CHAPTER I

INTRODUCTION

1.1 Background:

In the beginning of human civilization, people used to live in forest. They moved from one place to another in search of foods. People did not have permanent places to stay. But gradually, they learnt how to construct houses by using branches of trees. But these kinds of houses were not safe. They faced lots of problems in such kind of houses. Years after, they had started to learn constructing houses by using clay, mud and stone. With the passing of time, they learnt lots of things regarding construction. There after they learnt how to make bricks and started to live in the houses constructed with bricks which was durable in nature.

Bricks are one of the oldest construction materials as far as 10,000 B.C during the pre-pottery Neolithic period (Ghoshal, 2008). At the beginning, bricks were hand shaped and sun dried. The hand shaped sun dried brick was used by the Ancient Egyptians evidence of which can still be seen today at ruins of Harappa Buhen and Mohenjo-Daro. A technological advancement in brick production was started around 3000 B.C. (Ghoshal, 2008) where there was the use of box-shaped, sun-dried and fried bricks. In comparison to sun dried bricks, use of fried bricks were more reliable for permanent building.

The term 'Brick' refers to small units of building material. Bricks are often made from fired clay and secured with mortar, a bonding agent comprising of clay, sand and water. Bricks are used to make houses, walls and so many other elements in construction.

1.2Brick Industry in India:

In India, the brick making industry is one of the important industries in the unorganized sector and it is mainly confined to rural and semi urban areas (Singh, 2005). The industry provides employment opportunities to large number of rural and semi urban workforce. All over India, there are 50,000 brick industries which

provide employment opportunities to on an average 100 workers (Gupta, 2003). India secures 2nd position in the world ranking just after China, producing close to 140 million bricks in a year (Khan &Vyas, 2008).

Almost 75% of global production of bricks is highly concentrated in the 4 countries namely China (produces 54% ~ 700-800 billion per year), India (produces 11% ~ 140 billion per year), Pakistan (produces 8% ~ 100 billion per year) and Bangladesh (produces 4% ~ 50 billion per year (Thirupathi & Anthonisary, 2015).

Brick industry provides employment opportunities to nearly 12 million people in India (Khan & Vyas, 2008). The nature of employment in brick industry is highly seasonal. In brick production in India, traditional technologies are used. In general, bricks are hand moulded, sun dried and fired in a kiln.

In India, the technology used in brick production varies from region to region. The production of bricks basically depends on the availability of soil, labour, fuel, demand, market condition etc. The brick production is highly seasonal because both the drying and firing of bricks are done in open and since the brick cannot be dried and fired during rainy season, hence it operates for 6-7 months in a year and stops as soon as the rainy season starts.

Brick industry is a labour intensive industry as the whole process of brick production starting from mud cutting till firing of bricks is done manually which requires large number of labours. As it is a labour intensive industry, it creates large number of employment opportunities. The industry provides employment opportunities to both men and women. Women are involved in different parts of brick production like preparing the raw bricks, carrying of green bricks etc. Women are basically found to help their male partners. Major processes involved in brick production are mud cutting, clay preparing and giving shape of bricks, sun drying, arranging for firing, firing and unloading.

All the three sectors i.e. agriculture, industry and service sector in India provide large number of employment opportunities both to the local as well as to the migrant workers. A person who moves from one place to another in search of works is termed as migrant worker. In brick industry, not only the local workers but also the

migrant workers get employment opportunities. Indian brick industry which is the 2nd largest in the world after China employs large number of migrant workers including men, women and children.

There are various factors of migration. These factors can be broadly classified into two, namely, push and pull factors.

The push factors can be referred to those factors which force a person to leave his original place of work and go to other place in search of employment. Poor economic condition of the family, lack of alternative employment opportunities, irregular availability of other works, natural calamities etc. can be regarded as push factors as these factors compel a person to leave the origin place of work and go to some other places in search of employment opportunities. On the other hand, pull factors can be referred to those factors that attract a person to move to a particular area by leaving his original place of work. Opportunities of getting higher wages, better working condition, better environment etc. may attract a person to move to a particular area by leaving his original place of work (Kainth, 2009).

In brick industries, most of the workers are seasonally migrants who migrate for 6-7 months in a year to the kiln sites. The migrant workers leave the kiln sites when the work stops due to monsoon. During off season (when brick production stops due to rain), workers perform various types of works to earn their livelihoods.

