

CHAPTER 1

INTRODUCTION

1.1 Background

By society, we mean a group of people who share a common culture, occupying a particular territorial area and feel them to constitute a unified and distinct entity. Man is a social animal. He/she cannot live alone. So, from the very beginning of human civilization even man realized that their wants can fulfilled by living in group shelter has been one of its basic needs. Even today for we people to live food, shelter, clothes and sound health are the primary or basic needs.

If we turn the history of civilization of human in past to protect from sunshine, rain, wild animal natural calamities they used to stayed in caves which had them to build houses with stones and wood to make their life safety, to get rest and to maintain secrecy and storing.

As the changing of time human civilization also went on developing their living standards or way of living was also changing. They learned to cultivate food and stopped to eat raw meat of animals for food and they looked for better durable and attractive place to live in. In early days, they carved stones and used them for building which was very difficult. Later, they used mud as building blocks. In the beginning they used dried blocks of mud later they learned to burn the bricks for durability.

As the most convenient for handling, the easiest for bonding and providing aesthetic appearance, over about 6000 years ago uniform dimensional mud bricks were invented.¹ Studies show sun dried brick dating back some 5000 years have also been found in Peru. A pre Harappeur head brick found in the ancient city of Kalibangon in the Indus River valley is estimated to be 5000 years old and it may well be the oldest fired brick on record.² Walls of heated bricks similar in shape to today's products have been uncovered at Monhenjo-dora in the Indus River

Valley, Pakistan, that are about 4500 years old. Bricks of same date are also found in Iraq.³

Brick making probably was the second earliest industry of mankind after agriculture.

Sun dried bricks were used 6000 years ago in Syria. Decorations and adornments were applied to bricks about 5000 years ago when firing of bricks were introduced.⁴

The technology of baking clay to provide bricks and tiles for building construction is more than 4000 years old. It is based on the principle that clay soil containing 20 to 50% clay undergoes irreversible reactions when heated at 850⁰ -1000⁰ c in which particles is bound together by a glossy ceramic material.⁵

Bricks are mainly made from clay calcium silicate (normally known as sand limes) and concrete.⁶

An improvement in brick mold design had been made 945 B.C. as is evident from the visible appearance of baked Egyptian brick, the brick from Babantis in the Nile delta.⁷

Brick is just (handy sized) dried and heated moist clay, for building walls, pavements etc. Baked or dried clay is brick.⁸ Handy sized units for building bricks is typically rectangular and about 2 ¾ x 3 ¾ x 8 inches made of moist clay hardened by heat.⁹

Clay bricks can be defined as earth mud which forms sticky coherent mass when mixed with water. Clay is plastic and readily mouldable when damp but when damp but when dried it becomes hard, brittle and will retain it shape. When it is heated at a high temperature it becomes harder, is no longer susceptible to the action of water, and by no known process can its plasticity be restored.

The chief constituents of clay are silica (60%) and alumina (20%) (Average figures), in addition to which there are smaller proportions of iron oxide, magnesia lime etc.¹⁰

During the 1st century, the Romans transported their art of brick making to Great Britain. By the 13th century the English began making bricks using their own techniques. 1666 was a great time for London, transformed town of wood to city of bricks, safer city. By this time the art of brick making was exported to USA, and then the rest of the world. Iron shod molds were used in USA in 1629.

Wood baked brick Kilns were operated as a part-time occupation by farmers, who made bricks at odd moments during the season, which closed in the early fall with the burning time set as a social festivity during October. Capacity of the largest Kiln was from 20000 to 100000 taken 3-5 years for sales.

About 1856-70 the 1st steam powered soft mud brick machines were invented in the U.S. The bricks were hand-molded.

In 1903 the U.S. introduced a continuous straight line tunnel kiln for brick baking. The Kiln was 576 feet long and probably used coal as fuel.

Structural clay products have had a place in the history of civilization like bread and cloth. By 1900 electric motors were operating the equipment in the plant by 1920 many internal combustion engines were being used for mining and for transportation equipment both in and outside factories.

Brick industry is slow to adapt itself to the scientific revolution. Unlike a new industry created by change, the traditions of thousands of years seem to be hard to break in the brick industry.¹¹

The manufacturing of bricks by individuals in private enterprises for example, 'Awales' in Kathmandu Valley was prevalent until 2025 V.S.¹². The early brick was cooked in simply, then modified Thadobatha (Clamp Kiln). In Nepal chimney (Bulls Trench) was introduced during the period of PM Chandra Samshere Rana. Harishidhi (Chinese Brick) production started from 1965/66.¹³

Handigaun is the earliest known urban settlement of Kathmandu Valley. As the site of the great palaces of the Kirat and Lichchhavi kings such as Mangriha and Kailashkut Bhavan, it served as the capital of the valley for more than a millennium. The advent of the Malla era saw the rise of Bhaktapur, but the preceding era belonged to Handigaun. This colourful past of Handigaun remains extant in the customs and practices of the residents of the place. The writer draws upon these cultural artefacts and relates them to archaeological finds and inscriptions to draw a picture of this ancient city. It is a fascinating story he tells—of Handigaun's origins, its legendary figures, the palace intrigues and other historical events—on the basis of his study of Handigaun's ancient festivities and arcane rituals and their interconnectedness to the power places and public spaces still in use today."

The ancient craft of Kathmandu valley is brick making. The intricate bricks of various shapes and sizes in temples, palaces and other buildings constructed during Licchavi and Malla periods are the strong for this. Compared to cement block these bricks are considered to be strong, durable and attractive too. The mud found in valley floors and flood places, adequate water and demand in the market are the reasons for the operation of large number of bricks industries found in the valley.

Today, we can find uniform soil blocks which are baked in systematic way so as to get quality bricks.

(In Kathmandu) valley, different (size a old style bricks of like and hachi brick, decorative, crafty bricks are produced) Previously Chinese size bricks were more

popular but currently it is replaced by (eg: Newa accommodation house of Kwalkhu Patan and Dwarika Hotel).

As the population increase of our country more clamp kilns were established and more bricks were produces. As the demand for construction grew many contractor started launching their own temporary kilns. But the bricks produced there were not as qualitative as produced in early days.

1.2 Focus of the study

Due to the establishment of more industry and trade business world is becoming too competitive and more complex. As the demand of time different new technologies, methods idea, are developed and started to face challenges. Marketing is one of basic need of business which facilitates production and distribution of goods and services in whole world and it help a lot in trade diversification. Because of marketing and trade diversification now a days people of the world are able to buy the goods of their choice among many. In simply if we have to define about marketing it is the process of production and distribution of goods and services. According to the Prof. Dr./ Govinda Ram Agrawal of T.U. define marketing as

“Marketing encompasses all activities aimed at satisfying the need of the customers through the exchange relationships to achieve organizational objectives with social responsibilities in a dynamic environment.”

According to the American marketing Association- Marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfying individual and organizational objectives.

In summary marketing is the process of production and distribution of goods and services as per desire of customer/ consumer and on the same time to take care of

social welfare also. And (4Ps) production, pricing, promotion, places are the main components of marketing.

Marketing is important for consumer, business firm, to society and nation. For consumer if provide information and help to rise in standard of living, for business firms it is the main source of revenue earning, information for planning an decision making , mass distribution and to increase in goodwill and it help nation to provide employment. Break the vicious circle of poverty creation of utilization optimum utilization and rise in standard of living etc.

For construction of building, rest houses, temples, hotels, etc in traditional and modern may brick is the main element. So, the obstacles and difficulties which are seen on both buying and selling as well as in production are the studies and researches of this study.

We hear many complain regarding production of brick by consumer and found their dissatisfaction also on brick production burning, in their sizes, colours, and way of selling and among all construction material. Now, this research is showing some of the main barriers of brick with some advices.

While asking about the quality and satisfaction of brick to the consumer it was found that finally they are not totally satisfy because of broken bricks, price fluctuation and also quality and some time improper size in brick and they complain that they are not getting total satisfaction regarding quality of the brick as they paid total amount for it and at the same time producer and seller says that sometime they have to deliver bad lot of brick in expensive price then the good quality due to seasonal variation and sometime in the low price they are able to deliver the good lot. At present time (2064-10-28) price of brick had gone down by about 30% compared to 2 and 3 months ago. So, consumers are not getting the kind of brick they want easily. Even by paying as per the sellers demand consumers have to hear sellers saying they cannot deliver bricks without certain percent of broken bricks in any cost on a lot. Sales depots are concentrated in certain places only depots have been developed in past few years. In early days

people used to travel a long way to the factories to do order of bricks. Most of the consumer does not get the deliver in time after their order.

1.3 Statement of the problem

In Kathmandu valley brick manufacturing is done by farmer class people like Awales and Jyapoos. In our valley if we compared to Terai region there are many more complaints from customer on quality of brick. Our country is developing country so lack of technology, qualified man power, poor economy, lack of education, producer are not able to adopt new systematic and scientific method of manufacturing brick and ideas for marketing. There is no study done about brick marketing and very few studies done regarding brick and pollution due to it. Factory establishment procedure made by government of our country very impractical. No systematic calculation of production cost done. Pricing of brick is based on season clay products, brick marketing are far behind as we compared to other thing. If we watched old inscription we could find brick were demanded when valley was formed by Manjushree after drying water from lake. Today, also we people are able to find brick of about 1000 years old in temples, monuments, palaces of old periods. But still there are a lot of complaints regarding about quality, delayed deliver of bricks.

As population increased its production technique and quantity has grown today. Now in valley 50 bull's trench kiln and few numbers of dumps kiln produced local brick more than 60 billion every year.

Now environmental protection, lack of production area, traffic awareness of the people, government of our country make new rule and regulation and also more new rule and regulation and also more regular taxes increases the cost of brick production which is the major problem for production which is the major problem for producer and increases production cost are the new challenges in brick marketing.

As we all know that the development of country is depended upon the industry and trade. Yes, actually that country also benefited by construction business. So, Brick one of the main materials of construction should be marketed well. Therefore, problems related with marketing of brick should be overcome.

1.4 Significance and importance of the study

Nepal is developing country. Being developing it needs studies and research in every field to find out different problems and their possible solution for the smooth development in every field.

Before 10 and 12 years people in brick business are mostly uneducated they used very traditional old fashioned ways to produce and supply bricks in this modern day. But now a days many qualified person are performing their best performance to overthrow the complain of their consumer. Then also problem and difficulties to establish brick factories, investment, rules of govt. conflicts with land lord, bad relation regarding all pollution with local people, labour availability, good relation with labour lack of promotional ideas, price fluctuations complains on quality of brick, late delivery and difficulty in selection or according to get choiced brick are very usual complain form customer.

During the research it was found from a brick expert that a single bad quality brick can cause problem to total building. Before in Kathmandu Valley there was no segregation of bricks in type A, B, C classes according to its quality but now a days people can choice the quality in different classes and they have to pay price according to quality. It also causes problem only high level people are able to offer for better quality and the remain is for low level who cannot offer more for the major part of construction. Therefore, the study will be an important step towards better brick marketing.

1.5 Objectives of the study

Brick is the main important construction material. So, studies researches must be done about it's marketing and qualitative varieties as per demand by time, need, people and proper delivery in proper place. Specially, in the southern part of Asia and in developing country like Nepal there is almost no marketing awareness in brick and it's business.

The following are the major objectives of the study

- 1) To find out the purpose of buying bricks in Kathmandu valley.
- 2) To analysis the seasonal price fluctuation on brick.
- 3) To evaluate the effective promotional tool.
- 4) To find out the role of depot agency in distribution pattern by brick industry.
- 5) To study the social welfare activity and employment generation of the producers.

1.6 Limitation of the study

To carry on the research work smoothly without any disturbance and to complete the work in time as per the plan the researcher has to barricade his/her research from some limitation. Following are the limitation to my studies:-

- 1) This study is concerned only with the brick making in Kathmandu valley.
- 2) The study specially focused on production of brick in Kathmandu Valley to traditional method of production.
- 3) The study includes the new method of production.
- 4) The study does not include new Chinese brick and curved brick.
- 5) The study is limited to product attribute price fluctuation, promotional tools and role of sales depots of local bricks.

CHAPTER 2

REVIEW OF LITERATURE

Review of literature means reviewing research studies or other relevant propositions in past studies. This chapter provides insights into past studies and progress on similar field. All those studies related to this thesis works are categorized into two parts, conceptual/theoretical review and review of related studies. In conceptual review, it reviews the concepts concerning the subject matter that are written in related studies, magazines and concerned books by experts in related field, while in review of related studies, it reviews the previous studies which are related to the subject matter of this study. Review of related study is further divided into theme paper and review of previous studies.

2.1 Conceptual Review:

2.1.1 Marketing

Marketing means selling and buying of goods and services. Marketing doesn't include all human activities. It encompasses only those activities which are aimed at facilitating and expediting exchanges. These activities are of individual and organizational nature. So, marketing encompasses all those activities which help satisfying needs and wants.

William J. Stanton and Charles Futrell in their book Fundamentals of Marketing writes, "In a business firm, marketing generates the revenues that are managed by the financial people and used by the production people in creating products and services". The challenge of marketing is to generate those revenues by satisfying customer's wants at a profit and in a socially responsible manner.

They also elaborate marketing is a total system of business activities designed to plan, price, promote, and distribute want satisfying products, services and ideas to target markets in order to achieve organizational objectives in business dimensions of marketing.

Philip Kotler, in his book marketing management, writes beautifully 'The marketing concept holds that key to achieving organizational goals consists of being more effective than competitors in integrating marketing activities toward determining and satisfying the needs and wants of target markets'.

Dr. Govinda Ram Agrawal states' Marketing encompasses all the activities aimed at satisfying the needs of the customers through the exchange relationship to achieve organization objectives with social responsibility in a dynamic environment. Here, I would like to quote U.S. President George W. Bush .I was really impressed by his giving another word for marketing. He said 'MARKETING IS FREEDOM'. He said, people wore uniform clothes then but now people wore different clothes, clothes of their choice. People have freedom to choose such products produced and supplied, therefore, now I can see people wearing beautiful different types and beautiful different colors of clothes in this hall.

2.1.2 Marketing Mix

Marketing mix is everything that organization can do to influence the demand for its products in the target market. So, it is set of controllable variables that a firm can use to influence the buyer's behavior with in a given marketing environment.

According to Philip Kotler: "Marketing mix is a set of marketing tools that the firm used to pursue its marketing objectives in target market."

Marketing mix can be classified into four parts:

- | | |
|----------------|---------------------|
| 1) Product mix | 3) Distribution mix |
| 2) Price mix | 4) Promotion |

Which are also known as major elements, 4Ps or tools of marketing. While the marketing mix is largely controlled by company management this mix still is constrained by external environmental forces.

All elements of marketing mix are essential equally important and interdependent. Decision on the four elements must be taken simultaneously and together they

give us total marketing programme. Customer's satisfaction can be achieved only by designing the marketing mix suitably for the customer's group.

Product:- Product is the heart of marketing mix. It fills the needs of consumer or user. Sales success is assured if a marketer offers a right product to a right customer at the right price, time and place. It consists of right product design (size, shape, colour) product variety (line and items), Quality (standardization and grading), features, branding out trademarks, packaging, Services (before and after purchases) warranties. So, under product mix product line product planning and development etc are included.

Price Mix:- Management should determine a right price for its products. Price is the amount of money that customers pay for the product. Price should always be affordable and acceptable to the customers. Under this mix formulation of pricing objectives, setting the price and determining terms and conditions of sales etc are included.

Place Mix:- Effective distribution is also necessary to sale products. So, to distribute products to the right place and efficient distribution system should be developed. Place includes the various activities undertaken to make the product accessible and available to target customers in right time and right place. Components of place mix consists of channels(direct or middlemen, whole seller, retailers etc), physical distribution activities such as order processing, warehousing and location material handling, inventory management transportation etc.

Promotion mix:- To sale product to the target customer, management needs to inform and persuade through right promotional media. It includes all the activities undertaken to communicate and promote products to the target market. The main components under it are advertising sales promotion, public relations, personal selling, direct marketing, publicity through remix paper, radio, magazines, T.V etc.

