A GEOGRAPHICAL ANALYSIS OF BELL-METAL INDUSTRY IN SARTHEBARI, ASSAM

ABSTRACT

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ABSTRACT

Introduction :

In Assam, Barpeta district especially Sarthebari area occupies a premier place in respect of the development of Bell-Metal Industry. Bell-Metal utensil occupies an important place in the life and economy of the people in the state. Sarthebari area of Barpeta District of Assam is a unique place in respect of the development of Bell-Metal Industry, which was introduced here centuries ago and has been flourishing since then till today although its infrastructure pattern, techniques of manufacture and types of products have undergone extensive changes.

The past of the bell-metal craft of Sarthebari could be traced back to the 7th century A.D. It is mentioned in the old scripts that Kumar Bhaskarvarman, the illustrious ruler of Kamrup of the 7th Century A.D. had sent a pair of " *Bhortal*" , a large kind of cymbal, as present to Harshabardhana, the mighty monarch of the Northern India. In the early part of seventeenth Century one Ahom King, Swargadeo Siva Singha, put emphasis upon the artistic genius of Sarthebari. Since then bell-metal craft of Sarthebari had been ascending from glory to glory almost uninterruptedly till the advent of the foreign rulers to Assam.

There are 280 Bell-Metal units functioning at Sarthebari area which provide employment to 5000 workers directly or indirectly. This Industry has to meet up with tremendous demands and utilization of its products and in turn has provided means of livelihood to a large number of workers employed directly or indirectly in it.

The village and cottage Industries have been accorded special importance in the country for various social, economic and political reasons. This forms an important growing segment of the Indian Industrial structure today. Hence a systematic and detailed study of the operation of the village and

cottage Industries are of inevitable need for economic development. Among the cottage industries of Assam the position of Bell-Metal Industry is next to handloom industry. This is a household industry, where workers are mainly paid members of the family. With the help of simple traditional tools and equipments the industry produces various types of utensils made of bell-metal. The bell metal industry has not been modernized due to want of finance and lack of technical know-how. It is almost negligible in respect of technological innovation in the country for industry. Since the product has tremendous demand in respect of its utilization, it has a vast potential of further development and product diversification. But it seems the importance is handicapped by several draw backs. It is an urgent requirement to address these problems to develop and modernize the industry by improving production, quality and design.

Statement of the problem :

In the Gandhian concept of development much emphasis has been laid on the development of infrastructure in rural areas and towards expansion of village and cottage industries. The development of village industry was championed by Mahatma Gandhi by way of khadi and village industry which became an integral part of our economic life. Rural industrialization provides clinical remedies to many socio economic ills prevalent in the country. Village industry has a capacity to create more employment opportunities with low investment and a shorter gestation period. "There was a time when Gandhi was dubbed as a mystic who was dabbling in economics and politics without knowing his own limitation. But few have till recently realized that there is an ideology behind his views and like capitalist economics Gandhi had an economic doctrine. His emphasis on the need for the protection of village industries in view of the 'national' and 'social' importance is irrefutable indeed; the surprise is that it was given to a non-economist to state so clearly the implications of an immediately practicable programme. Let it not

be thought for a movement that we should regard Indian economics as application of western economic theory to Indian condition." Indian economics must have its own assumption based upon Gandhian ideology of cottage industries and have been accorded special importance in the country for various socio-economic and political reasons. They form an important and growing segment of the Indian industrial structure today. Their contribution to the country's domestic production and employment is also substantial. Precise quantification of the extent of such contribution is, however, rendered difficult by lack of sufficient statistical data and fact-finding studies in the field. Much is unknown about the operation, problems and prospects of most of the cottage and small enterprises in our country. Some information could, no doubt, be culled out from the data available in the Annual Survey of Industries but this is neither comprehensive nor up-to-date. Inspite of so many years of active promotion of small industries in this country, and a plethora of agencies involved in the matter, even the number of small industrial units actively in operation in the country is not precisely known. Much of the observation in this sector about capacity utilization, wide range of products catering to different strata of consumers both at home and abroad, or employment potential, have seems to be unauthentic. Hence, a systematic and detailed study of the operations of the small scale and cottage industry is seriously needed.

The cottage and small industries not only in the state of Assam, but in country they have been playing an important role in building the country's economy. Even with the growth of large and medium industries these cottage and small industries are still maintaining their importance, providing a good volume of income and employment in the rural areas. There are problems of industrial development, particularly cottage industry development in the state of Assam.

The problems are mainly geographical. Geographically Assam is located in the north –east corner of India and connected with the rest of India through a bottleneck of about 16km.and exposed to foreign countries only

through Bhutan and Bangladesh. In true sense, Assam is a land locked state. The only outlet is the mighty river Brahmaputra which is passing through a foreign country (Bangladesh). Moreover, about two third of the total boundary of the state is mountainous. The great physical distances from the main consuming centers of India have been multiplied by the bad transport system to and from, and within the state with poor infrastructural facilities of power, government and administrative assistance, technical education, institute etc. The state has been experiencing an unprecedented power failure. From time to time the government of Assam has been formulating industrial policies for the growth of industries in the state, but sincere efforts are lacking.

