

# Analysis of the Value Chain of Brick Industry

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**Abstract**— Value chain has a comprehensive outlook toward supply and demand in market, which aims to reduce the finished cost and make products accessible to consumers. Considering this issue and also regarding the significant effects of globalization on supplying raw materials and production resources, we are encountered with a global phenomenon called value chain. But the main question here is that what are added value and pure profit in value chain of brick industry in Iran for industrial, semi-industrial and traditional type products?

The method applied in this research was based upon field research and 27 pressed and clay brick producing factories were applied as industrial societies. Moreover, the studied population which was selected as a sample in this research consisted of 100 cases. After collecting data by interviewing or doing field and librarian studies, it was concluded that value chain and added value of brick industry in Iran in fully automated or industrial production were more than those of the semi industrial and traditional methods. Furthermore, considering product quality, brick production in the first method (industrial) was more profitable than the second and third methods (semi industrial and traditional).

**Keywords**— value chain, product quality, production type, brick industry.

## I. INTRODUCTION

IRAN's brick industry should be aware of its own cost and also its potential rivals in order to survive. Each agency analyses and revises its costs (to maintain cost in the lowest level), feasibility and the way of changing them according to methods special to that agency. But in Porter's view, cost analysis (value chain) is solely responsible to this comprehensive demand. Value chain is a strong tool in process identification, transition and after sell services. Furthermore, it is considered as an appropriate tool for submitting a useful analysis [1].

## II. ANALYSIS OF MAIN ACTIVITIES OF VALUE CHAIN (BASED ON PORTER MODEL)

### A. Input provision

Raw materials: Siliceous Clay is the main raw material required in the production of brick. The best clay in Iran is found in the provinces of Esfahan and Eastern Azarbayjan. Considering the weather and geographical situations in Iran, there are a few region that siliceous clay is found in very little amount. More than 95% of brick producers are present in the

central regions of Iran. This is due to better soil properties in these regions compared to other places. Moreover, the required soil for pressed brick production is provided from the limited purchasing of agricultural soil [2].

Production method: Production method differ according to investigations and observations done on the ceramic and pressed bricks companies. Considering the low number of brick producing companies, the method of production of clay brick is divided into two types (industrial and semi-industrial) while the method of production of pressed brick is regarded as traditional type of production [3].

### B. Marketing and selling

#### a. Advertisement

There is not much activity done in the field of advertisement and marketing in brick industry. Most of the factories are waiting for customers to come to their factories and do not participate in development of their products or market. When the house market and thus the brick market is dull, the factories encounter this issue by negative competition. This means that instead of controlling production and supply, factories compete with other producer by reducing the price of their products. Overall, The relations between production units is so weak. The types of advertisement are: selling offices and sometimes publication of some brochures since most of the selling is done by dealers and truck drivers. Since the pressed brick produced do not have the standard qualities.

#### b. Pricing

Pricing brick in Iran is carried out by the producers. This process is done competitively among producers and by giving allowance from TMIO (trade, mine and industry organization) [4].

#### c. Distribution, survey and market research system

Based upon our investigations, most of the selling is done by dealers and truck drivers. The truck drivers who are in charge of supplying the materials for projects go to factories and purchase the products. The main problem in this method is that the truck driver uses the discount from the producers in addition to delivering the products [5].

#### d. Services

Unfortunately, in this industry like any other industries, no services are presented to consumers. The only case which can be referred to is that 4 percent addition weight is considered when loading the products. This makes up for the probable damages of the purchased products during transportation [6].

### C. Analysis of supportive activities of brick industry's value chain in Iran (based on Porter model)

According to Porter model, supportive activities of brick

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industry are evaluated in four group:

*a. Human resource management*

Human force management in brick industry involves activities such as recruitment, training, salary and personnel wage. This industry has been considered as laborious and prejudicial from the past. Unfortunately, in this industry there is no codified system for recruitment or training active forces [7].