2.1.3 The Marketing Environment

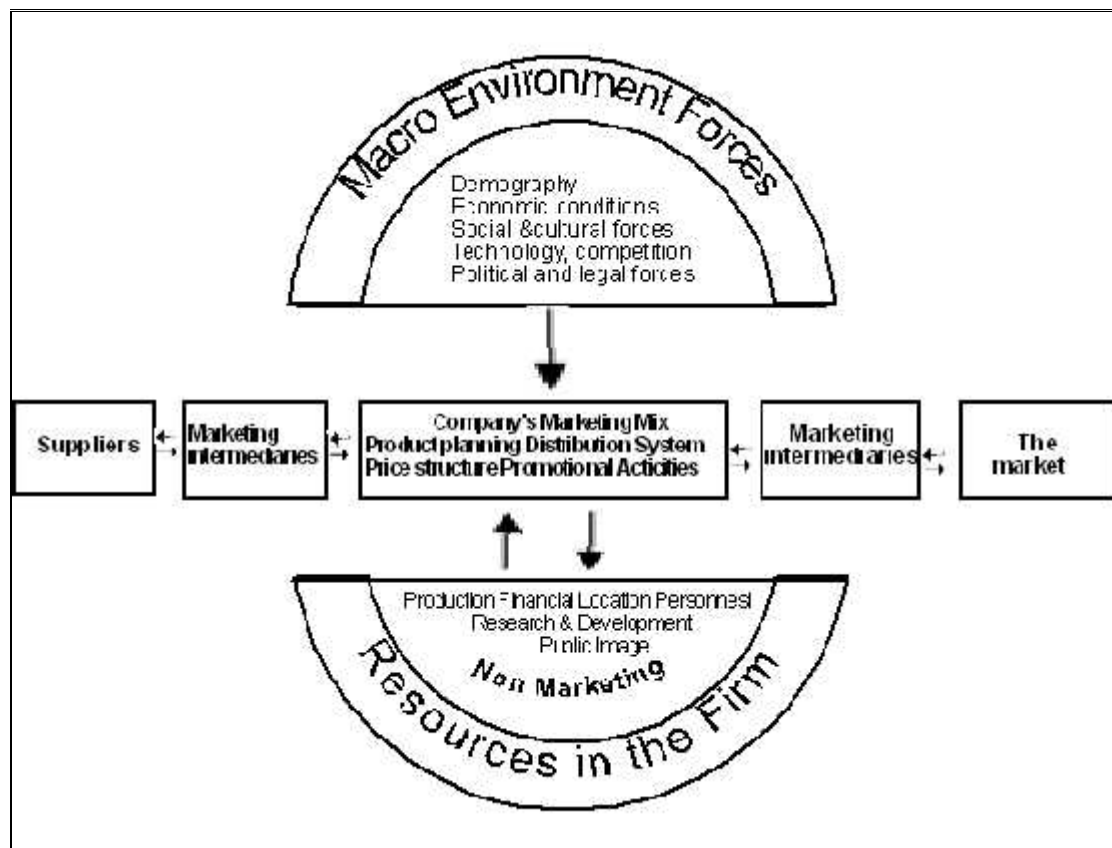
Marketing Environment means different entities or forces which may directly or indirectly affect the marketing activities. The environment of any organization is the aggregate of all conditions, events and influences that surround and affect it. Environment is complex, dynamic, multifaceted and a far-reaching impact.

The marketing must design a strategic marketing mix that enables the company to satisfy the wants of its target markets and to achieve its marketing goals.

Company may market one item or several related or unrelated. They may be distributed through wholesalers or directly to retailers and so on. Ultimately, from the multitude of variable management must select the combination that will

- 1) Best adopt to the Environment.
- 2) Satisfy the target markets.
- 3) Still meet the organizational and marketing goals

Figure-2.1.



Environmental forces are known as strategic variable because they are dynamic and they change with time. Marketing environment is ever changing forces within its framework, marketing system operates.

Marketing Environmental forces are of external or internal to firm. Those forces make internal environment which are located within the company and which are controllable using different strategies in long run. These forces are inherent in the organization and are controlled by management like production facilities financial capabilities. Human resources, company location, company image, research and development capabilities. The external forces which are located outside the organization and are uncontrollable by firm may be divided into two groups. The first is a macro such as demography, competition, society, culture politics laws technology and economic conditions (business cycle, inflation, interest rates, unemployment etc). The second are micro which includes suppliers, producers, marketing intermediaries and market itself is also external to the firm. But these customers can be controlled to some extent by firm.

For successful and efficient marketing of the product right steps, plans programmes, policies and strategies should be prepared. Marketing research helps in getting the good and useful important information to make right choice on step or decision.

2.1.4 Marketing Research

Marketing research is concerned with product, advertising, sales and motivation and attitude. It is the systematic design, collection analysis and reporting of data and findings relevant to a specific marketing situation facing the company.

The American Marketing Association defines marketing research as follows “Marketing Research is the function which links the consumer customer and public to the marketer through information, information used to identify and define marketing opportunities and problems, generate, refine and evaluate marketing as a process.

Marketing Research specifies the information, manages and implements the data collection process, analyzes the result, and communicates the findings and their implications.

From 1960 companies started forming Marketing information system.

2.1.5 Marketing Information System

MIS is simply a logical computer based extensions of marketing research. A marketing information system is a continuous and interalting structure of people, equipment and procedure design together, sort, analyze, evaluate and distribute pertinent timely and accurate information for the use by marketing decision maker to improve their marketing planning, execution and control. So, A MIS is an ongoing, future oriented structure designed to generate, process, store and later retrieve information to aid decision making in an organization's marketing program. If a company has a formal MIS unit then the marketing research activity is probably treated as just one part of thesis information system.

Marketing Information System(MIS) is the mechanism for providing decision making information and data to the marketing manager. MIS is “ a set of procedures and methods for the regular and planned collection, analysis and prestentation of information for use in marketing decision,” MIS provides a continous flow of information about prices, advertising, sales, competiotion and distribution. It is the major tool for scanning and monitoring the external environment forces of marketing, MIS Collects vital information from various sources, anaylize and synthesize them and supply to the marketing decision makers (KD. Koirala).

Prof. Kotler (2005) defines the MIS as “ A marketing information system consists of people, equipment, and procedure to gather, sort, anaylize evaluate and distribute needed, timely, and accurate information to marketing decision makers.

2.2 Review of Production and Price

2.2.1 Product

A socialist in a forgotten novel, South Riding, by Winifred Hottby, says "I believe in bricks and Mortar". He means a good deal more. He means that there can be no good education without good secondary school: that there can be no good secondary school without good buildings: that here can be no good building with out good bricks and mortar.

Chinese size brick is generally of 2 types as following

1. Chinese bricks
2. Nepali bricks

The production of Chinese bricks was stated by Chinese government collaboration is Harishiddi Brick & Tile Factory in Harishiddi in 1965. Chinese brick is qualitative and does not need to cover with plaster; it is smooth, attractive and stronger.

A Nepali brick which is the subject of my study is basis brick even when building is made of Chinese bricks. Chinese is only used for outer side of the wall (facing).Also, quality of Chinese bricks is being diminishing and of less demand at present compared to past high demand. Therefore, at present scenario Nepali brick is becoming important factor in construction.

a. Decoration

Sanded Surface

Better coverage and a wider range of colors are produced by adding clays, coloring oxides, ceramic pigments and fluxes such as soda, ash and borax to molding sands. Unevenness in the brick shape, surface texture, and outer color application is common to add a flux to the sands for application to stiff-mud bricks in order to promote adherence.

Ancient products were also scratched or embossed for esthetic effects. Different proportion of chemical composition in clay and sanding could produce different color textures, The wide variety of color textures available to –day allow architects to express the purpose of building in their design, also allows blending into the landscape so that the building seems to belong. While clean looking bricks are often used for hospital, food preparation plants research facilitates and utility buildings where cleanliness is of prime importance in successful operation.

Brick must bare freezing and any hot temperature. Bricks soaked in water before applying mortars have stronger bond but with thin glazed wall tides and unglazed floor tiles best bonds are made cement mortar if they are not pre-wetted.

Efflorescence and staining of brick work is due to presence of salt in clay itself.

For cleaning first we have to know type of stain. First is done soon after construction & mortar dried. Some stains are washed by few rainfalls. Generally 10% hydrochloric acid solution is recommended and later cleaned with water. Bricks are good building material for long life, low maintains, high comfort factor for buildings because of their high heat capacities which ultimately means lower energy costs to heat and cool buildings. The fire proof with no sacrifices, aesthetics and with extensive variability in color and textures.

Raw material for structural clay products are cheap and in exhaustible and these condition s are not likely to change (it is quite possible that suitable clay deposits are forming on the earth as they are being used by this industry).

In technical changes, coal then gases and fuel oil is in use and electric energy is inevitable for drying & banking bricks. There will be automation and improvement in quality.

Research of the future; improve quality, productivity and lower construction costs.

Lack of research is due to lack of wealth since small enterprises doing it, conservatism therefore resists change and innovations, no governmental activities. These are true in USA too. Small enterprises should unite merge to solve the problems in this field. Compatibility of baked phases to reduce micro cracks, improved face brick design to simplify wall construction, production of low cost partition and foundation bricks research recommended are still in developed country like USA.

b. Measurements of bricks and joints

Auroid Bailley and David Hancock in their book Brickwork and associated studies 2nd edition writes.

“A brick is defined as a walling unit not exceeding 337.5mm in length of a brick to equal twice the width plus one joint and three times the height plus two joints”.

c. Qualities of bricks

Auroid Bacley and David Hanock points out following requirement for a brick.

1. Brick should be well
2. Have good arises
3. Have an even colour: all bricks simultaneously needed.
4. Be easily cut
5. Have regular size
6. Have no time blows
7. Be salt free
8. Be unmarked (due rough handling)
9. Have adequate strength and density below D.P.C need to be dense and well burnt, for manhole construction should preferably be class B engineering & for brick on edge coping a smooth engineering is too preferred. Well burnt brick gives clear ringing sound when stuck with a trowel.

d. Classification of bricks

They also write about numerous methods by which are classified for example

Classification

a) Place of origin

- i) Leicester
- ii) Accrington
- iii) Staffordshire blues
- iv) London stocks

b) Methods of manufacture

- i) Handmade
- ii) Wire cut
- iii) Pressed

c) Uses

- i) Common
- ii) Facing
- iii) Engineering

d) Color

- i) Blue
- ii) Red
- iii) Buffs

Colour bricks should not have holes but may have frogs or cavities not exceeding 20% of the gross volume of the brick.

Everett in his book Mitchell's material has classified bricks in the following way.

I. Classification by variety

Common: For general building work having no special claims to attractive appearance.

Facing: specially made or selected to give an attractive appearance without surface treatment such as rendering ordinary or special quality.

Engineering: Having a dense vitreous and specified strength and absorption is special quality.

II. Classification by quality

1. Internal : suitable only for internal use. Frost resistance is such that the bricks may require protection if exposed during one winter.

2. Ordinary : Normally durable in external faces of building.

3. Special : Durable in severe exposures where they are liable to be wet and frozen e.g. retaining walls.

III. Classification by type

1. Solid brick: Solid brick should not have holes, cavities or depressions, a cavity being a hole closed at one end.

2. Cellular brick: Cellular bricks should not have holes but may have frogs or cavities not exceeding 20% of the gross volume of the brick.

3. Frogged bricks: Frogged bricks should have depressions in one or more both faces but their total volume should not exceed 20% of the gross volume of the brick.

4. Perforated brick: Perforated bricks should have holes but not exceeding 25% of the gross volume of the brick and the area of one hole should not exceed 10% of gross area of the brick.

1. Hollow : Hollow bricks have larger holes than above, passing through.
2. Special shape: Special shapes bricks are bricks other than rectangular prisms.
3. Standard specials ; Special shapes which are in general use and may be held in stock e.g bats closers, squints, bullnoses, coping bricks.

He also writes bricks are made in 4 materials

1. Clay bricks (burnt bricks)
2. Calcium silicate
3. Dense concrete
4. High weight concrete

e. Clay bricks

Clay bricks can be defined as an earth which forms sticky coherent mass when mixed with water. Clay is plastic and readily moldable when damp but if dried it becomes hard and brittle and will retain its shape. When it is heated to high temperature it becomes even harder, is no longer susceptible to the action of water by no known process can its plasticity be restored.

The chief constituents of clay are silica (60%) and alumina (20%) (average figures), in addition to which there are smaller proportions of non oxide, magnesia, lime etc. silica(sand) produces hardness, resistance to heat, durability and prevents shrinkage, cracking and warping but excess to this constituent makes a brick brittle and porous . Alumina gives the plasticity which is necessary for proper molding, but this shrinks and warps and becomes extremely hard when

burnt. From these two qualities it will be obvious that the chemical constituents of the clay will have a profound affect on the type of brick produced. Where the clay has an excess of either of these constituents it may be necessary to blend with clay from other district.

f. Tests

1. Comprehance for dimensions
2. Compressive strength test
3. Efflorescence test
4. Soluble salts test
5. Water absorption test.

As cement did not make beautiful buildings, facing of brick, tile and stone were applied.

Basic principles of mineralogy are extremely important in the production of high quality clay products.

Nepal National Building code says the brick should be of a standard rectangular shape, burnt red, hand formed or machine made and of crushing strength not less than 3.5 N/mm² .The higher the density and strength, the better they will be. The standard brick size of 240*115*57 (mm) with 10 mm thick horizontal and vertical mortar joints is preferable. Tolerances of -10 mm on length,-5 mm on width and ± 3 mm on thickness shall be acceptable for the purpose of thick walls in this market.

Brick is produced from Oct. to April (seasonal production) since the producer has to pay less rent for land (i.e. wheat crops and remaining period land lords could use this land for rice crops) and to avoid less damages in rainy season.

Mr.Kimbell, in his book, “Principles of Industrial Organization”, (6th edition) writes "the most advantageous location for brick production is that at which the

cost of gathering materials and fabricating it plus the cost of distributing the finished products to the customer will be minimum".

Location governing factors are

1. Availability of fuel
2. Availability of raw material
3. Availability of cheap labour
4. Nearness to market for products

Mr. Brownell in his book structural clay product classified bricks as following.

A. Facing

1. Extruded stiff mud process
 - a) Solid plain textures or glazed
 - b) Cored plain textured or glazed
 - c) Panel plain textured or glazed

2. Sand molded soft mud process

- a) Sand textured
- b) Glazed over sanded surface

3. Dry pressed

4. Height weight

B. Common

C. Paving

Each of these general types of bricks requires special properties suitable to their intended use and has different price.

In Nepal, sand molded bricks made by the soft mud process are formed in damp wooden molds lined with sand to prevent stitching of the clay.

Soil should contain 35% clay for extrusion bricks .50 to 40% clay for sold mud bricks, more than 50% clay results to excessive shrinkage.

For better looks of bricks, some additional materials are used. Like there is no mould release problem in sanding a different column, grits with a narrow particle size range can be employed for special effects to add a flux to sand in order to promote adherence. Bricks are scratched/ embossed for esthetic effects and strong plaster (mortar) banding.

Different brick making technologies are in use in Kathmandu valley. These vary from the simple inter-mittens type manual operations, which use age- old clamp kiln (Thado Bhatta), to continuous type Bulls trench Kilns (Chimney Bhatta) and semi mechanized Hoffmann kilns. Clamp Kilns are less fuel efficient field kilns and bricks product from these kilns are poor quality Bulls French kilns do not require permanent construction, hence they are set up on leased agricultural land. The entire brick making process from soil excavation to brick burning is manual and are done in rented land. Most of the kilns in Kathmandu Valley are bull's trench. Few semi mechanized Hoffmann kilns with cleaner production process and quality bricks, are in operation in valley. They use combined extrusion machines fro brick making. Bricks are baked in kilns built a permanent shades with fired chimneys. Though Hoffman emission, the initial capital investment which make bricks expensive due to high share of capital in the overall production cost make these klin and other latest modern western technologies less attractive to entrepreneurs.

Besides coal, basic fuel types include fuel wood, saw dust and rice husk are used. Nepalese labourers do the unskilled job such as clay digging, moulding and transportation to and from the kiln. Skilled labourers from India do jobs such as kiln firing and feeding fuel which affect the quality of bricks.

The fugitive and stack emissions from these kilns have been of great environmental concern. To achieve a sustainable health air quality both stack and fugitive emission have to be reduced by improving the existing kilns, using cleaner fuels, adopting improved technologies and retro fitting pollution control units.

g. Brick Manufacturing process

Brick manufacturing process can be broadly divided into two parts:-.

Brick making: This includes brick making methods- starting from clay digging to drying of bricks.

Brick firing: This refers to type of kilns and the technology used for brick firing.

1. Brick making

Manual method and use of machines are both adopted for clay winning, preparation, moulding , and drying in the valley. Clamp and Bulls Trench Kilns are manual bricks making method, where as Hoffmann Kiln use combined extrusion machines.

2. Manual Brick Making

i) Clay winning

A spade (Kodali in Nepali vernacular) is used to dig the fire able soil. Digging is usually done to a depth of about 5 feet, because brick making is seasonal work and after each season after the soil excavation, the land is to be leveled and returned to farmers for agriculture use.

ii) Clay preparation:

This includes sorting, wetting and damping the soil. Sorting is done by pinching out roots, stones and other foreign particles. The clay is wetted in a puddle dug near the working area. This process known as tempering allows chemical and physical changes to take place, improving the molding characteristics. Manual winning is done by treating with bear feet. Mechanical equipment driven by animal and machines such as the pug mills are not in use in the valley.

iii) Molding

Simple wooden mould is used in hand- molding method. The clay is formed into the clot, thrown into the mould using both hands and excess of clay is cut off.

3. Machine Bricks making

Hoffmann kilns use combined bricks extrusion machine to extrude clay through dried to form a clay column, which is wire cut into brick sized pieces. Bulls Trench Kiln in Kathmandu Brick Factory at Siddhipur in Lalitpur is using combined brick extrusion machine for brick making and these machine produce denser and stronger bricks.

4. Brick firing

In Kathmandu valley intermittent type clamp kiln and continuous type Bulls Trench and Hoffmann kilns are in operation.

Clamp kiln; clamp kiln is Thado Bhatta in Nepali vernacular. These kilns are basically a pile of bricks interspersed with combustible fuels (e.g. crushed coal, rice husk, cow dung etc) .The structure of kiln is arranged with alternative layers of fuel and green bricks. The usually rectangular firing clamp has some holes at the bottom from where the fire is lit. The size of clamp varies according to the bricks to be burnt, but the height varies from 3-5 meter. After the kiln is created, the outer later of the kiln are plastered with mud to trap fuel gases. Finally, the bottom holes are closed after the fire is lit and the fire allowed burning the bricks which take about 12 days to a few weeks. Like wise, bricks are left for few days to

cool. The advantages of the kiln are its adaptability to bake bricks of all shapes and sizes, low level of skills required and low capital investment. The disadvantages are the burning process is very slow; there is no control on the kiln , quality of bricks produced is not uniform, with higher percentage of over baked and under baked bricks.