The workers working in brick industries live in a very harmful working condition with low remuneration. Workers in most of the brick industries work in a very unhealthy environment having no basic facilities such as proper drinking water, proper sanitation facilities, electricity facilities etc. Because of unhealthy and dusty environment, the workers suffer from various health related problems. These workers in brick industries are not aware of their rights and privileges and very often they are exploited by the owners to great extent.

Brick industry is one of the most polluting industries which emit a huge amount of smoke. The main fuel used in firing of bricks is coal. But apart from coal, some amounts of fire wood and paddy husk are also used for firing the bricks. Due to the use of vast amount of coal in firing of bricks, huge amount of smoke is generated

which pollutes the environment particularly the air. Huge amount of dust and smoke generated from brick production causes various types of diseases like vomiting, eye irritation, skin problems, respiratory diseases, diarrhea etc. Thus, the industry is deteriorating the health conditions of the workers who are associated with brick production. However, the pollution caused by brick industries also destroys the fertility of land as well as posses health problems to the people living nearby.

1.3 Brick Industry in Assam:

With the increase in the construction activities, the demand for bricks has been increasing year by year. The brick making industry occupies an important place in the economy of the state. The consumption of bricks in the North East Region (NER) increases gradually. In the year 2005-06 in NER, consumption of bricks was approximately 3000 million. In NER, Assam is the major consumer of bricks which comprises nearly 70% of the total consumption. Within the state of Assam, consumption of bricks is the highest in central Assam (Dima Hasao, Karbi Anglong, West Karbi Anglong, Nagaon, Marigaon and Hojai). Consumption of bricks is 41% in central Assam. After that, it is followed by Lower Assam (Dhubri, Kokrajhar, Bongaigaon, Goalpara, Baksa, Chirang, Barpeta, Nalbari, Kamrup Rural, Kamrup Metro, South Salmara) which is 25%. Thereafter, it is followed by Upper Assam (Lakhimpur, Dibrugarh, Dhemaji, Tinsukia, Sibsagar, Jorhat, Golaghat, Charaideo, Majuli) which is 25% and South Assam (Cachar, Hailakandi, Karimganj) which is 9% (https://www.scribd.com/doc/121352219/clay-brick-plant-layout).

The brick industry is highly seasonal in NER due to heavy rains and production takes place for around 6-7 months in a year. Normally, labourers having some experiences migrate to NER from West Bengal, Bihar during the said season of brick manufacturing.

In Assam, for construction activities, burnt clay bricks are mainly used. For burnt clay bricks, following characteristics are followed:

Dimention-250(L) 125(W) 75mm (H)

Colour-Red

Weight-3.6 kg

Bulkdensity-1700-1800 kg/m^3

Water Absorption-20%

(https://www.scribd.com/doc/121352219/clay-brick-plant-layout)

1.4. Process of Brick manufacturing in Assam:

In Assam, the traditional brick making process is still used. The first step of brick production is collection of clay and preparing the raw bricks by mixing the clay with appropriate water. Thereafter, raw bricks are arranged for sun drying. Almost after 8-10 days, sun dried bricks are arranged in line for firing. After almost one week, firing process is completed and bricks are arranged in a proper manner for sale.

The whole processes of brick manufacturing are as follows:

Soil collection:

The first step of brick production is the collection of soil. In Assam, the basic raw material which is required for brick production is alluvial clay with requisite plastic properties (http://pcbassam.org/Notice/brick/brick/Guidlines%20of%20Brick%20kiln%20in%20Assam.pdf).

Mixing the soil with water:

After the soil is collected, it is then mixed with water with appropriate proportion and then given the shape of bricks. Generally mixing is done manually with hand and feet.

Drying:

After the raw bricks are prepared, these are arranged for sun drying. For drying the raw bricks in the light of sun, almost two weeks are required.

Firing:

After drying, green bricks are arranged in the kiln for firing. The firing is done through fire holes. After giving fire through the fire holes, fire holes are sealed to keep the heat inside. Almost one week is required to complete this process.

Sorting:

After the firing process is completed, the bricks are sorted according to colour which is an indication of the level of burning.

