Types of Stone Business	.518	1.932
Respondent's age	.942	1.062
Sources of Startup Capital	.923	1.083
Number of labor at present	.607	1.648
Environmental Factors	.910	1.099
Present capital	.757	1.322
Own vehicle for transporting goods	.774	1.292

Table V indicates the results of the collinearity statistics of the multiple regression analysis. Results from table V show that multicollinearity does not exist, as the values of tolerance are greater than 0.1 and the variation inflation factors (VIF) for all independent variables are less than 10 (Hair et al, 1998).

## Conclusion

The outcomes of this study suggest that businessperson's demographic factor (age), business related general factors (such as types of stone business, sources of startup capital, number of labor at present and present capital, ownership of vehicle for transporting goods) and business environmental factors (as such environmental factors) affect continuation of stone business. The study exemplifies a positive insight towards survival of stone business. However, it is recommended that further studies can be carried with larger sample size; also various internal and external factors must be added in the study.

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