2.2.2 Type of kiln

- i) Hoffman kiln
- ii) Bull's Trench kiln

i) Hoffman Kiln

Hoffman kilns in the Kathmandu Valley are oval with chambers for setting up and removing bricks. In this kiln, combustion air is preheated by cooling bricks in some chambers and passes through firing zone. From which the exhaust gases preheat the green bricks. The cool bricks are removed from one side of the top through holes in permanent arched roof. The advantages of these kilns are, supply of bricks is continuous and regular, preheating is done by hot gases before they escape into the atmosphere and considerably reduce fuel consumption and stack emission likewise bricks are baked evenly and the quality of bricks are good, the height of chimney control particulates and fuel gases. The only disadvantage is the higher capital investment. These kilns use seasoned clay. Brick produces in these kilns are of bright colour, smooth surface, and are used as wall material, without rendering.

ii) Bull's Trench Kiln

The Bulls trench kilns operate on the principle of Hoffman Kiln, except that the expensive ached roof and dampers for drought control are omitted and the exhaust gases are drawn through about 16 meter high movable chimneys with a wide base. The movable sheet metal chimney mouth fill over the open able vent holes set in the brick and ash and rubble cover the top of the kiln. 12-15 persons move the chimney and at stationary, these are supported by steel and wire rope guys. In these kilns reuse of heat is achieved by drawing exhaust combustion gases from

being fired through to successive batches of bricks waiting burning. Draught is achieved by a pair of chimneys positioned ahead of fire, which sucks in the kiln gases from the entry point through fire and forward through the bricks. The cooled bricks are removed and green bricks set up in the kiln while brick firing is also in progress. The fuel generally a mixture of crushed coal and saw dust, is fed through the hole on the top. These kilns are of oval type. A trench is dug in and the walls constructed at dry elevated area and its size in the valley ranges between 23-32 feet wide and 6.5-7.5 feet deep. The production capacity of a kiln is directly dependent on cross sectioned area of the trench. Low capital investment compared to higher profits due to the technology which does not require machines and permanent structures, use of labour intensive brick making and firing process are the reasons for the operation of large number of these kilns.

2.2.3 Vertical Shaft Brick Kiln(VSBK) Technology in Nepal

In many ways, the re-introduction of VSBK technology in Nepal in late 2002 / early 2003 is an extension of the successful SDC funded India Brick Project in India. Here in Nepal, the project is known as the VSBK Programme (Nepal) and involves many of the same developmental partners that were involved in the IBP (India Brick Project) in India. That is the technology providers for VSBK Programme (Nepal) are Development Alternatives (DA) from India, and skat_consulting which was the same in India.

Before the actual construction of the VSBKs, VSBK Programme (Nepal) carried out extensive research and analysis and also performed awareness seminars. Potential entrepreneurs were also taken to India to visit the various sites to see for themselves how this technology was working and if it was suitable for them. Based on these initiatives, two entrepreneurs took the initiative to build these “pilot” VSBKs in Nepal. All the design enhancements performed during the IBP have been incorporated in these two pilot kilns and are being closely monitored for performance issues by the technical experts of VSBK Programme (Nepal). In addition, some additional modifications / enhancements have been made in the construction to suit local conditions of soil and practices for Nepalese (Kathmandu valley) conditions.

SDC, in particular their VSBK Programme (Nepal) has entrusted IEM to conduct energy and environmental monitoring of 2 Demo Vertical Shaft Brick Kilns in Nepal under the contract between VSBK Programme (Nepal) – Skat Consulting & IEM (Institute of Environmental Management, Fall no. 10239 VSBK Nepal) until end of December 2004. VSBK is about 6,500 bricks per day per shaft and it can operate throughout the year depending upon the availability of green bricks. There are two pioneer VSBKs installed during the first phase of VSBK Program Nepal are W Brick and RK Brick. W Brick is owned by Mr. Chandra Maharjan and RK Brick is owned by Mr. Ram Kaji Awale in Immadole at Lalitpur.

a. Main Advantages of VSBK Technology

1. High energy efficiency
2. Less polluting emissions
3. Better quality bricks compared to clamps
4. Occupies less space - low land requirement
5. Can work throughout the year subject to
6. Availability of green bricks and market
7. Minimal maintenance requirements
8. Flexibility in volume of production
9. Highly suitable where part of fuel is traditionally
10. mixed with clay
11. Construction and Operation easy to learn

b. Benefits to Entrepreneur Through VSBK

VSBK is a vehicle for change; wherever it passes across, brings change, be it social, economical or environmental. A brick entrepreneur who own VSBK is by default much admired for bringing positive change in the society.

Brick kiln owner is a prominent member of the society; who not only provides job to the thousands of semiskilled and unskilled workers coming from rural hills but also contributes in nation building by fulfilling huge demand of bricks--a major building material. In this voyage, brick entrepreneur takes plenty of risks such as

giving million of money to the workers in advance without any security, loosing thousands of green bricks due to unpredictable rain and so on. Despite the risky business and his/her risk taking ability, general perception of community towards brick entrepreneurs is different compare to other corporate personality. Brick entrepreneurs are perceived as the one who earns money by deteriorating air, soil and vegetation. They are considered as short-term profit oriented dirty people without having corporate culture and business know-how in this modern era of globalization. Although a brick entrepreneur has a vision of globalization and has potential to compete in global market, they are not considered as a businessman rather called a “Bhatta wala” (a brick kiln owner in a hatred way). Some of the brick entrepreneurs are exporting bricks outside the country with a lots of struggle to get their corporate identity in the brick industry in Nepal.

In the brick-making journey, VSBK technology is different than other traditional and non-traditional brick making technology. An entrepreneur is benefited economically as well as socially when he or she owns a VSBK.

The entire working principle in this technology is different. The kiln requires less land for construction, and saves energy by 40% that obviously benefits the entrepreneurs in monetary terms. Country like Nepal where coal comes from its neighboring country, India, benefits more by energy saving potential of the VSBK.

The VSBK can be operated through-out a year requiring permanent employees, which solves problems of hunting of seasonal workers and risking huge amount of money in the name of advance. An entrepreneur can happily employ his or her workforce throughout the year without any sense of uncertainty.

VSBK is a closed structure and it requires sheds to store green bricks. As a consequence, green bricks are protected from unpredictable rain minimising loss of money. Environment friendliness is one of the valuable aspects of a VSBK. It not only provides good working conditions for the workers but also provides cleaner air for the society, by virtue of which, an entrepreneur is expected to get high social respect.

c. Benefits for Brick Workers Through VSBK

Brick industries in Nepal are one of the largest employment generating industries. Most of the workers are unskilled or semi-skilled seasonal migrants. The worker in the kiln lives a dismal life lacking basic facilities such as proper housing, clean drinking water facilities, sanitation etc. Health and safety risk in the workplace is high. But the environmental issue of the brick industry has always overshadowed these social issues.

The change in technology also brings change in social relationships. Upward living situations, material as well as social, can be seen as a bi-product of industrialization and modernization. This is somehow demonstrated in the process of industrialization as seen in many western countries. It cannot be understood as a simple change and improvement of techniques and technologies. It must be seen as a process, in which technology, lifestyle and social relations came to a complete change. Operation of industrial systems was and is not possible without new skills, which leads to an increased demand for higher skills but also a higher sense of mutual dependency and responsibility. Similarly, the new context in VSBK industry demands new and higher interdependency between workers and employers.

2.2.4 Brick Quality

In Bulls trench kilns about 60-65% of bricks is first grade, 20% are second grade, 15% low grades and about 5% wastes (under fired, over fired and broken). Bricks sold in Kathmandu valley are not graded. All grades are mixed and sold in the market at the same price. Such practice is prevalent due to lack of knowledge of grade and minimum standard of bricks to buyers. In the building construction supervised by engineer, brick standard and grades are taken into consideration.

2.2.5 Colour of fired bricks

Red coloured bricks are generally preferred in Nepal & India. However, by altering the composition of the clay mix and kiln atmosphere it is possible to attain a wide

variety of colours in fired product. In almost all instances, the colour of fired bricks may be attributed to the presence of iron compounds in clay. Iron produces different colouration, depending mainly on its state of oxidation. In oxidant atmosphere (which is generally the case), non minerals are converted into ferric oxide by the beginning of the verifications period. The colour of ferric oxide is temperature is increased darker reds are produced until the colour is almost black at around 1300C.

2.2.6 Promoting bricks

As mentioned earlier, marketing awareness is low in Nepal and its worse in brick sector. Most consumers have to go searching for brick factories, depot agencies or ask friends and relatives to find out about its location.

Recently, from last few months it has been seen that brick dealers are sponsoring traffic signal board, it is really very new. In the name of advertisement, we see name of the product and phone number written on brick carrying vehicles or see bone number on yellow page at free listing. Negligible contractor and mason are appointed as personal sellers. Publicity and goodwill has been only effective promotional tool. Transportation communication systems, storage, product processing are marketing infrastructure. These infrastructures can also be good promoter of brick industry itself.

2.2.7 Place: Distribution and Transportation

Consumers are mostly complaining about late delivery and waste of time of their labour and mason. People have to go searching for bricks and its proper service. Depot agencies are helping to overcome those problems. We also find some customers from outside valley like Pokhara, Tanahu district, Narayan Ghat, Chitwan therefore, we could establish some counter over there. Due to traffic police rule inside the city it takes at least a day for brick delivery because goods carrying vehicle are not allowed at day time. This problem could be discussed with

the government authorities and solved. May be smaller, covered vehicle could be used at day time. In 1982, 75% of brick produced in Bhaktapur Chimney brick industry was consumed by Kathmandu district. Bhaktapur people just consumed 10% rest used Thada Bhatta brick. Then factories could not fulfill the demand of the consumer. The customer have to wait for even $\frac{3}{4}$ months after depositing money in advance to get the delivery order of brick. Only market channel was directly through customer contacting producers.

2.2.8 Pricing Policy of Public Enterprises in Nepal : A case Study of Harisiddhi Brick & Title Factory Ltd.

HBTF was a wholly government owned company for a period till 1991, as a consequence of the economic liberalization policy adopted by the government, this factory was privatized in the year 1992. Upon acquisition of the largest government owned enterprise HBTF has now become a public limited liability company, listed and traded in the Nepal Stock Exchange. The company is the oldest and largest, technically advanced Brick Factory in Nepal making machine made exposed Bricks & Tiles from the seasoned clay since 1970. The factory occupies 50 acres of land and a manpower of 700 with the annual production capacity of 80 million bricks and 3 million tiles. For more than three decades HBTF's products has been synonymous with quality. From Residential Buildings, international Airport Building, to the Diplomatic Missions and Educational Institutions to Hotels and Hospital Buildings, HARISIDDHI is the brand that stands for quality and reliability.

" It seems that market price of bricks in the private sector has been the guiding motive was felt that the size of the factory's (Harisiddhi's) bricks was comparatively bigger and smoother than of other bricks available in the market, hence the price of the bricks was recommended at "level higher than that of completing bricks (local bricks of private sector)" There is no separate pricing unit in the factory.' Even chartered accountant was hired later but price was never market

based as earlier nor appropriately cost analyzed. And may be of the factory (public enterprises) was the reason. The factory is doing a good job.

Regarding demand and market study, the factory has never felt it necessary to study the short term and long demand for its product, since it was never able to meet the demand. This research has shown 20% to 25% of the annual sales revenue was advance deposited from consumer then. This research finds out NG has felt out necessary to have another factory in Bhaktapur. Researcher commends to have detailed demand and market study to determine the long term objectives and pricing, production policies. In such a study, if under taken separately BTF should have: Estimates of market demand elasticity's (price income and cross) for the whole industry and a also for the part (own products) including survey finding on private sector operations and recommendation.

This research has also checked in relation to price increment. Research also found local bricks indicates that are smaller and consumes more cement," The concept of scientific full fledged cost accounting and management accountancy system is singly non existent in BTF(brick and tile factories.)

Suggested strategy

The price of brick and tiles should be established in accordance with the cost plus pricing principle and utmost effort should be made to resume the stability of price through internal subsidization, coordination with proposed factory at Bhaktapur and by restoring a balance in the scale of efficiency. The opportunity cost of capital should be taken as guiding principle in the determination of mark up, which by an analysis , comes to 7 ½% only on bricks. All the necessary reserves could be provided out of revenue form tiles. To sum up the most important strategy would be one where by there is optimum brick and roof tile production, with emphasis on cost control.

2.2.9 Brick making industry in Bhaktapur

Price

Price fluctuation is owing to changing wage and cost of fuel (inter year fluctuation, here in this research is concentrating on intra year fluctuation). Transportation Communication Systems, Storage Product Processing are marketing infrastructures. Then 75% market of the chimney Bhatta in Bhaktapur district was Kathmandu district, local Bhaktapur people just consumed 10% rest used thado Bhatta bricks. Then factories could not fulfill the demand of the consumer, the customer had to wait for even $\frac{3}{4}$ months after depositing money in advance to get the delivery orders bricks. Only market channel was directly through customer contacting producers.

2.2.10 Demand and Supply

Every year three to five thousand construction works are started in Kathmandu Valley. Almost about all bricks 50 billion pieces of brick produced from about 136 factories are consumed every year. In Kathmandu valley in the year 2002 to 2004 A.D annual bricks production was 344.65 million pieces and in the year 2007-2008 A.D annual production was 350 million pieces by Clamp Kiln shown by survey of brick industry in the Kathmandu Valley. Almost all construction in Kathmandu valley consumes these bricks. Every year there is big price fluctuation. We hear one of the reasons for higher price is due to high demand but shortage of brick. This is true to some extent. About the beginning of the new production season most of the factories and depot are empty. But we never experienced brick absolutely out of stock. We get the brick with transform present brick firing technology to pollution less technologies. We found few new factories started illegally at present.

2.3 Review of Related Studies

A summary of the writing of recognized authorities and of previous research provides evidence that the researcher is familiar with what is already known and what is still unknown and untested. Since effective research is based upon past knowledge, this step helps to eliminate the duplication of what has been done and provides useful hypotheses and helpful suggestions for significant investigation

It is compulsory for a research worker writing a thesis for Master's /PhD degree to write a synopsis of the topic and submit it to the department. For this purpose, the abstracting and indexing journals and published or unpublished bibliographies are the first place to go to academic Journal conference proceedings, government reports, books etc. must be tapped depending on the nature of the problem.

The main reason for a full review of research in the past is know the outcomes of those investigations in areas where similar concepts and methodologies had been used successfully. Completely new and original problems are rare, however a previous study should not exactly replicated unless the techniques used facilitate to trace out the doubtful conclusions or some new sources of information had been discovered to shed light on the problem. The literature survey thus provides the researcher with the knowledge of the status of their field of research.

For the review of study we must visit the library where vast collection of books and a store house to knowledge . without proper knowledge of consulting library, the researcher must decide which subject are relevant to his problem. Usually in a statement of problem, two or three topics are named which are relevant to the subject.

While studying the brick marketing, it is felt necessary to review the research studies conducted in the field therefore, in this chapter an attempt is made to review the research works on marketing of bricks as follows:

1. " A case study on Introduction of Clean Brick Kilns in Kathmandu Valley" by Bhushan Tuladhar in 2003's main findings is environmental impacts of Brick kilns in Kathmandu valley.
2. " The Brick and The Bull" An Account of Handigaun, the ancient capital of Nepal by sudarshan raj Tiwari Himal Books, 2002 was conducted with the objective of analyzing the ancient qualities and types of bricks.
3. " A survey of brick industry in the Kathmandu valley" in 1993 by Mr. Sunil Thapa and Karki.
4. A study on " Assessment of the applicability of Indian cleaner process technology for small scale brick kiln industries of kathmandu valley" in 1996 by Nepal Environmental and Scientific Service (NESS).
5. Vertical Shaft brick Kiln Technology Transfer programme report of " Situational Analysis of workers in some Brick industries around Kathmandu Valley" by Development management Support Centre (DMC-Nepal) in 2003 studied about the importance of the brick factories in developing the country.
6. A thesis on "Marketing of Bricks" in 2009 by MS. Rajana Karanjit of Patan Multiple Campus, TU.
7. A thesis on " Marketing of Brick Industries " by Amrit Nepal of Himalayan Institute of Science and Technology(PU) in 2007.
8. A thesis on " Marketing of Vertical Shaft brick Kiln in Kathmandu " by Kiran Adhikari of K U in 2007.

9. A study of Brick Production In Thailand 2005 by Stephen Joseph , Bill McGarry, Boon road Sajjakulnukit and Orapin Sopchochai. The Study Indicated that the continued growth of the brick industry in Thailand is essential for the following reasons:
- to meet the increased housing needs in both rural and urban areas
 - to use the locally available resources in an environmentally sound manner .
 - to provide skilled work for women
 - to reduce thr need for imported building materials
 - to help promote local rural industries than can provide skilled employment.
10. Brickmaking in Developing Countries, 25-651.pdf, book, 88 pages by John Parry, Building Research Establishment United Kingdom, 1979, Dfl. 33.50 from TOOL.

A very well-presented discussion of the technologies and economics of brickmaking, this book especially examines the advantages of traditional producers over modern mechanized brick plants. Some of these apply to other labor-intensive vs. capital - intensive technologies as well. The traditional producers have low fixed costs and low total costs, and are able to vary output with market demand without affecting their economic viability. The major disadvantage of the traditional producer has tended to be variable brick quality the author explores simple tools and techniques that can overcome this problem..Current practices in a range of developing countries are reviewed, and the scope for improvement is identified in each case. Well-illustrated and well-written.

11. Selection of Materials for Burnt Clay Brick Manufacture, Technical Bulletin #7, 25-630.pdf, leaflet, 5 pages, by Papua New Guinea's Building Research Station, 1970, out of print in 1985.

"The purpose of this bulletin is to provide instruction in the preliminary identification of suitable materials for burnt clay products." Burnt clay bricks are made from clay, and then fired in a special oven (kiln). Simple

tests to determine whether a material is suitable for use in burnt bricks are described.