1.5. Justification for undertaking the study:-

Unemployment is the root cause of the issues of socio economic backwardness that hinders the all round development of a society. So, a firm initiative should be taken by the government as well as non government institutions to generate employment to mitigate this burning problem. Assam is also in the grip of the burning problem. Therefore, alternative sources need to be created for solution of unemployment problem. Assam is primarily known as agro-based economy and about 69% of total populations are engaged in agriculture (http://en.m.wikipedia.org/wiki/Agriculture_in_Assam). The primary sector is habituated with the traditional techniques and already suffering from underemployment. To solve the problem of unemployment through the agricultural sector alone seems not possible and we need to look for the other sources which can be an authentic solution of the problem. The Secondary and the Tertiary sectors also have provided employment opportunities to the society. Under secondary sector, brick industry may be considered as one of the important industries as the demand for brick is increasing day by day due to the rapid increase in the number of construction activities. A large number of unemployed people are going out of Assam in search of employment. As a result, there is a huge outflow of human resources every year. Lots of policies have been adopted by the government to solve the problem of unemployment. But these policies have not been implemented successfully. Brick industry may be one of the ways to absorb unemployed people up to certain extent as it is a labour oriented industry in the state. Therefore, it is necessary to undertake the research works on brick industry as it is expected that the

industry can contribute to the state economy by generating income and providing employment opportunities up to a certain extent.

1.6 Research gap:

There are numbers of literature relating to brick industry. Socio-economic conditions of workers, impact of brick industry on environment and human health, child labour in brick industry etc have been studied by various scholars. But there has been found no research works done on brick industry on migration, employment and working condition of workers in brick industry in Assam with special reference to Barpeta and Kamrup (R) districts. So, the proposed research study is an attempt to bridge the research gap.

For the study, Barpeta and Karmrup (R) districts have been selected because both the districts are not industrially so developed. Barpeta district is predominantly a leading agricultural based district of Assam. Due to the lack of infrastructure facilities and basic amenities in Barpta district, no major industries both in public as well as in private sectors in urban areas have come up. But some brick industries have been set up in some areas in private sector contributing to the state economy as a means of providing income and employment opportunities to some extent. Similarly, Kamrup district is based on both agriculture and industry. A good number of brick industries have been developed in different parts of Kamrup (rural) district which help in generating income and employment. Though both the districts have the same type of industrial environment, yet the researcher tries to find the differences in type of employment, income etc in the two districts. So, Barpeta and Kamrup (R) districts are selected for the study.

1.7 Objectives of the study:

The main objectives for which the study is undertaken are:

1. To find out the push and pull factors of migration of workers in brick industry.
2. To study the scope of employment, income and profit (both gross and net) in brick industry.

3 To analyze the socio-economic condition of the workers in brick industry.

4 To find out problems and prospects of brick industry.

1.8 Hypotheses:

The main hypotheses of the study are:

1. Migration of workers in brick industry is affected by distress driven factors.

2. Working conditions of the workers are very deplorable.

1.9 Area of the study:

The study area of the research work covers Barpeta and Kamrup (rural) districts of Assam. But before going to the details of both the districts, an overview is made on Assam.

Assam is situated in the North-East corner of India. Assam has its boundary with Arunachal Pradesh, Nagaland, Manipur, Mizoram, Meghalaya, Tripura and West Bengal. The state shares its international borders with Bangladesh and Bhutan (http://www.ibef.org/states/assam.aspx). The capital city of Assam is Dispur.

Total area of Assam is 78,438 square kilometers. According to 2011 census, total population of Assam is 31,205,576 out of which 15,939,443 are male and 15,266,133 are female. Literacy rate of Assam according to 2011 census is 72.19%; male literacy rate is 77.85% and that of female is 66.27%. Sex ratio is 958 females per 1000 males. The following table 1.1 shows the census of Assam in 2011.

Table 1.1: Census of Assam, 2011

State	Assam
Population	31,205,576
Population Density	398 Persons/sq.Km.
Male population	15,939,443
Female population	15,266,133
Sex Ratio	958
Literacy rate	72.19
Male Literacy rate	77.85
Female literacy rate	66.27
Area (square kilometer)	78,438

Source: Assam population census data 2011

In 1983, Barpeta district was separated from erstwhile Kamrup district of Assam. Barpeta district has 2 sub divisions- Barpeta and Bajali. This district is located in the lower part of Assam. The District Head Quarter is Barpeta which is 140 kms away from the state capital Guwahati. The district is bounded by Baksa district in the North, Nalbari & Kamrup districts in the East, Bongaigaon district in the west and Goalpara district in the south. The District lies between latitude 26.5" North- 26.49" North and longitude 90.39" East- 91.17" East (http://dcmsme.gov.in/dips/District%20profile,%20Barpeta_as.pdf).