The heritage of cottage industries in Assam is very rich, but these industries are handicapped with innumerable problems. The bell-metal industry of Sarthebari has been facing problems of economic and technical support.

One of the major requirements of the bell-metal industry is credit facility. This affects the production process adversely. The small scale industrial sector has been recognized as a priority sector and the banks have been advised by the Reserve Bank of India to give special attention to the credit requirements of these industries. It is observed that due to none sanctioning of working capital by the Banks to the bell-metal units the beneficiaries are discouraged. There are also no initiatives from the Government to promote cottage industries like bell-metal and others. Therefore, the bell-metal industry units of Sarthebari are facing difficult time though it gives means of livelihood to thousands of people.

Objectives :

The main objectives of the study are-

(i) to examine the present status of bell-metal industry in Sarthebari area, of Barpeta district,

(ii) to study the locational setup of bell-metal industry and its geographical setting,

(iii) to examine the performance of the bell-metal units in the Barpeta District of Assam and in particular to Sarthebari area,

(iv) to study the socio economic conditions of the workers engaged in the industry,

(v) to evaluate the economic prospect of the industry with the use of modern tools,

(vi) to study the health problems of the workers engaged in this industry, and

(vii) to study the distributional patterns and trends of growth of the existing Bell-metal units of Sarthebari.

It is expected that the present work will prove useful to the present and the prospective small entrepreneurs working or intending to undertake manufacture of bell-metal works on small scale basis. It would also help the Assam Government in obtaining detailed information on the existing conditions of the bell- metal units and their problems in leading centres for the purpose of determining the future policy and course of action to rehabilitate or revitalize the industry.

Data base and Methodology :

The bell metal industry in Sarthebari generally runs on a small scale basis. Here 280 units constitute the entire industry; most of them are active at the time of field survey. These units are working at different *chupas* (a division of town or village), most of the units are found in the municipality area. No units are registered with the Directorate of Industries, Govt. of Assam. The information was collected through questionnaires and on the spot personal interviews with artisans, government officials, officials of Assam Co-operative Bell-metal Utensils Manufacturing Society. Field surveys as well as empirical

studies were used for collecting various types of data and informations. The two sources of data collected are (i) secondary and (ii) primary.

The secondary data were collected from Directorate of Industries, Directorate of Assam Small Industries Development Corporation, Assam Co-operative Bell-metal Utensils Manufacturing Society and District Industries Centre, Barpeta. Relevant books, journals, souvenirs, papers and various reports from different agencies, like Khadi and Village Industries Board, Assam, Khadi and Village Industries Commission, Handloom & Handicraft Industries, Assam have been consulted.

The primary data were collected from direct field observation and survey of bell-metal units. For this purpose questionnaires were prepared (Appendix-B). The questionnaires include question on socio-economic, annual income, wages, recreation, raw material, tools, business, capital, marketing system, production and process etc. The questionnaires comprised of personal data, recruitment of labour, size of family, standard of living, welfare and trade unionism etc. In the 280 units the total numbers of artisans engaged are 1465 persons. Each artisans were distributed an identification card to identify them and then questionnaires were distributed to individuals to fill the question. In this way the entire 1465 person's information was collected and also interviewed them personally one by one. The Assam Co-operative Bell-metal Utensils Manufacture society (*Asom Samabai Kahar Sangha*), Assam Samobai Kahar Silpi Santha, Directorate of Industries, Barpeta District were also visited for essential data During the course of the investigation the Bell-metal artisans hesitated in giving the information regarding various aspects of their units. The researcher however got over this difficulty by personal persuasion and assurances of confidentiality and for academic uses only. The collection of detail information from the Bell-metal units posed a more serious problem since most of the enterprises were organized as proprietary or partnership concern and hence were not obliged to publish on a regular basis their financial statements. The data supplied by the artisan was generally based on the

approximation of their memories. They have neither maintained proper books of account nor have they prepared their profit and loss accounts to evaluate their operational efficiency.

The data collected from the secondary and primary sources are possessed, calculated, analysed and interpreted using various statistical and cartographic techniques. Bar diagram, wheel diagram, distribution map showing location of Bell-metal units are prepared based on the collected data. Co-relation coefficient (Pearson's) method also used to show the relationship of supply of raw materials and production of finished products of the units in the study area. Again, economic condition and standard of living of the workers are studied with suitable cartographic technique. The data base covers mainly 1991-2005 (15 years). Survey was conducted taking the households dealing with Bell-metal artisans in Sarthebari Town area and its adjoining villages. During the time of listing of households, the Bell- metal industry had been mostly found in Sarthebari town committee area and other villages namely Namsala, Karakuchi, Gomura and Lachima. Household survey was done in the month of were taken for study the other organizations related to marketing, supply and store of Bell-metal products were also considered. For the purpose of the analysis of the data obtained, annual income size wise classification of these 280 units had been done so as to examine the comparative performance of the small units (annual income less than 15,000/-) medium units (annual income 15,000/- to 20,000/-) and large units (annual income above20,000/-).