12. Philips and Duncan have defined Marketing as” Marketing includes all the activities necessary to place goods and services in the hand of consumer and industrial users, excluding only such activities as involve a significant change in the form of goods.”
13. Carl Dysinger has defined the concept as “Marketing is finding out what the consumer wants and selling it to him at a profit.”
14. The American Management Association has defined marketing as “ The process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfy individual and organizational goals.
15. William j. Stanton defines the market in his book ” Fundamentals of Marketing “ in a formula: A market= People with needs and/or want+ money to spend+ willingness to spend it”(Stanton 1964:72).

2.4 Review of Journals

1. Shrivastava, G.C, 1992: 229-233, has high lightened that the producer’s share was inversely related to the consumer’s process. He also pointed out that the shares of the producers and retailers were directly affected by the consumer’s prices.
2. Verma A.R. 1989 noted that an efficient maketing would guarantee a greater share to the producers in the price paid by the consumers on one hand and greater satisfaction to the consumer on the other.

3. Kulkarni K.R, 1989 and Hussain et al. 1996 indicated that long marketing channels are one of the reason for increased marketing costs and inefficiency in marketing.
4. Meno, Joe :Event Report: Brickcon 2009,The first weekend of October was once again the time for Brickcon, an Adult Fan of LEGO convention. Based in Seattle, Washington, this event has been running since 2002, making Brickcon the longest-running event in North America. This year, the event was the largest to date, with over 375 attendees and over 9300 guests during the weekend public hours.
5. Bricks Adventure 2010 had been started Jan. 27 to Feb. 12, 2010 in Hong Kong. The exhibition is accompanied by detailed descriptions of spotlighted creations. Bricks Creation gained international recognition in the early 2000s with diverse MOC (My Own Creation) and online groups, seen on forums and websites around the world where Brick Creators have shown the potential of Bricks creations. Since then, members of Legend Bricks started to create their own MOCs. Bricks Adventure provides diverse topics of MOC by Hong Kong Lego players and the concepts behind their creation.
6. David Szymanski, managing director of Hanson UK's building products division, said: "It's very energy efficient with gas as the main fuel for the kilns and our wastage - there's always some - is likely to be no more than 1%. It's also labour-efficient. With a capacity for 100m bricks a year, it's manned by just 28 people. Our old factory at Stewartby used 221 people to make the same number."
7. Richland Moulded Brick Co., a custom-brick-maker in Mansfield,The deal will retain 42 jobs and create 26, according to a press release from ProServices, a Marietta.

CHAPTER: 3

RESEARCH METHODOLOGY

3.1 Research Designs:

Research design is the systematic design collection analysis and reporting of data and findings relevant to a specific situation facing the company and industry.

It is planning of research programmed before it starts. It includes researching matter, when, why, where, how much and how research will be done kind of data, how, when, where will be collected how samples are collected, research time schedule, data analysis and reporting techniques etc. it helps the researcher to fulfill its objectives with in the available time and budget.

We know that marketing programmes starts from the product idea in mind and does not end until customer's wants are adequately satisfied. Learning more about customers and dealers and about marketing mix is the heart of research.

Hence, this research on brick marketing practices in Kathmandu valley what improvements; new marketing theories can be implemented to enhance brick marketing, which will help consumers get the kind of brick they want and produce as desired by consumers and easily get for their bricks. This research is basically exploratory in nature and at the end some conclusive remarks will be given on basis of conclusive research as well.

Mostly, data's are collected from consumers who will come to brick factories and depots to buy the bricks and some neighbors who are building their houses. Here, some data's are also be gathered, mostly primary some available secondary data's from producers and retailers (owners). Conclusion and recommendations will be made analyzing developed and distributed some interviews will be done and collected. Data's are collected in production season and unproduction season of the same year.

3.2 Population and Sample

In Kathmandu valley we have about 75 brick factories in Bhaktapur district, about 65 in Lalitpur and about 12 Kathmandu. About 150 depot agencies and every year about five to seven thousand construction were started in Kathmandu valley.

In this research population is all the brick consumers, all brick producers and brick dealers in valley. From all of there 50 consumers, 10 brick producers and 10 brick dealers all together 70 will be the sample size.

3.3 Sources of Data

There are some research regarding brick marketing in Kathmandu valley, very few studies are done about brick by engineering students on environment impact and efficiency of present kiln. Therefore my study is mainly based on primary data.

Primary Data

Primary data are collected through questionnaire which was distributed in factories, depots, to be filled by visiting customer and owner.

Secondary Data

Very few available secondary datas are in use in appropriate places gathered from Bhatta associations and websites.

Questionnaire

Structured and unstructured questions were prepared for the collection of data and distributed to producers, depots and consumers.

Observation

While collecting data and studying brick marketing direct observation was done.

3.4 Analysis Techniques

In order to accomplish the objective of study various tools (graphs, diagrams, pie chart) have been properly tabulated, compared, analyzed and interpreted.

Statistical tools

To draw the conclusion by analyzing the collected data simple statistical tool like multiple bar diagram, pie-chart are used to explicit the comparative results.

Multiple Bar-diagrams and graphs

Diagrams and graphs are visual aids which give a bird's eye view of a set of numerical data which show the information in a way that enables us to make comparison between two or more than two sets of data. Diagrams are in different types. Out of these various types of diagram one of the most important form of diagrammatic presentation of data is multiple bar diagram which is used in cases where multiple characteristics of the same set of data have to be presented in compared.

Pie- diagram

A pie-diagram is a widely used aid that is generally used for diagrammatic presentation of the values differing widely in magnitude. In this method all the given data are converted into 360 degree as the angle of a circle is 360 degree and all components of the data are presented in terms of angles that total 360 degree for one set of data.

Percentage

Percentage is one of the most useful tools for the comparison of two quantities or variables. Simply, the word percentage means per hundred. In other words, the fraction with 100 as its denominator is known as a percentage and the numerator of this fraction is known as rate of percentage. This tool also has been used here.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

4 Introduction

Brick is refined modified building blocks. Therefore, it should be convenient building material. Millions years ago our ancestors lived in caves, then they learned to build huts using stones, rocks etc. As agricultural age started they learnt the use of soil. They learned that soil mixed with water can be formed into any size and as it dried it hardens and strengthens. So they invented uniform size of sun dried mud bricks. We have proof of five, six thousand year old dried mud bricks in Iraq, Pakistan etc. We could still see some of the houses built with dried mud brick even side by side in Kathmandu valley.

If the soil is good, then something unfired bricks become stronger than fired bricks of bad soil. Kathmandu has a good soil, so bricks in valley are stronger.

When human beings learned that fired bricks are stronger, water resistant, they also give a good reddish colour to it to make it attractive and strong.

As the changing of time brick producing technologies changed on. Developed countries are using almost 100% pollution free technologies like gas chamber, electric cooking without firing technologies etc. But still today in our country due to lack of proper technologies brick factories used traditional method bulls trech.

Due to the lack of awareness most of the producer in Kathmandu are not able to produce appropriate brick as desired by consumer nor consumers are able to select and demand what they need.

Here we can realize the importance of the consumer in product design. Marketing deals with identifying and meeting human and social needs. It is demand management. It is meeting of customer needs to achieve organizational goals. Over

here in the study it has been tried to promote brick marketing concept and importance of consumer in it. Here I tried to point out.

Table 4.1
Buying purpose of local brick

Purpose	Response	Percentage
Personal use	29	72.5%
Contract work	11	27.5%
Total	40	100%

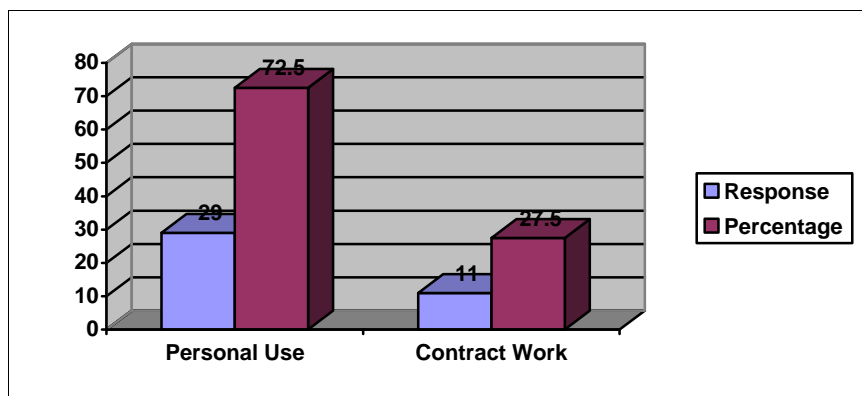
Source: Field Survey-2010

Different types of buyers according their buying purpose are found in the market. Some buyers buy goods to fulfill the personal use while other to complete their contract.

Here it will be necessary to mention that all the questions were not responded by the respondent. Different numbers of responses to different questionnaires.

Above table shows consumer going to brick factories or depot agencies for buying purpose of local brick. Among them 72.5% of the respondent were agreed that they gone to buy for personal use and only 27.5% responded in favor of contact work. The data can be presented in the following figure.

Figure -4.1
Buying purpose of local brick



4.2 Brick as only alternative for construction

If we turn our history from our ancestors period soil brick (without fired) was used to construct small hut to save their life from wild animals, enemies etc. As agricultural age started they learnt the use of soil. Then, they slowly leaned fired bricks are stronger water resistant, gives a good colour. And till today it has been used.

Table 4.2
Brick as only alternative for construction

Reason	Response	Percentage
Cheap	4	10%
Stronger	6	15%
Everybody use it	26	65%
Don't know other alternatives	4	10%
Others	-	
Total	40	100%

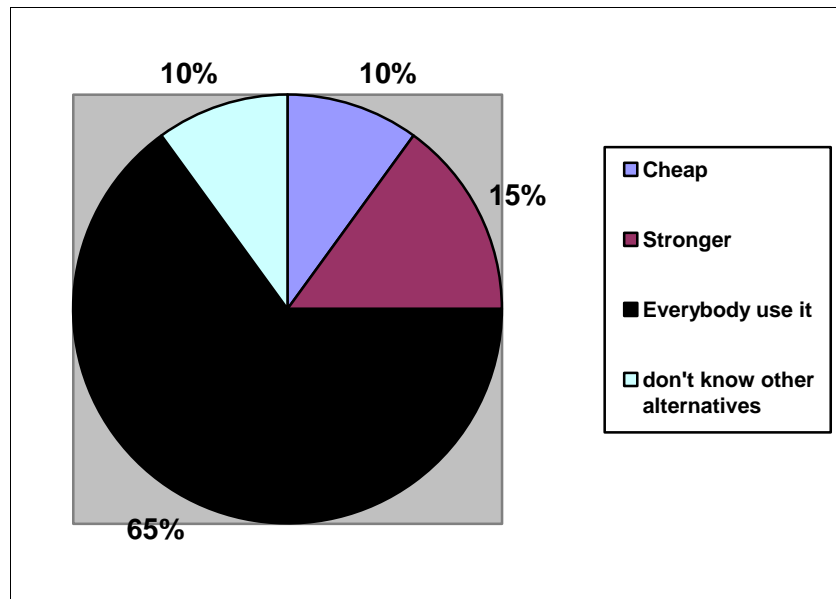
Source: Field Survey-2010

The above table shows that among 40 responses most of them 65% have responded for local brick because everybody uses it. Then 15% responded they used due to its strong ness and 4% said they don't know other alternative or alternative that can replace brick with equal satisfaction and due to it cheapness than other Chinese brick and easily available, they used it frequently.

Since the period of our forefather brick is only one alternative for the construction of shelter. Having no other alternatives and the main cause of using it by everybody building purpose many consumers prefer the same. The above data is presented in the following figure.

Figure- 4.2

Brick as only alternative for construction



4.3 Local brick against Chinese Brick

From the very beginning of the human civilization place of living has been one of its essential needs. Brick has been most commonly used as construction material. Discovery of brick was found about five thousand years ago in Iraq, Pakistan etc. First they used sun dried brick later they learn to produce brick by baking clay.

In Nepal we can trace or get information about the manufacturing of brick was started before two thousand years which was mentioned in our historical monuments.

In Kathmandu valley usually Chinese brick or local bricks are used for construction purpose. Chinese bricks are especially used for facing purpose. From the collection data following information is received. The above data is presented in the following figure

Table 4.3

Local brick against Chinese brick

Reason	Response	Percentage
Easily available	10	25%
Stronger with plaster	15	37.5%
Due to cheapness	14	35%
Can be coloured	1	2.5%
If any other	-	
Total	40	100%

Source: Field Survey-2010

Especially in the brick market of Nepal two kinds of bricks are found. They are Chinese brick and local brick. If we compare, there many consumers are found who choose local brick against Chinese brick due to its cheapness and it is stronger with plaster. Chinese bricks are too much costly on one hand, and it cannot be plastered.

Above table shows most people 37.5% choose local bricks against Chinese brick for its strength with cement plaster 35% have chosen local brick for its cheapness than Chinese brick. About 25% have chosen local brick for its easy access and only 2.5% preferred local brick because it can be coloured as they like to decorate their home after covering local brick wall with cement plaster. The above data is presented in the following figure.

Figure 4.3

Local brick against Chinese brick

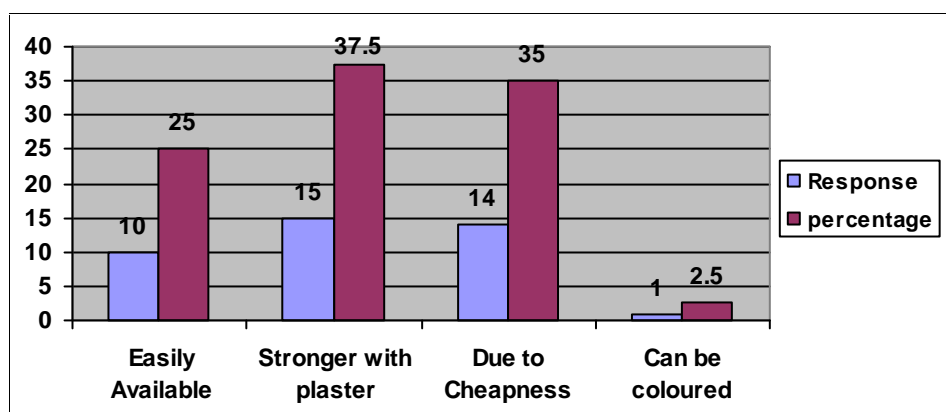


Table 4.4

Suggestions on improvement in local brick.

Aspect	Response	Percentage
Improvement in quality	30	75%
Lower breakage	4	10%
Improvement in finishing	5	12.5%
Exact quantity delivery	1	2.5%
Total	40	100%

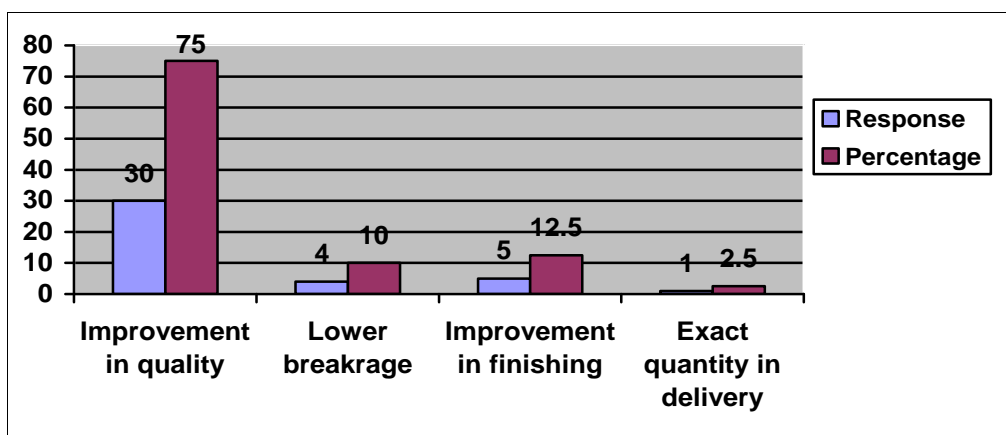
Source: Field Survey-2010

The above table shows clearly about the suggestions of consumers on improvement in local brick. We can take local bricks as basic requirements/needs of construction. Without it work of construction .without it work of construction is remained as a dream only. So, improvement on its quality, finishing, breakage and delivery must be cared by producer.

Consumer always want good quality of brick (reddish in colour, strong, good finishing) etc. consumers are the best advertiser who advertise the bricks of produces to their relatives, friends, neighbours etc. The above data is presented in the following figure.

.Figure- 4.4

Suggestions on improvement in local brick.



Above table and figure 4.4 shows improvement is mostly needed in quality i.e well cooked reddish in colour, 75% have complained about those then 12.5% have complained regarding bad finishing, 10% have complained about more of broken bricks which are delivered mixed with brick. About 2.5% consumers have complained about cheating on quantity number of bricks delivered to them

4.5 Price fluctuation

After a detailed study about brick in valley a very surprising fact is found in brick price fluctuation. About 50% price differences is recorded in the same year and which make everyone curious about it.

Every year production season started in around Mangsir. Since this period brick prices decrease and goes minimum around Falgun. From Baisakh price starts increasing and price doubles up to Bhadra. And then again price start decreasing around Mangsir and this cycle is in going on. Price is an important element of marketing mix. It is the major determinant of customer choice. It is the only marketing mix of element that produces revenue. It helps to determine the profit and loss.

After the interviews with consumers about the awareness of price fluctuation the following information acquired.

Table 4.5 (i)
Awareness of price fluctuation from consumer.