Some weak points relating to human resources of this industry include:

- Being strongly dependent upon technical forces in factories
- Low level of occupation, sanitary and safety quality in most of the factories
- Low interest of human resources to work in brick factories due to difficulties they encounter during work
- Illiteracy and low level of civilization among workers' class
- Not using the methods of making work easy in most of the factories
- Job safety is endangered in different seasons and stagnancy time.

*b. Technology development*

The brick production in Iran which goes back to less than 150 years ago, was done traditionally. But some companies which is the first and the only producer of fully automated mechanical brick has developed this thought that by technology development not only requirements can be supplied with high quality but also can schedule a program to export the products to neighbor countries.

*c. Subconstruction and sub structural tasks of the industry*

Almost all of the producers have the physical sub constructions such as water, electricity, appropriate road and communication apparatus like internet in their own production set.

### III. RESEARCH METHOD

Both documentary and field studies were taken as the research method.

*A. Research background*

According to our investigations, many analyses of value chain have been performed in science and technology parks, research units of companies in industrial towns of Iran.

*B. Method and tools of data gathering*

Methods and tools of data gathering for calculating value chain of the brick industry were price prefactors, bank receipts, interview with experts and actives of brick industry for each three brick types, e.g. industrial, semi-industrial and traditional.

*C. Statistical society*

Considering the research aims and the research place territory, brick industry actives make up our statistical society.

*D. Sample and Sampling*

Statistical sample persons who were qualified for answering the questionnaire on the assessment of internal and external factors for clay and pressed brick production in Iran were 100 people (owner of the brick maker company: 77 people, manager of the brick maker company: 11 people, expert of TMIO (trade, mine and industry organization): 2 people, and facilities expert of bank: 10 people).

*E. Data analysis*

The software EXCEL was used for data analysis in the value chain calculations.

### IV. FINDINGS

Findings show that the added value and the pure profit of the bricks industrial production type seems to be higher than those of the bricks semi-industrial production type and the added value and the pure profit of the bricks semi-industrial production type seems to be higher than those of the bricks traditional production type.

### V. PROPOSING SOME SOLUTIONS ON THE ANALYSIS OF CHAIN VALUE FOR BRICK INDUSTRY

5-1-The most weakness of brick industry in Iran, is the shortage of raw materials including siliceous clay which according to the geology considerations, the soils available, do not have enough Silica. Producing brick with low content of silica results in the brick having low strength which makes the brick production as non-technical. Moreover, its high wastes made the brick industry non-economical and most of the brick companies are currently closed. From the 23 brick making company only 5 companies are currently working and the rest are inactive. High fuel consumption is the main cost of brick industry in all over the country which is also considered as the main problem of brick industry. Supplying of the fuel is known as the main problem after the raw material provision in Iran. Increase of the fuel costs in the recent years is one of the reasons for stopping the brick industry in Iran. Therefore, brick producers in Iran can resolve this problem by optimizing the fuel consumption. For example, the following steps are proposed:

For brick producers of industrial and semi-industrial types: insulating all the walls of dryers and furnaces system.

For brick producers of traditional type: making gaseous all fuel consumers, and using modified Huffman furnace.

5-2-skilled human forces are considered as the other weakness of the brick industry in Iran. Using the capacities of the universities avail in Iran is proposed for resolving this problem.

5-3- Since brick production units in Iran are semi-automatic and full automatic, unfortunately there is no any R&D units for producing standard brick in Iran.

5-4- pricing the brick is another problem of this industry in Iran. It is required to resolve this problem by cooperation of the brick producers and TMIO (trade, mine and industry organization). When the house business is dull, brick

marketing gets dull as well, and brick producers reduce the price instead of controlling the supply and the demand for the brick. Generally, relation between the brick producers for the brick pricing policy is considerably weak.

5-5-lack of the suitable brick distribution system is another problem of the brick industry in Iran which caused truck owners and brokers to waste consumers' rights. This problem can be resolved by constituting brick guild in the Iran.

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