According to 2011 census, Barpeta district has a total population of 1,693,622 out of which 867,004 are male and 826,618 are female. Average literacy rate of the district is 63.81%, male literacy rate is 69.29% and female literacy rate is 58.06%. Barpeta district has a sex ratio of 953 females for every 1000 males according to 2011 census. The following table 1.2 shows the census of Barpeta district in 2011.

Table 1.2: Census of Barpeta, 2011

District	Barpeta
State	Assam
Population	1,693,622
Population Density	742 Persons/sq.Km.
Male population	867,004
Female population	826,618
Sex Ratio	953
Average Literacy rate	63.81%
Male Literacy rate	69.29%
Female literacy rate	58.06%
Area (square kilometer)	2,282

Source: Barpeta district: Census 2011 data

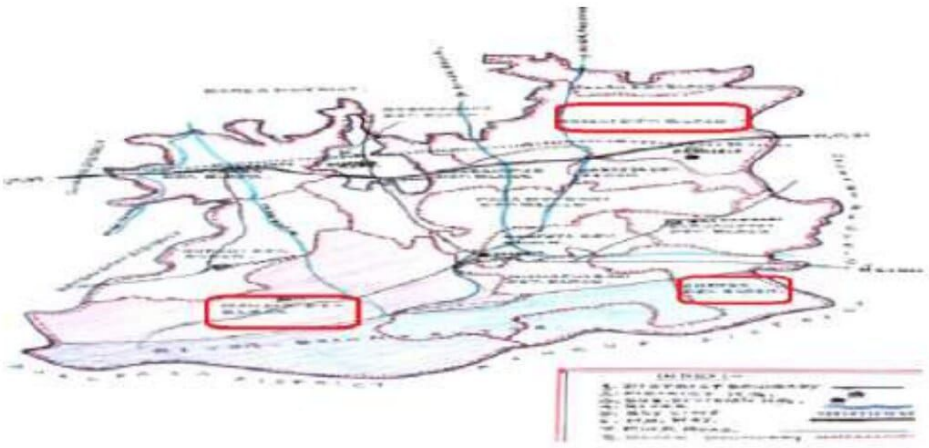
Barpeta district has 9 Revenue circles and 12 C.D Blocks which comprises 835 villages including 10 uninhabited villages (District Census Handbook, Barpeta). Out of the 12 C.D blocks, 3 blocks are selected for study. The selected 3 C.D blocks are Mandia, Chenga and Bajali.

According to 2011 census, total area of Mandia C.D block is 587.06 square kilometers, total population is 3,49,328 out of which 1,79,275 are male and 1,70,053 are female. Among the 12 C.D blocks, Mandia has the highest number of population.

As per 2011 census, total area of Chenga C.D block is 146.37 square kilometers, total population is 112,500 out of which 57,643 are male and remaining 54,857 are female.

According to 2011 census, total area of Bajali C.D block is 158.74 square kilometers, total population is 91,183 out of which 45,336 are male and remaining 45,847 are female.

Map 1.1: Selected C.D blocks of Barpeta district



Again, Kamrup district is located at Western side of the state. In Kamrup district, the state capital Dispur is situated. Kamrup district is surrounded by Darrang and Marigaon districts in the East, Nalbari and Goalpara districts on the West, Udalguri and Baska districts on the North and Meghalaya on the South. Kamrup district comprises two sub divisions- Guwahati and Rangia. This district is situated between 25.46 and 26.49 North latitude and between 90.48 and 91.50 East longitude (www.dcmsme.gov.in/dips/Distri-profile-kamrup-Dist.pdf).

After the independence of India in 1947 the "Undivided" Kamrup district was divided into the present Barpeta district (1983), Nalbari district (1985). In 2003, Kamrup was divided into Kamrup Metropolitan district and Kamrup Rural district (http://en.m.wikipedia.org/wiki/Undivided_kamrup_district).

As per 2011 census, total population of Kamrup district is 15, 17,542 out of which 7, 78,461 are male and 7, 39,081 are female. Total area of the district is 3,105 square

k.m. Density of population is 489 person per square k.m. Sex ratio is 949 females per 1000 males. Average literacy rate is 75.55%, male literacy rate is 81.30% and that of female is 69.47%. The table following 1.3 shows the census of Kamrup district in 2011.