Price fluctuation	Response	Percentage
Aware	32	80%
Unknown	8	20%
Total	40	100%

Source: Field Survey-2010

Table shows that only 8 consumers are unaware of price fluctuation and 32 are aware on it and frustrated as people have to buy it in high price due to their helplessness position. They don't have other alternative to fulfill their urgent need. Usually, people build a house which will take long time to complete. Some that kind of consumers are also found who are shifted to Chinese bricks due to high price of the local bricks. The above data is presented in the following figure.

Figure-4.5 (i)

Awareness of price fluctuation from consumer.

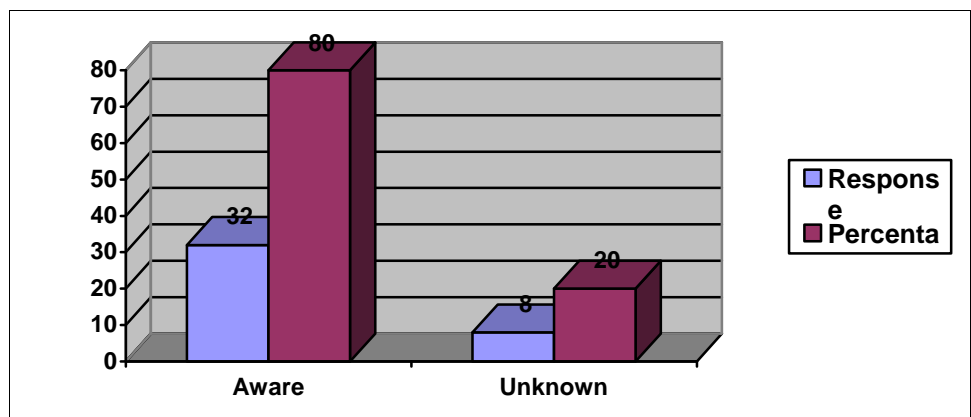


Table 4.5 (ii)

Buyer at high price

Buyers	Response	Percentage
Yes	23	62.16%
No	14	37.84%
Total	37	100%

Source: Field Survey-2010

During the study about brick in valley two types of buyers are found. Some are ready to pay high price to local bricks to continue their work without any disturbance and some are not ready to pay who left their work and wait till the price decrease.

Above table shows that 62.16% consumers are buying or ready to buy local brick in high price due to the emergency and due to many other reasons and 37.84% are not ready and wait for decreasing the price of local bricks. The above data is presented in the following figure.

Figure 4.5 (ii)
Buyer at high price

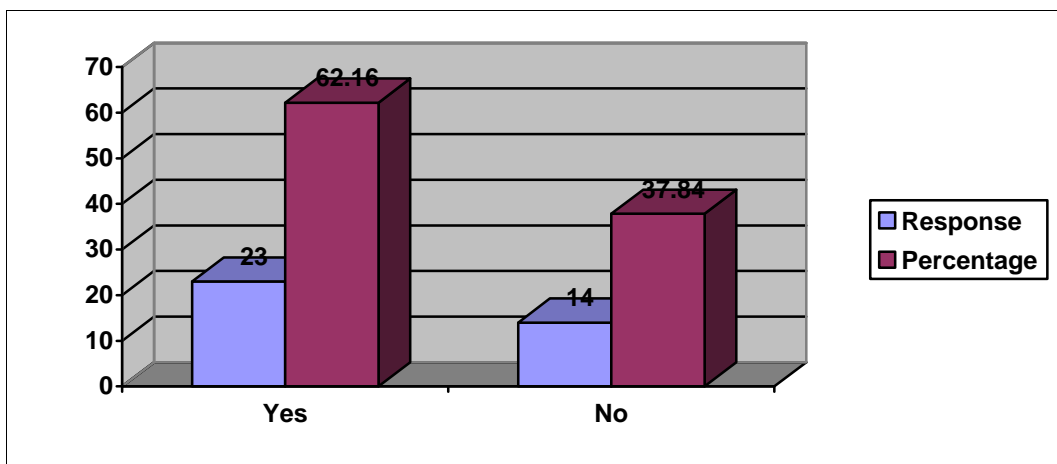


Table 4.5 (iii)
Reasons for buying in high price season

Reason	Response	Percentage
Helplessness	27	67.5%
Good construction season	6	15%
Unknown to fluctuation	7	17.5%
Total	40	100%

Source: Field Survey-2010

Above table shows 67.5% people buy in high price due to helplessness they don't have other alternative because of their urgent need, 15% buy in this season because they have urgent need, as well as they think this season is the best for construction work. 17.5% buys it because they are ignorant to price fluctuation. Some consumers are also shifted to Chinese bricks due to high price. The above data is presented in the following figure.

Figure- 4.5 (iii)

Reasons for buying in high price season

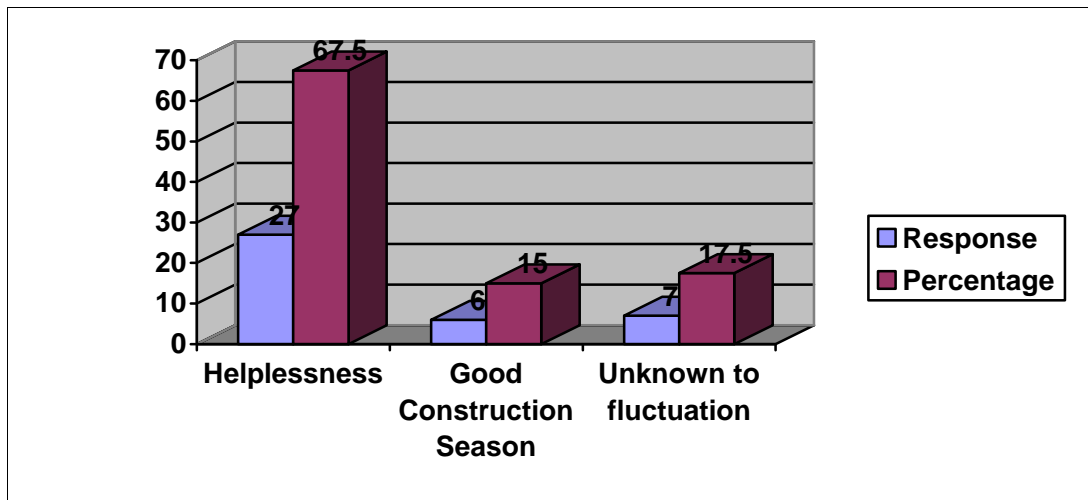


Table 4.5(iv)

Bargaining Acceptance

Acceptance bargains	Response	Percentage
Yes	34	94.4%
No	2	3.6%
Total	36	100%

Source: Field Survey-2010

While buying the goods and materials consumers start to bargain. Some bargains are accepted by producers or sellers and provided it. In this competition world to sell the product in market bargains are accepted by producers and seller.

According to the consumers they start to bargain on goods to received goods on reasonable price and also they really don't want to cheated them from seller. And some such kinds of consumers are also found who never bargain on price and pay the price of goods.

Table shows 94.4% consumers could bargain on the price of local brick and only 5.56% have found who paid fixed price. The above data is presented in the following figure

Figure- 4.5(iv)

Bargaining Acceptance

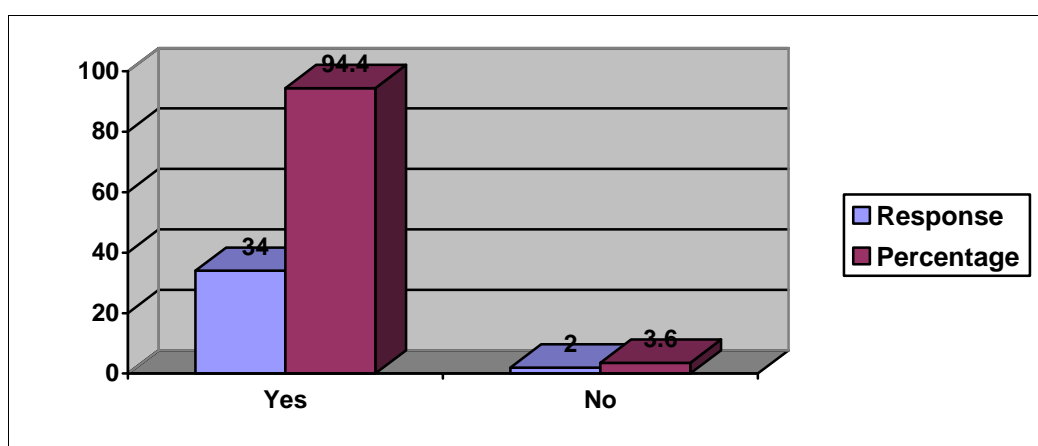


Table 4.5(v)

Bargaining range

Range per 1000 pieces in rupees	Response	Percentage
Rs 50/1000 pieces	28	70%
Rs 50/100 pieces	-	-
More than Rs 100 to 1000 pieces	12	30%
Total	40	100%

Source: Field Survey-2010

Consumers asked to bargain Rs 50,100 and more than Rs 100 on per 1000 bricks. Consumer really want bargain to save the money which they can use on other building raw materials and also to make themselves safe from producer by getting bricks on reasonable price.

Above table shows while buying bricks 70% have bargained Rs 50 per 1000 pieces of local bricks 30% could bargain up to Rs 100 per 1000 pieces due to their closeness and being relative. The above data is presented in the following figure.

Figure- 4.5(v)

Bargaining range

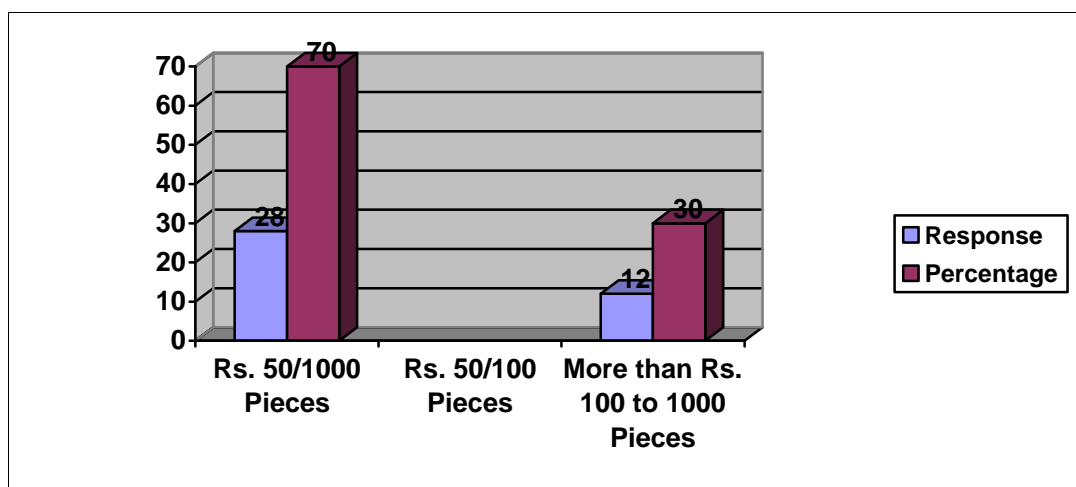


Table 4.5 (vi)

Reason for price fluctuation

Reasons	Producers		Depot agencies	
	Response	Percentage	Response	Percentage
Due to demand	0	-	0	-
Need of capital	1	20%	6	60%
Investment cost	1	20%	3	30%
Seasonal production	3	60%	1	10%
Competition	0	-	0	-
Total	5	100%	10	100%

Source: Field Survey-2010

Above table shows all reasons contribute to price fluctuation to some extent but among half producer pointed out seasonal production as a main reason for fluctuation. In production season due to lots of stock and sales competition price decreases and price rises. Some producers see need of capital scarce of working capital in production season force them to sell their bricks in cheaper price and vice versa. Some of them reasons inventory, double loading and unloading charges as the main reason for fluctuation. Many factories keep inventories near to cities

away from their factories to attract city consumers and to solve their transport difficulties in rainy seasons.

Among total depot agents 6 agencies think need of capital to produces during production period is the main reason for high price fluctuation. 3 think the main reason is inventory charges and think main reason is seasonal production. The above data is presented in the following figure

Figure-4.5 (vi).a
Reason for price fluctuation(Producer)

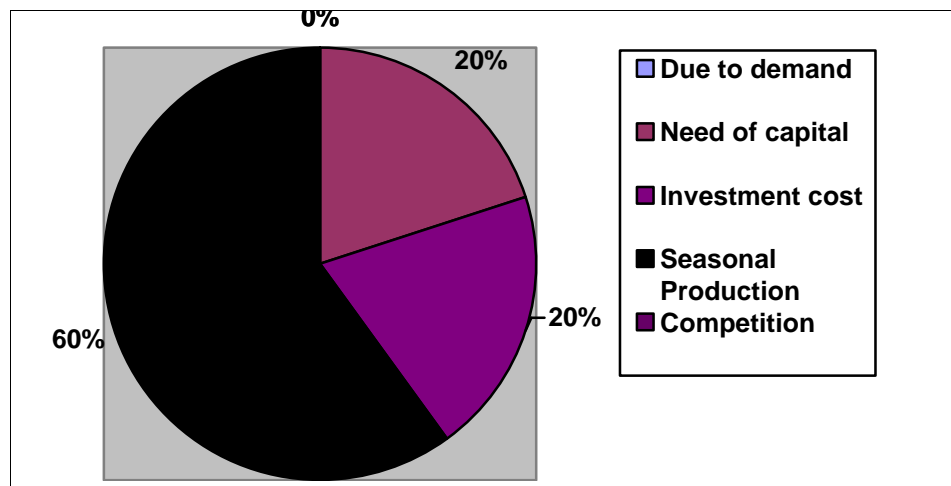


Figure-4.5 (vi).b
Reason for price fluctuation(Depot Agencies)

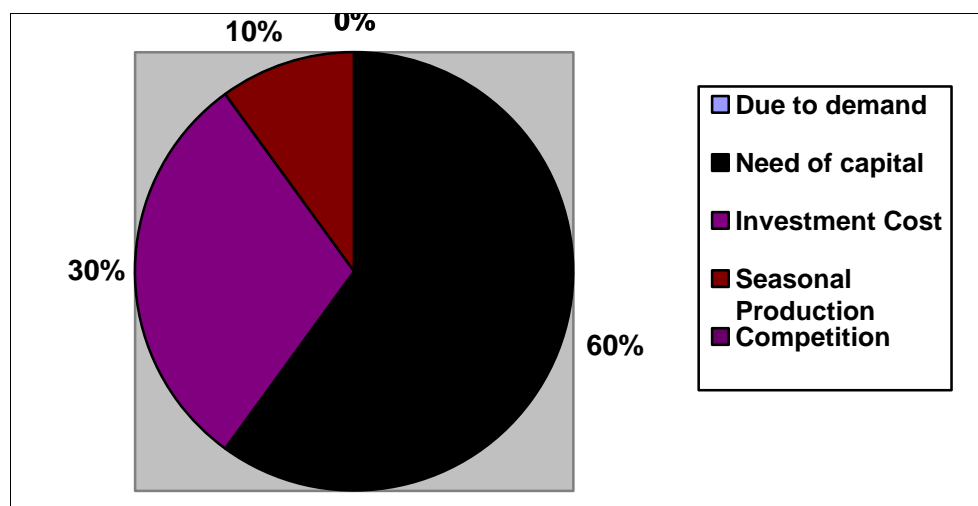


Table 4.5(vii)
Suggestions in pricing

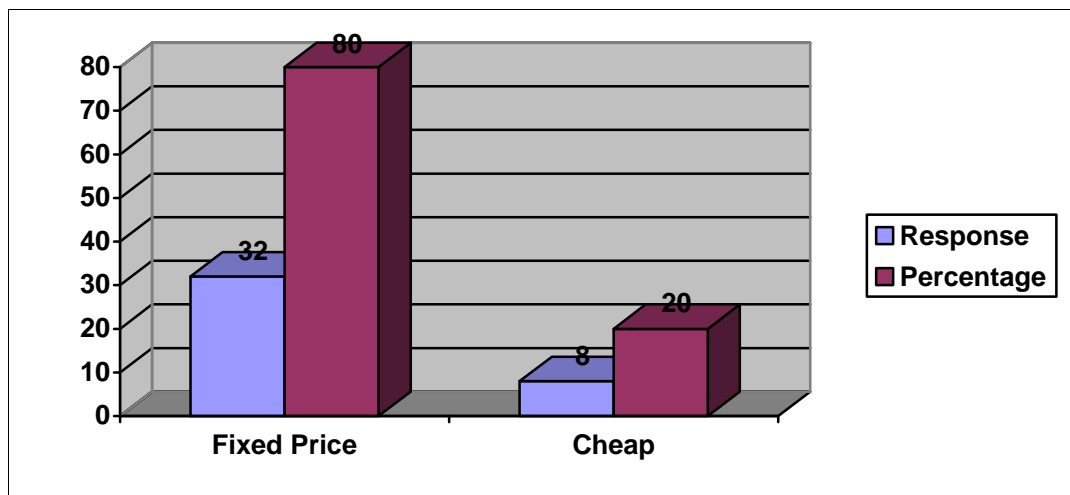
Suggestion	Response	Percentage
Fixed price	32	80%
Cheap	8	20%
Total	40	100%

Source: Field Survey-2010

Above table shows 80% have spoken about for irregularities in price, they want the price to be the same everywhere and the some for some span of time. 20% have commented on high brick price, high margin taken by suppliers.

In other's category we have few producers they said in production season producers sell its product at loss due to all other mentioned reason in the table and to overcome that producer chargers high in other season. The above data is presented in the following figure.

Figure- 4.5(vii)
Suggestions in pricing



4.6 The most effective promotional tool

To get information about brick during collecting data one of the producers said that his grand parents time his grand father produced bricks. Sometimes he went to the construction site to get the brick producing contract and some times he was called by projects. Many people used to produce bricks themselves sold as

required and some used to approach the clamp klin. His father also followed the same. People come by searching for the Smokey chimney, whenever they needed bricks or they learned about the brick dealer from people, who are building or using brick around them. But today, he (producer) give or use his visiting card or e-mail address to every one he get introduced and to his customers.

Now the world has become more developed, complex and competitive. People buy bricks through nearly depot agencies. They learn from yellow pages, internet, newspaper, sign boards. Almost every transport vehicle has advertisement painted on their body about their construction material they supply. Some of the brick dealers are sponsoring traffic signal board for publicity. Especially brick producer do their contact with masons, engineers, depot agencies to sell their brick. Many of the producer have their own depot outlets and their sign board near by market. All these are promotional activities.

Therefore, we can say promotional practices have began for bricks in Kathmandu. Actually, promotion is the element in organizations marketing mix that is used to inform and persuade the market regarding the organizations products and services.

To find out the most effective promotional tool among those practiced and to advice other prospective promotional activities the following datas may give some of light.

Table 4.6(i)
Knowing the location of the suppliers

Medium	Response	Percentage
Advertisement	2	5%
By searching	14	35%
Through friends	16	40%
Personal contact	8	20%
If others	-	-
Total	40	100%

To know the location of the supplier consumers used their friends, search by themselves and do personal contact. Especially they prefer their friends to get the qualitative goods, some bargaining etc. some consumers search the producers by themselves to get the right one who is ready to fulfill his wants like providing quality brick, proper delivery on fixed time and place.

From the above table we can see 40% through their friend's advice, about 35% know about the brick supplier or counter by searching and 20% through personal contact and 5% followed the advertisement and find it to get brick. The above data is presented in the following figure

Figure- 4.6(i)
Knowing the location of the suppliers

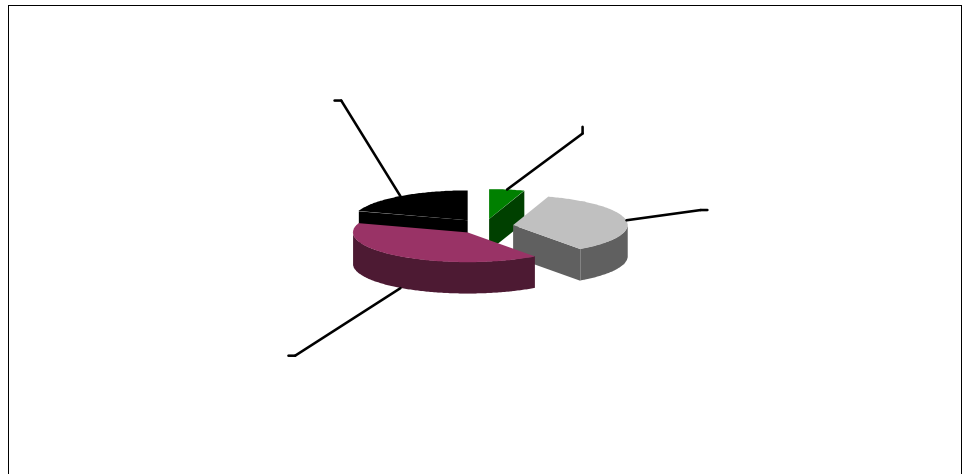


Table 4.6(ii)
Attractive to counter

Reason	Response	Percentage
Publicity	20	50%
Searching	10	25%
Good quality	10	25%
Total	40	100%

Source: Field Survey-2010

There are different types of consumers are found in the market. They have their own views on getting the goods from the counter. Some consumers prefer goodwill, while some prefer quality, price and some due to unknown ness about product they started in searching different counter to get the one.

Here from the above table we see most are attracted to factory due to publicity that is 50% and rest of the percentage people are attracted due to good quality and searching for the best. The above data is presented in the following figure

Figure- 4.6(ii)
Attractive to counter

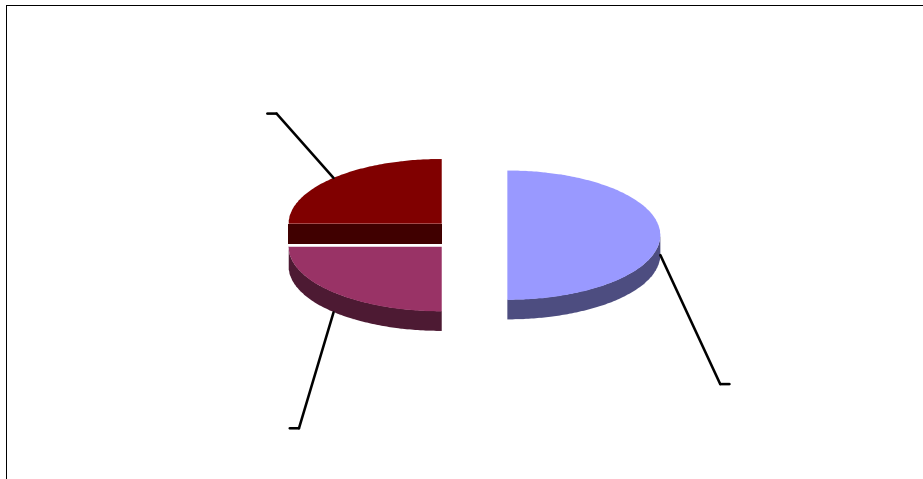


Table 4.6 (iii)
Decisive point

Decisive point	Response	Percentage
Sales promotion	14	35%
Personal sales	16	40%
Publicity	10	25%
Total	40	100%

Source: Field Survey-2010

In the competitive world consumers are too much aware on facilities, discount, advertisement etc. provided to them by producers. By keeping in mind producers

used many sales promotion activities. Some producers prefer their personal sales without emphasis sales promotion and some depend on goodwill and publicity help to sale their bricks in the market.

Here, we found 40% consumer made buying decision due to good personal sales it means good behaviour and services as easy availability. Out of total response 35% bought it because they could get a cheaper price and credit and 25% brought it because of goodwill. The above data is presented in the following figure

Figure- 4.6 (iii)

Decisive point

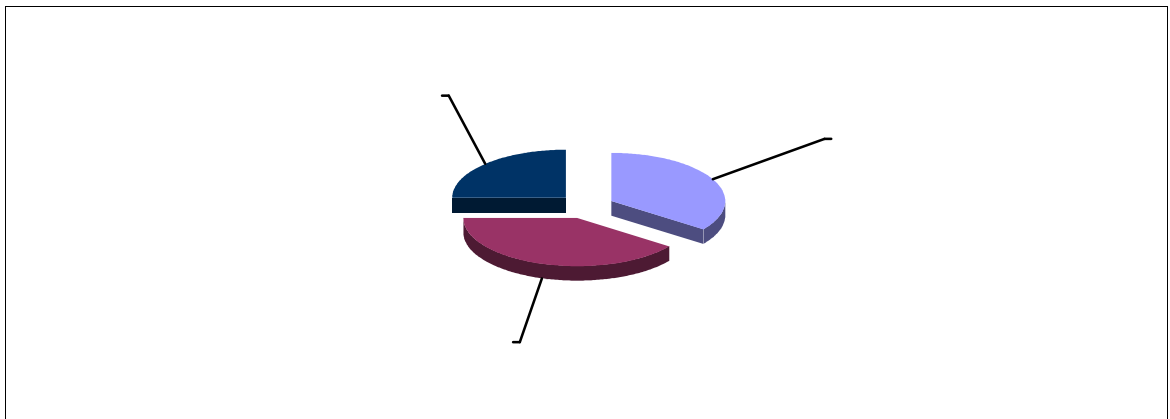


Table 4.6 (iv)

Most effective promotional tool (consumers view)

Tools	Response	Percentage
Advertisement	1	2.5%
Through friends	4	10%
Sales promotion	9	22.5%
Personal sales	8	20%
Publicity	18	45%
Total	40	100%

Source: Field Survey-2010

Like in other product there is no big role of advertisement in brick. Many more consumers follow the path of publicity and goodwill and some who are unknown

about publicity they choosed sales promotion and their friends as tools to get the goods.

We found publicity is the most effective promotional tool in case of brick sales, i.e 45% have brought due to it or like to buy due to sales promotion. Then come good personal contact 20% only 10% go through their friends advice and 2.5% are attracted by advertisement which is so much influencer in daily use products. The above data is presented in the following figure

Figure- 4.6 (iv)

Most effective promotional tool (consumers view)

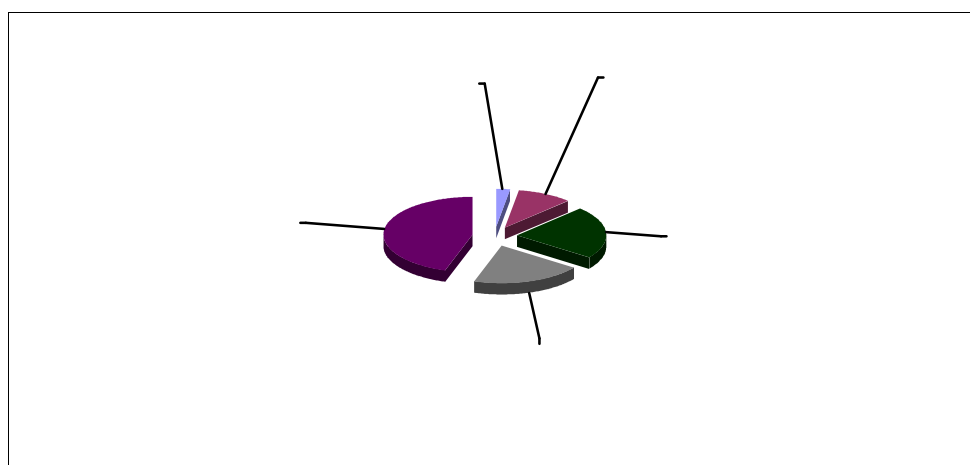


Table 4.6 (v)

Difficulty in finding location of brick suppliers

Knowing location	Response	Percentage
Already know	32	80%
Has to ask	8	20%
Total	40	100%

Source: Field Survey-2010

There are many factories and suppliers of brick in Kathmandu valley from a very long period. Through friends, relatives, advertisement, publicity, visiting cards consumers know the location of brick suppliers.

Some consumers are unknown about supplier and location being new in community.

Data shows only 80% of the consumers were unknown and had to ask about the brick suppliers location, 80% known the location. The above data is presented in the following figure

Figure- 4.6 (v)

Difficulty in finding location of brick suppliers

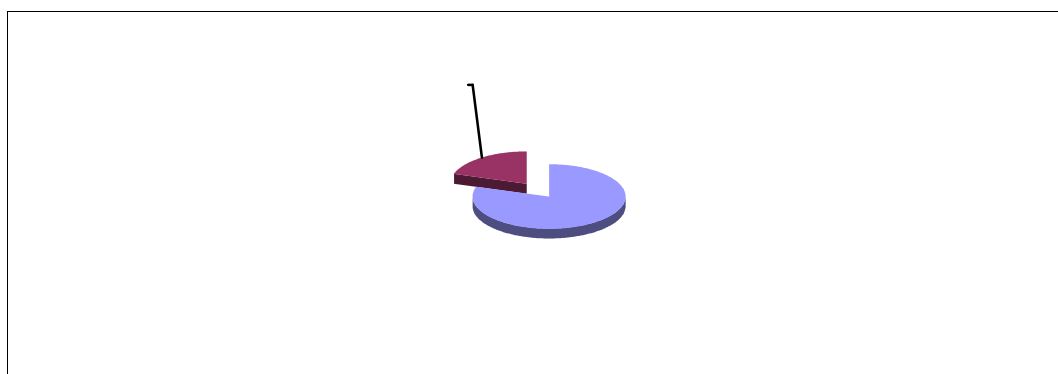


Table 4.6 (vi)

Most effective promotional tool (Depot agents)

Tools	Response	Percentage
Advertisement	-	-
Sales promotion	2	20%
Personal sales	2	20%
Publicity	6	60%
Total	10	100%

Source: Field Survey-2010

Many effective promotional tools (advertisement sales promotion personal sales, publicity) are used by producers, supplier to sell their bricks to consumers. Among them according to depot the most effective promotion tool is publicity. Many consumers visit in their depot according to their publicity and they are ready to buy such a brick which already earned goodwill in the market. Some consumers

who do not know about publicity they preferred personal selling method and sales promotion method.

From the above table 60% depot agents feel they could sell their product due to publicity. Only 20% feel because of sales promotion and personal sales i.e site visit and convincing them to buy their product. The above data is presented in the following figure

Figure- 4.6 (vi)

Most effective promotional tool (Depot agents)

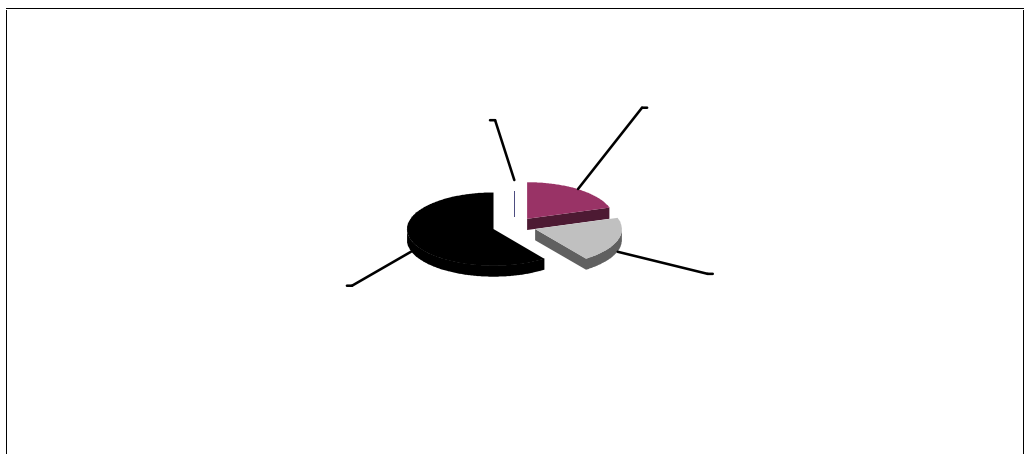


Table 4.6 (vii)

Most effective tool (producer)

Tools	Response	Percentage
Advertisement	0	-
Sales promotion	1	20%
Personal sales	0	0
Publicity	3	80%
Total	4	100%

Source: Field Survey-2010

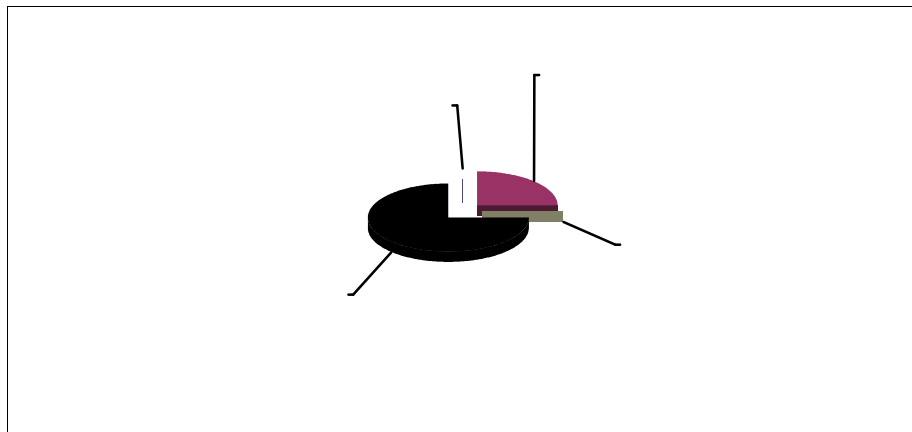
In the competitive market there are many suppliers and producers who sell brick. But it is not easy to sell their brick to consumers in absence of goodwill and publicity which is released by brick used (good consumed) consumer. Brick is such a material which is used to build the house and house is one of the such a

basis need of human which saves their life from thieves, robbers, wild animals etc for their long life or to their future generation too. So in case of brick market advertisement and personal sales do not play important role according to the producers.

Incase of producer 80% of them think they could sell their product in this competitive market due to their goodwill and public relation, publicity. Only 20% preferred sales promotion. The above data is presented in the following figure.

Figure- 4.6 (vii)

Most effective tool (producer)



4.7 Role of depot agencies distribution pattern

Just producing and piled up goods are not of any use in this modern world. It should be available in places where it is desired and when it is desired. Hence, place factor is another important element of marketing. Place covers the proper distribution transportation and placement of product and services.

Customer never waits therefore product and services should be kept ready before consumer/buyers arrive. Here in Kathmandu, one has to order the brick few days pre-prior to their need, because bricks are not delivered on same days after their order.

It's been little easier since depot agencies of bricks are growing around the town. Now, customers don't have to go for searching for factories. Most of the depots

are established by brick entrepreneur's relatives and friends and some by themselves and very few by other.

Brick depot plays a role of middlemen between consumers and producers. Depot gives a lot of benefits to consumer by keeping bricks of different brands which help consumer to select the product as per their wish, need etc. nearness is beneficial when buying less quantity. It helps producer to increase their goodwill and advertisement etc.

But we also hear lots of complaints like, depot takes away the big part of profit consumers unnecessary competition are arises due to it. Unhealthy competition has lead to cheating and bad activities decrease the goodwill of the producers.