Table 1.3: Census of Kamrup, 2011

District	Kamrup
State	Assam
Population	1,517,542
Population Density	489 Persons/sq.Km.
Male population	778,461
Female population	739,081
Sex Ratio	949
Average Literacy rate	75.55%
Male Literacy rate	81.30%
Female literacy rate	69.47%
Area (square kilometer)	3,105

Source: Kamrup district: Census 2011 data

According to 2011 census, out of the total population, 90.62% population of Kamrup district lives in rural areas of villages. Total population living in rural areas is 1,375,148 out of which 706,140 are male and 669,008 are female. Sex ratio in rural areas is 947 females per 1000 males. In rural areas of Kamrup district, literacy rate is 74.21%, male literacy rate is 80.10% and female literacy rate is 67.96%. The following table 1.4 shows the census of Kamrup (rural) in 2011.

Table 1.4: Census of Kamrup (Rural), 2011

District	Kamrup(Rural)
Population	90.62%
Total population	1375,148
Male population	706,140
Female population	669,008
Sex Ratio	947
Average Literacy rate	74.21
Male Literacy rate	80.1
Female literacy rate	67.96

Source: Kamrup District Population Religion-Census India 2011

Kamrup district has 12 Revenue Circles and 14 C.D Blocks which comprises 1068 villages including 31 uninhabited villages as per 2011 census (District Census

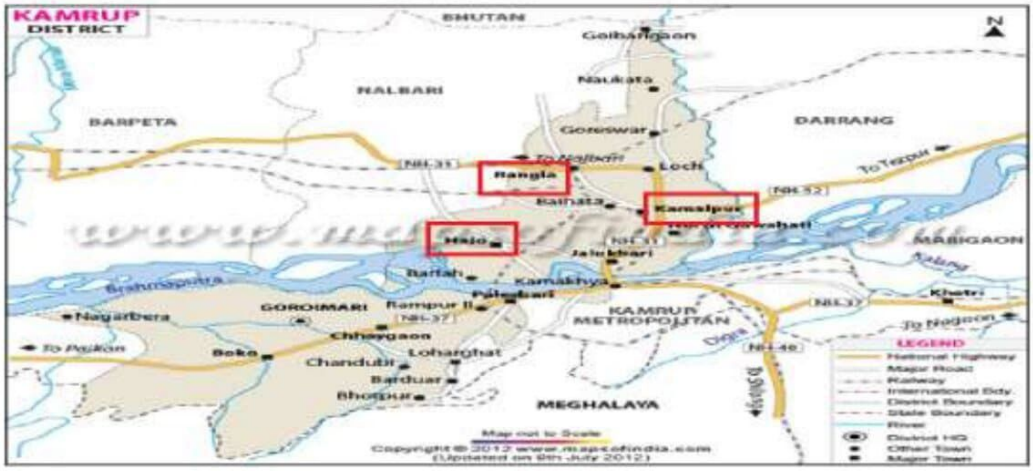
Handbook, Kamrup). Out of the 14 CD Blocks, 3 Blocks from Kamrup rural are selected. The selected CD Blocks from Kamrup rural are - Kamalpur, Rangia and Hajo CD.

Total area of Kamalpur CD block is 143.44 square kilometers. Total population of this block is 91,056 out of which 47,936 are male and remaining 43,120 are female as per 2011 census.

Rangia CD block has a total area of 186.98 square kilometers. Total population of this block is 132,000 out of which 68,583 are male and 63,417 are female as per 2011 census.

According to 2011 census, total area of Hajo CD block is 251.17 square kilometers, total population is 193,980 out of which 99,920 are male and 94,060 are female.

Map 1.2: Selected C.D blocks of Kamrup(R) district



1.10 Organization of the study

The study is organized into the eight chapters:

Chapter 1: Introduction

Chapter 2: Literature Review

Chapter 3: Methodology and data collection.

Chapter 4: Push and pull factors behind migration of workers in brick industries.

Chapter 5: Employment and income generation in brick industries.

Chapter 6: Socio-economic status of workers in brick industries.

Chapter 7: Problems and future prospects of brick industries.

Chapter 8: Summary of findings, conclusion and recommendation.

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