To analyze all these and find the right answers and make a judgment about them, to take a good advantage from their positives aspect and try to eradicate negative points of the study had tried to gather some useful datas. Following table show

Table 4.7 (i)

Promoting brick with other products

Types of depot	Response	Percentage
Want brick, concrete etc in same depot	28	70%
Want only brick	12	30%
Total	40	100%

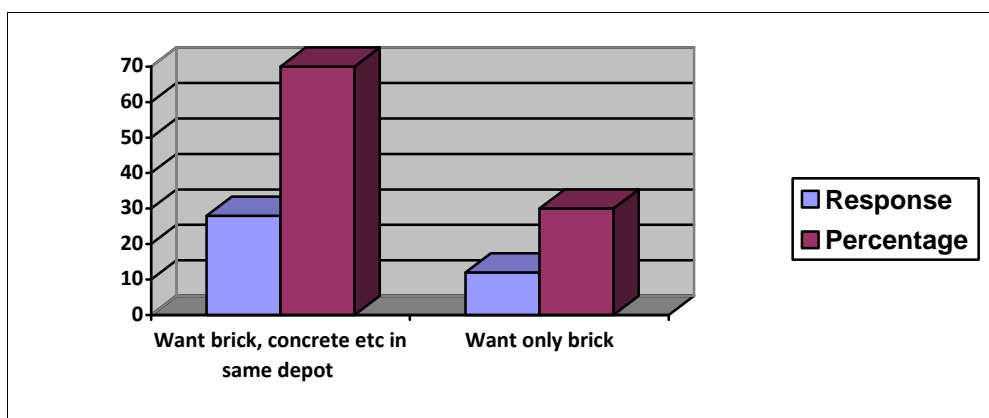
Source: Field Survey-2010

Time is precious. Today being a busy in life consumers want to purchase their household goods like (rice, pulses, vegetable) etc under one roof to save their time and energy. So, many such kinds of consumers who are going to build their houses they also want all the required materials needed for construction of houses like brick, cement, iron, concrete etc under one roof for the easiness and to get rid of moving from place to place. And one more thing due to it consumers are able to save their time and minimize the expenses also. Here we find most people 70%

people prefer to buy brick, if depot is with other construction materials like sand concrete, iron etc. Therefore, this could be one of the effective sales promotion techniques. And only 30% people prefer to buy brick only. The above data is presented in the following figure.

Figure-4.7 (i)

Promoting brick with other products



4.7.2 Delivery of brick

Here in Kathmandu valley one has to order the brick few days prior to their need bricks are delivered few days of their order. After the order of brick it is not possible to get the delivery of brick on the same day due to the rule of government, transportation etc. According to the rule of government on the day time heavy loaded trucks are not allowed to use. To minimize this problem brick factory use mini tata and small tractors to deliver their goods on time.

Table 4.7.2 (i)

Delivery of brick at the spot consumer wants

Delivery	Response	Percentage
Got it	26	65%
Did not get	14	35%
Total	40	100%

Source: Field Survey-2010

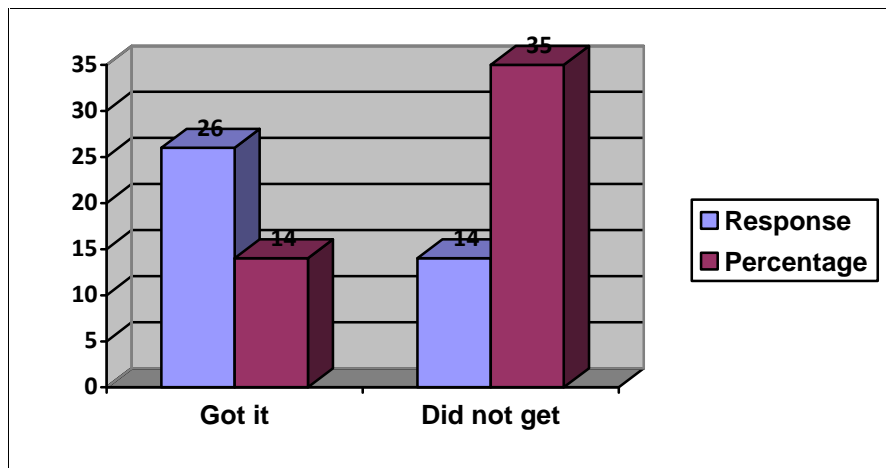
To get the publicity increase goodwill and satisfy the consumer delivery of brick at the spot as consumer wants also play a very important role. To fulfill the wants of consumers is one of the successful score of suppliers. Providing good quality

brick to consumer does not totally serve the consumers if the delivery is not done on proper spot as per the wish of consumers. But due to narrow road, traffic jam, careless work of driver, suppliers are not able to deliver bricks on proper spot, on proper time.

From the above table we got 65% consumers got the delivery at the place or spot they want and 35% of the consumers did not get the brick delivery at the place they want. The above data is presented in the following figure.

Figure- 4.7.2 (i)

Delivery of brick at the spot consumer wants



4.7.3 Differences in delivery and buying place

While asking about the brick from showroom to delivery site the following comments are received.

Table 4.7.3 (i)

Differences in delivery and buying place

Difference	Response	Percentage
Quality	14	35%
Counting	2	5%
Higher percentage of broken brick mixed	6	15%
Found no difference	18	45%
Total	40	100%

Source: Field Survey-2010

Brick is a good which could not purchase directly by consumers from showroom. To get goods, ordered must be made and after one or two days it will be delivered by suppliers on the spot where consumer wants. In the study it is found that many consumers are satisfied by getting goods like same in showroom and some are dissatisfied due to change in quality, quantity and colour.

The above table shows that 45% of customers have not found any difference and they are too much satisfied for goods. 35% complained that supplier cheated them on quality, 15% complained about more broken bricks, 5% complained on quantity. The above data is presented in the following figure.

Figure-4.7.3 (i)
Differences in delivery and buying place

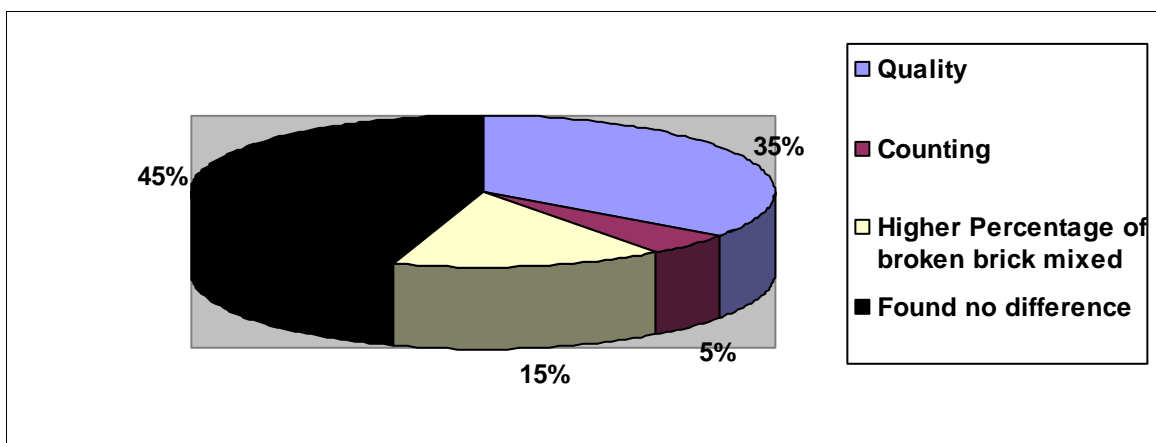


Table 4.7.3 (ii)
Delivery time

Days	Response	Percentage
Same day	10	25%
Second day	26	65%
Third day	2	5%
More than 3 days	2	5%
More than a week	-	-
Total	40	100%

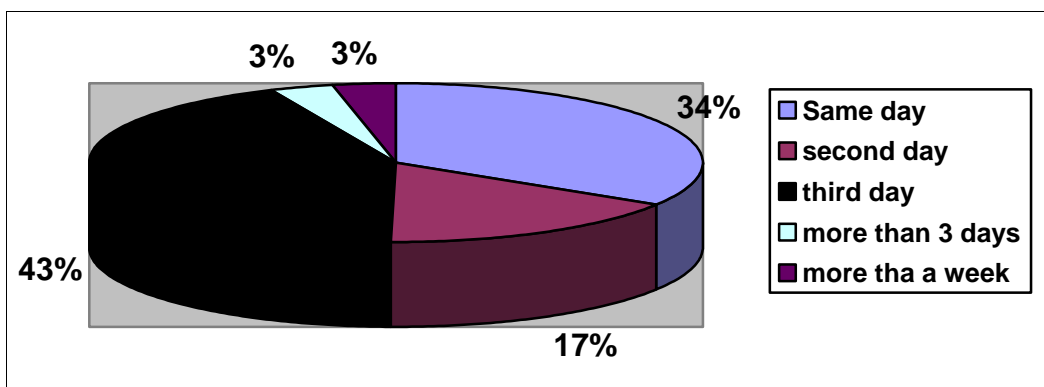
Source: Field Survey-2010

Delivery of goods on time plays a very important role in the marketing of brick. When the bricks are already counted drivers as well as trucks are in good condition, delivery is done on the same day. If driver is new, unknown about places, bricks are not totally counted or due to other internal problem goods are delivered on second, third day and some time more than third days.

Here only 25% found the delivery immediately. Most brick suppliers (65%) took 2 days to deliver. Also many consumers found it really difficult to get the brick at right time. 5% of the responded said that they get their delivery after third day and 5% responded said that they get delivery more than 3 days after their ordering day. The above data is presented in the following figure

Figure-4.7.3 (ii)

Delivery time



4.7.4 Percentage of broken brick mixed in delivery time.

From many consumers we heard the complaints on broken brick during delivery time. Broke bricks are arises during load an unload of brick from vehicle, during production and shifting from one place to another.

We also found some consumers who are satisfy with the piece of broken bricks that they received during delivery time because broken bricks are also required during building the walls, flouring etc.

Following table shows about the amount of broken bricks during delivered.

Table 4.7.4 (i)

Number of broken bricks delivered

Number	Response	Percentage
Up to 20%	29	72.5%
Up to 50%	10	25%
Almost double	1	2.5%
More than double	-	-
Total	40	100%

Source: Field Survey-2010

Above table shows that 72.5 % consumer got up to 20% broken piece of brick and 25% got more than 50% and only 2.5% said almost double.

In real, suppliers really don't want to get any bad complaints from their consumer on their product. But to minimize their loss and by thinking some broken pieces are required in construction period they send few or up to 50% broken piece on 1000 pieces The above data is presented in the following figure.

Figure-4.7.4 (i)

Number of broken bricks delivered

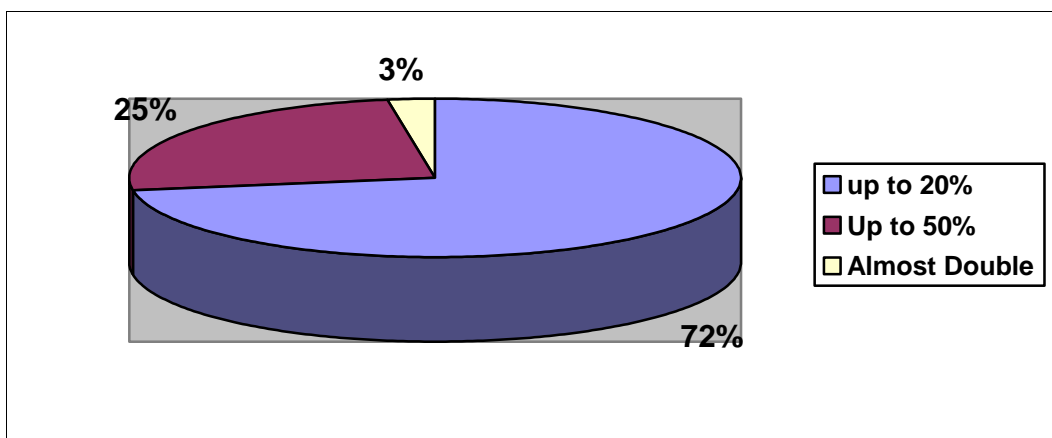


Table 4.7.4 (ii)
Use of broken bricks

Use	Response	Percentage
Useful	34	85%
Waste	6	15%
Total	40	100%

Source: Field Survey-2010

For 15% consumer broken pieces gone wasted out of use. During load and unload of bricks in factory and production period some broken bricks are arises. Broken bricks are used by mason during construction of wall, and flooring. In the absence of broken pieces mason broke the fine brick. So, if consumers are aware during construction and request mason to use broken bricks instead of breaking fine brick there will be no chance of waste of broken brick. The above data is presented in the following figure.

Table 4.7.4 (ii)
Use of broken bricks

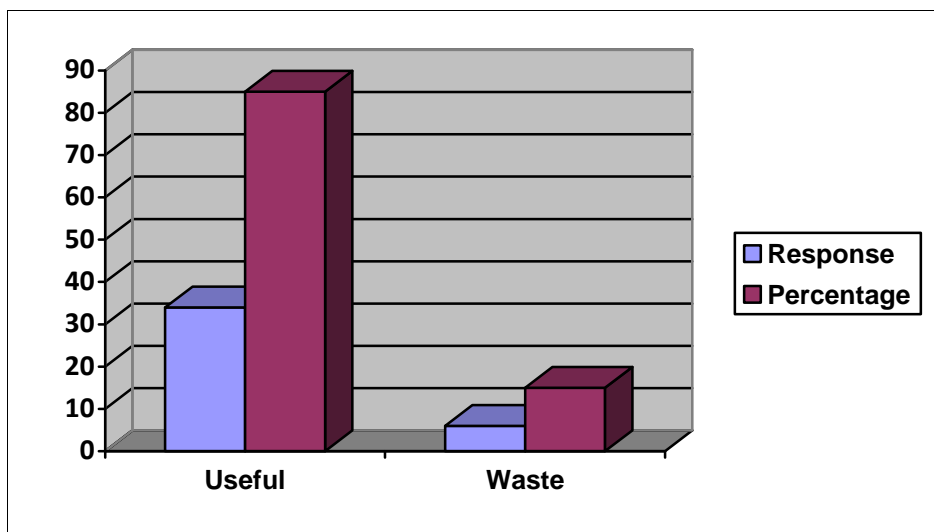


Table 4.7.8 (i)

Impact of depot agencies on consumers

Experience	Comment out of 40 respondent	Percentage
Mostly good (Positive)	36	90
Mostly bad (Negative)	25	62.5
Depot makes cheap	28	70
Gives varieties	40	100
Near facility	40	100
Cheap if less quantity	18	45
Helps choosing	36	90
Extra facilities	36	90
Will buy in factory	28	70
Depot make expensive	39	97.5
Depot cheats	20	50
Depot makes city dirty	22	55
Depot decreases quality	24	60
Depot is not trustful	16	40
Can't chose right lot at depot	20	50

Source: Field Survey-2010

From the above table 100% of the consumers found depots are more useful and gives the facilities of varieties and nearness. About 97.5% of the consumers complain depot makes brick expensive. 90% consumers shows their positive responded on extra facilities provided by depot agencies to consumers to choosed the bricks as per their choices. About 70% consumers responded that depot helps consumers by providing goods on cheap price and save 70% responded it's better to buy bricks from factory directly than depots. From 60% to 40% consumers complains that depots cheats, makes city dirty, decrease quality of bricks and depot is not trustful.

Table 4.8 (i)

Impact of depot on producers

Experience	Comment out of 5 respondent	Percentage
Depot help to know demand to producers	3	60%
Depot help reach consumes	5	100%
Depot help on Capital Investment	3	60%
Depot help increase goodwill of product	4	80%
Depot decrease inventory cost	2	40%
Depot take away producers profit	4	80%
Consumer had to pay additional commission	5	100%
Depots give extra facilities	1	20%
Depots pulls producer's client	4	80%
Depots help reach consumer	5	100%
Depot cheats	5	100%
Makes city dirty	2	40%
Mostly bad (Negative)	4	80%
Mostly good (positive)	1	20%
Depot saves from bad debt	2	40%
Creates unnecessary competition	4	80%

Source: Field Survey-2010

From the above table we see 100% of the producer accepts depot agencies helping producer reaching customers. About 80% producer believes that depots help to increase goodwill of their products and 60% producers accepts depot agencies help to know the demand to producers, help to capital investment and 40% depot decrease the inventory cost of producers and save producer believes that depots give extra facilities to consumer. 80% producers think depot agents are taking part

of their profit and creates unnecessary competition 100% of them feel consumer paying extra because of them 80% think depot agents damaging their goodwill 100% of them think depot agents cheats consumers and producers. 40% producers thinks that depots makes city dirty due to all above reasons producers think they don't want them.

4.9. Difficult part of business

While asking about the most difficult part of the brick factory in response it was found that due to smoke, dust particles from klin affected a lot to the people living about there.

To established brick factory about 100 ropani or more than 100 ropani field is required which is not found in this crowd city. So producer choose village side especially in Bhaktapur and Lalitpur. Being a poor and under developed country many more people in our country still based on agriculture. Smoke dust particle of kilns effect a lot to the farmers whose field are near to the factory. Because of this reason, there is always unfriendly behavior between farmers (whose field are near to brick factory) and brick producers. Smoke pollution hampers a lot on crops. It decreases the capacity of good soil and short the crops production. Other main problem is scarcity of coal. Many more brick factories are closed down due to it.

Table no 4.9 (i)

Difficult part of the business

Reason	Response	Percentage
Non-availability of raw materials	5/5	100%
Technology	3/5	60%
Finance	1/5	20%
Marketing	-	-
Strict Government rules and regulation	1/5	20%
Total	5	100%

Source: Field Survey-2010

The above table shows than 100% producers are agree with non availability of raw materials required for brick production. Coal is the basic fuel used in all brick industry wood , rice husks, etc are also used as raw material for firing purpose while coal is the best one. Now, a days due to the scarcity of it many factories are closed down.

Lack of proper technology still brick and industries are based on traditional method of producing brick. So, 60% producers said lack of proper technology is also one of the most difficult parts of their business.

20% producers said finance and 20% responsed strict government rules and regulation also affects a lot to business. The above data is presented in the following figure.

4.10 Suggestions to solve:-

To solve all above difficulties producers want government rule to be improved and increased in helping them to produce goods of standard quality product bring pollution less technology and good service.

Table-4.11(i)

Cut throat competition

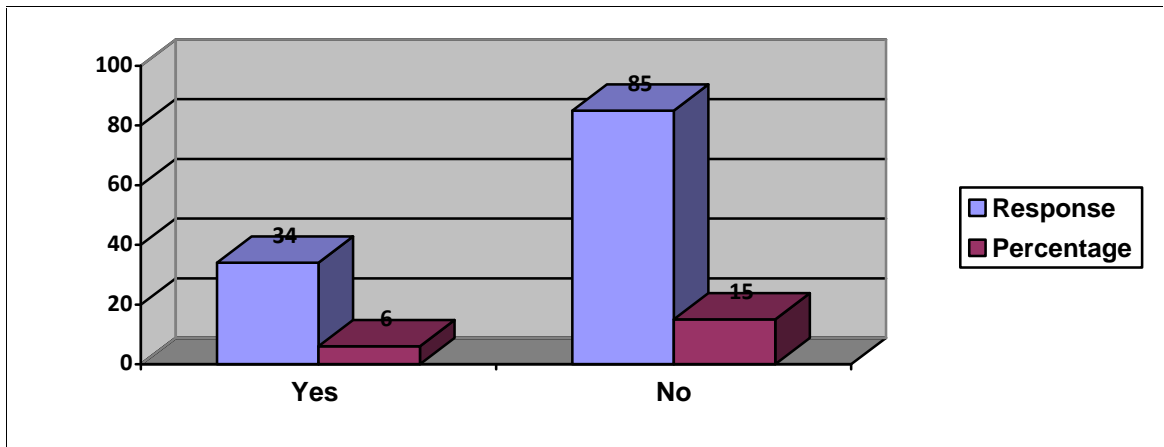
Answer	Response	Percentage
Yes	4	80%
No	1	20%

Source: Field Survey-2010

Cut-throat competition is a challenge of business which is accepted by all producers/ suppliers to stay in the market. In the absence of competition, consumers are really not able to get quality goods.

Above table shows that 80% of producers are saying there is competition between producers and 20% said no more competition. The above data is presented in the following figure.

Figure 4.11(i)
Cut throat competition



4.12 Competent to prevent brick factory's pollution

All 5 producers said that they tried a lot from their side to minimize the pollution. Due to lack of proper and advanced technology they are still not able to apply any systematic method. To reduce smoke pollution they increase the length of chimney.

4.13 Cost- benefit Analysis

It was not possible to get information on cost-benefit analysis from the producers.

4.14 Social responsibility

As modern marketing concept all the institutions should give attention on social responsibility. The study tried to find out how much contribution brick producers are giving on social welfare, as it is the most important part of the organization. In this connection, the following table may help us for clear ideas of the respondents, acquired during research period.

Table 4.14 (i)

Contribution on Social welfare

Given contribution	Consumers		Depot agents		producers	
	Response	Percentage	Response	Percentage	Response	percentage
Yes	25	62.5%	8	80%	5	100%
No	4	10	1	10%		
Don't know	6	15	1	10%		
To control pollution	5	12.5				
Total	40	100%	10	100%	5	100%

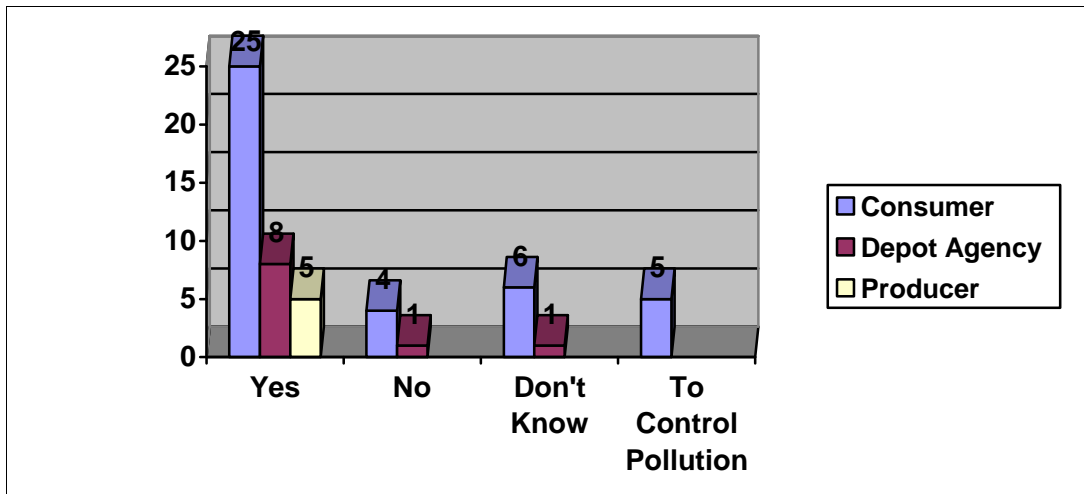
Source: Field Survey-2010

Among all consumers about 62.5% have seen brick factories donating needy people, helping in construction industry, seasonal employment to very poor people etc. Among producers 100% of them say they are doing social work, donating, helping specially locality in every field some producers say they can't survive without helping locality in every field some producers say they can't survive without helping locality and any Nepali needy person or organization coming to them.

In construction industry seasonal employment to very poor people etc. 10% have not seen any contribution. 15% says they don't know 12.5 of them say producers must realize their responsibilities regarding environment decreasing pollution.

Among depot agents 80% of them say yes they are helping donating around, 10% say producers don't know. The above data is presented in the following figure.

Figure-4.14 (i)
Contribution on Social welfare



Our approach should relate marketing to the standard or goals of society as a whole. Marketing and goals of society.

- To provide an adequate standard of living for its citizens.
- To add to economic stability.
- To maintain as much freedom as possible in all aspect of life.

Most of their standard of living is equated in terms of dollars of income per capital. In general these countries with a high average income per capital have less of a disparity in income among their citizens. It is impossible to identify exactly an ‘adequate’ standard of living, but probably it would be specified ad enough to provide a healthy diet a comfortable shelter a reasonable education and a measure of the “better things in life. However, they may be identified in the society in question”. Here who comes pollution free environment, donation charities to poor and needy, deprived people, social welfare are also a responsibility of the producer and suppliers and it is also a means of earning goodwill and attracting the consumers.

4.15 Employment generation

This industry is giving work for Nepali & Indian labourer for their bread & butter (employment). Brick industry is providing employment to uneducated rural masses, paying taxes and manufacturing cheap building materials.

To the last open question, what is your suggestion for brick marketing? The answer is presented on the following table.

Table 4.16
Advice on brick marketing

Advice	Consumers		Depot agents		producers	
	Respo nse	Percentag e	Respon se	percent age	Respon se	perc enta ge
Reduce Pollution	7	12.28%	0	-	1/5	20%
Should be organized & responsible	24	42.10%	2	20%	2/5	40%
Quality should be improved	14	24.56%	2	20%	1	20%
Have marketing spirit	8	14.04%	0		1/5	20%
Government monitoring/help	4	7.02%	6	60%	5/5	100%
Total	57	100%	10	100%	5	100%

Source: Field Survey-2010

Here, in the table we see that 42% of the consumers advised to keep brick marketing well organized regulated and more responsible for its behavior and transactions. 25% of them have advised to improve quality of brick and 14% have suggested creating marketing spirit good consumers type of service they want. Consumers complaints they don't get the required type of brick and service they want even though they are ready to pay any price dealers want. 7% of them want the government to improve its role to control monitor and guide brick dealers. Among depot agents 60% of them want government help fare in their business, to control, standard size regulate, monitor brick quality and business. Most of them are tired of unhealthy competition and worried about trustless environment prevailing in brick business. They also want government cooperation and help to improve their business like in transportation ,tax and other possible govt.facilities.20% of them realize the bad maintained in factories and government monitoring them.25% have advised to be organized and responsible brick dealers.

40% of the producers too want the government's role to improve the brick business. They want clear and practical policy, easy licensing, help to get new pollution less technology and improving and developing the brick industry. They want good security, encouragement, training.40% of them want organized and responsible brick dealers, who will be regulated.20% of them also suggested brick dealers to have marketing sprite not only to dealer but also to consumer to consume good quality of bricks form good people with reasonable price.20% of them realized their failure to improve the quality of brick due to dependency on Indian technician in the factories and lack of knowledge.

4.16 Major Findings

The major findings of the study are given below according to the field based research activities. :-

1. With the help of the study it has been known that there are two kinds of consumers visited in depot agencies and factories. Among them 72.5% consumers going of brick factories or depot agencies for buying local bricks for personal use to built the houses for shelter purpose. Only 27.5% responded in favor of contract work. They visited in factories or in depot agencies to buy bricks for the purpose of contract work to build bridges, colonies, public walls etc.
2. The main reason for choosing local brick for the construction is everybody use it. Brick is only alternative for construction and since the begining civilization period it has been using to build houses. Out of the total buyers 60% of the buyers responsed that they choose local bricks because everybody used it and it is cheaper than Chinese brick, more stronger, strength with cement plaster cover.
3. In compare, local bricks are strength with cement plaster cover, cheapness and easily available than Chinese bricks so it is the main reason for buying local brick against Chinese brick
4. Most of the consumers want improvement in quality of brick regarding colour strength mostly in reddish colour.
5. Out of the total respondents 80% of the consumers knew about the high price fluctuation of local brick. Reason for purchase of local bricks in this period is due to their helplessness position, don't have other alternative to fulfill urgent need and lack of trust against dealer. Only 8 responses are unaware of the price fluctuation.

6. Out of the total respondents 62.16% consumers are buying bricks in high price due emergency, and good reason for construction.
7. Out of the total respondents 67.5% are buying bricks in high price due to helplessness, having no other alternatives.
8. Out of the total consumers 94.4% consumers could bargain in brick price, usually in the range of rupees 50 to 100 per thousand number of brick.
9. Main reason for price fluctuation is due to the need of working capital, investment cost and seasonal production.
10. The whole consumers are unsatisfied with the uncertain range of price fluctuation. They all want fixed sort of price.
11. On the most effective promotional tool out of total respondents 40% consumers responded that they knew about brick dealers location from their friends. 35% goes themselves for searching, 20% through personal contact and only 5% benefited from advertisement to locate the producers or to get brick.
12. Among consumers about 50% are attracted to brick dealer from publicity, goodwill, and best services. But the decisive point to buy the brick is determined specially by sellers attitude and convincing power and his good services, credit facilities, discounts etc.
13. According to the view of consumers most effective promotional tool are publicity and sales promotion.
14. According to the depot agencies and producers publicity and sales promotion are the effective promotional tool.
15. About 70% of the consumers want brick promoted with sand, concrete, iron rod etc building materials at the same place or counter.

16. Out of total, 35% of the consumers are not satisfied for not getting brick delivered at the spot they wanted.
17. During the research, 45% of the consumers have not found any differences on delivered bricks as shown in showroom. But 35% complained on quality.
18. About 65% of consumers get the brick only on second day from their order and 50% get it after more than three days later.
19. During delivery of brick about 72.5% consumers found up to 20% broken bricks. Consumers suggested to the producer to minimize and control on broken pieces of bricks during delivery to maintain their goodwill and publicity.
20. There is positive attitude towards depot through consumers. Many consumers are enjoying the facilities like near facility, varieties, and help in choosing right type of brick even they realize depot make brick expensive and are not must trustful.
21. Producers really don't want depot even they contribute the help to consumers to get the bricks easily & helps with capital. All 100% producers complained depot agent took away a big part of profit, create unnecessary competition, they cheat and destroys the goodwill of factories and producers.
22. Producers should sale bricks by their own efforts, own depot.
23. The major difficult part of business is non availability of raw materials. To carry on this factory more than 100 ropanies field is required to hire and producers are not allowed to use all the soil from that field. After the certain percentage they have to leave such field to farmers or the owner of the field for the production of crops.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Brick happens to be the world's oldest and the most extensively used structural clay product. In fact, brick making is the world oldest 'industry' in the history of mankind. It is reported that hand shaped and sun dried mud bricks were made and used during the pre pottery Neolithic period as back as 10,000 B.C. Use of mould box-shaped, sun-dried and fired bricks started only around 3,000 B.C. Since then, structural clay products have made great strides with respect to scale/efficiency of operation and quality of finished goods.

From the very beginning of the human civilization place of living has been one of the needs. Brick has been most commonly used as construction material. If we turn the history of brick we have found that it was manufactured before 5,000 thousand years in Iraq, Pakistan etc. Firstly they used sun dried brick later they learn to produce brick by baking clay about four thousand years ago. In, Nepal we can trace bricks dating back about two thousand years, in our historical monuments. Manufacturing of brick has been done by individuals in private enterprise for example Awales in Kathmandu valley until 2025 Bikram Sambat. Brick used to be produced according to need.

In kathmandu, valley usually brick is used in almost all the buildings. Chinese bricks are just used for facing. The standard brick size is (240 x 115x57) mm given by Nepal National building code NBC 205. Brick can be classified according to quality, decoration, place of origin, method of manufacturing, uses, colour, types, variety and content. Brick making procedure is science as well as little bit of art. In Kathmandu valley, mostly brick production is done by academically not so advanced people with agricultural background, and few graduates. Marketing sprit is low in brick business. We hardly find marketing awareness in general brick producers are not been able to address the weaknesses

example regarding quality, consumer's choice, promotion, advertising, publicity, price regulation, well managed depot agencies etc.

The research is done basically exploratory. Questionnaire with some open ended questions were designed addressing the above mentioned problems and they were distributed in different factories, depot randomly and collected the opinion from consumers depot agents and producers. The research found all three categories giving almost same view. During the research period three categories of people are concerned about the low quality of local brick, poorly organized haphazard irresponsible brick industry.

The study shows consumers first prefer to check colour of brick.. If it is reddish they take it as good and strong. Local brick has been preferred then Chinese brick because it can be stronger with cement plaster cover, can be coloured, has availability and its cheapness. Most of them know about big seasonal price fluctuation and most of them seem helpless about it. Publicity was found to be most effective and promotional tool. Out of total respondents fifty percent consumers facing trouble by late deliveries. Depot agents as middle man are increasing in numbers every year in comparison to negligible growth of factories. Majority of the consumers are benefiting from them. Most consumers are willing to compromise on good quality and nearly service for extra price charged by depot agencies. Majority of the consumers are positive about brick industry in Kathmandu valley even though they find lack of marketing spirit. Therefore, there is big scope for marketing in brick industry in Kathmandu valley.

5.2 Conclusions

Brick is one of the most important construction materials from the very beginning of the human civilization. It plays a very important role in general people's life for the construction of their houses as well as it is also one of the main source of income as the government is able to collect different taxes and it also helps general people to get employment opportunities to improve their living standard.

Having advantages, there are lots of problems regarding local brick industry in Kathmandu valley and large scope for improving it.

Lack of technology is also other difficult part of business. Till today's due to lack of technologies producers are not able to use advanced technique to minimize pollution and other way of production of brick.

Out of the total 40% of the producers want government role to improve brick business. Producers want clear policy, easy licensing, help to install pollution less technology, good security and encouragement.

Among consumers about 62.5% have seen brick factories are donating needy people, becoming helping hands to the construction industry etc.

Among producers 100% of them said that they are providing seasonal employment to the needy people, which is an important task of the brick industry. Beyond this, they help to the development of the nation.

5.4 Recommendations

Our country Nepal is one of the countries in the world. There is lots of scope in every field for moving forward and as a result our country is achieving progress in every field. So, there is also a lot of scope to move forward local brick marketing.

- Since most brick customers are users themselves not the contractors therefore their will be large concern about quality of the brick. Therefore, producers should concentrate on good quality of brick rather than just price. Fact that more than 60% accompanying the experience of brick buying also suggests the good quality.

- Dark reddish colour is taken as well baked brick with good qualities, easily convincing. This is true to some extent as well. Therefore, to increase sales, producers have to fire their brick well to dark reddish colour, then concentrate on good finishing smoothness, clean edges and standard size (bigger than usual) classification in A, B, C like in Tarai.
- Classification of brick is possible since there are people who want cheap brick, people who are satisfied with present class and some consumers who are willing to pay any price for good quality of brick. Promoters should classify and divide brick into different classes.
- Brick producers should organize and convince the government to cooperate for licencing, easy financing, security, good regulations in raw material and labour cost which will help decrease high fluctuation in price and earn goodwill for brick industry.
- Publicity and good will should be gained by supplying good quality of brick doing social works and product service facilities like timely delivery, cordial behavior etc to gain bigger market.
- Brick should be promoted with concrete, sand, cement, rod etc.
- Use of poor quality brick in the valley might prove costly in an earthquake prone place like Kathmandu. Therefore, bricks should be produced to standard set.
- Since there is very less advertisement regarding brick. About 30% consumers are unknown to brick selling counters. Therefore, advertisement may help in sales and also can be proved as publicity stunt.
- Try to deliver the brick at the spot consumer wants and try to maintain the standard of brick at delivery site regarding quality counting, breakage to attract more customers.

- Concentrate on delivering brick as quickly as possible for gaining market because most are lacking in this job.
- Increase depot outlets in organized way in proper places to serve the consumer better, there is a good scope.

- Government has to release clear practical rule and regulations and policies to regulate manage brick industry and help them go into new pollution less technologies.

- Development and dissemination of appropriate in expensive method for proper clay preparation, fast and uniform moulding and most important of all maximum efficiency is required. Government should encourage a good deal of research and provide necessary assistance to improve brick industry in Nepal.