The sets of questionnaires were devised for the study and the information were sought for from the Director of industries, Managing Director of Assam Small Scale Industries, Assam Co-operative Bell-metal Utensils Manufacturing Society Ltd, Sarthebari, including its branch of Sarthebari Natun Bazar and Director of Industries, Barpeta. Detailed questionnaire at the level of the artisans was prepared and collected informations from the units. With the help of field survey various informations were collected on the related crafts through personal interview with the artisans. For preparation of this study

consulted various reports and studies carried out by a number of organizations, agencies and scholars on this field. Moreover, at the time of field survey learned and experienced people associated with this craft and their views were taken while preparing the reports and making suggestions.

Hypothesis :

The study is made on to test the following hypotheses in the context of cottage industry in the study area.

1. Bell-metal industry is the main occupation of *Kahars* (Bell-metal artisans) of Sarthebari, their entire economy and livelihood depends on this bell-metal industry.
2. Stagnation in the development of bell-metal industry in the study area is primarily due to lack of entrepreneurship zeal and absence of motivation.

Organisation of Chapters :

Apart from the Introduction and the Conclusion the thesis is organized in to eight chapters. The importance of the study, statements of the problems, review of literature, database and methodology has been discussed in the **first chapter**. Sarthebari was a village of 2.90 sq km till 1955 before it was declared as town. Though the town has been divided into four wards, the old names of each sub area of the village (Tamuli supa, Choudhary supa, etc) are still prevalent and populations too are engaged in traditional activities. In Sarthebari 280 bell metal units are functioning and providing employment to about 5000 workers directly or indirectly. Among these about 1465 persons are artisans, others are shop keepers and traders. There are large numbers of traders spread throughout the state. The artisans are used to work for 12 to 16 hours a day for about 20 days a month when the supply of raw materials are regular. The activities in the units are seasonal since supplies of raw materials are not

throughout the year. The products have a demand in the market in its utilization, but it is handicapped in several aspects.

The environmental setting, relief, topographical feature, climate, natural vegetation and location and socio-economic background of the area have been discussed in the **second chapter**. Barpeta district is not a homogeneous unit, it is consists of variety of physiographic elements such as flood plain, foot hills etc. The region extends from 26° 5′' N to 26° 49′'N Latitudes and from 90°99′'E to 91°17′'E longitudes. The region has a total geographical area of 3,307.3km.

The district of Barpeta lies in the regime of monsoon climate of the sub tropical belt. It enjoys heavy summer rainfall, winter drought, high humidity and relatively low temperature. The district shows marked spatial variation in the climatic pattern, primarily because of its location and physiographic.

The climate of this region is normally characterized by orographic lows during summer. The plains become hot and the air over the hills and mountains remains relatively cool. The region being covered and bounded by highland on its north, east and south is open to the west orographic and other cyclonic disturbances of the south west monsoon, so far the spatial distribution of rainfall is concerned there is a marked variation within the district.

The third chapter presents the cottage industry with special reference to bell-metal in Sarthebari. In Assam Barpeta district is also industrially backward. Not a single LMSI unit has been established in the district till today. But the district is known for its ivory products and bell-metal industry. Sarthebari area in Barpeta district is the main centre of this type of traditional cottage industry.

In our country it is not clearly demarcated the differences of cottage industries, village industries, handicraft and 'small' industries. There are several boards, commissions and organizations formed at different time

such as the Central Silk Board, All India Handicrafts Board, and all India Hand Loom Board, All India Khadi and Village Industries Commission, Coir Board, Small Industries Development Organization. But we feel there is an absence of co-ordination among them. Except India in other countries such anomalies seem to be less and rare on global view of small scale industries.

A cottage industry is one which is operated mainly or primarily with the help of the members of the family either as a whole or part-time occupation. On the other hand the small-scale industry is one which is operated mainly with hired labour normally engaging 10 to 50 workers.

The director of economics and statistics, Assam while conducting a survey of the cottage industries in Assam 1954-55 covered handloom, bras and bell metal, black smithy, pottery and a host of such other 72 industries have been included under the term 'cottage industries'.

The bell metal industry of Sarthebari is a hereditary occupation of the artisans and almost all the establishments are operating in a partnership basis. The predominance of partnership basis of the bell metal industry is an age old practice among the artisans. Locally this system is known as "*Oja-Pali 'or 'Kahar –Bhaiga'*. The bell metal unit is forms with 5 to 7 workers or more but not more than 11 persons.

In the **fourth chapter** the causes of stagnation in bell-metal industry of Sarthebari have been discussed. Many of the problems of production, distribution, and finances continue to affect the cottage industry of the state. While some of them are more or less common to a wide range of cottage industries, others have particular relevance to a group of cottage industries and to industries situated in rural and backward areas. The studies which have been carried out by economic investigation team attached to cottage industries service institutes in each state, have thrown valuable light on various difficulties or problems faced by different cottage industries, and have recommended measures to overcome them.

The problems of Cottage industries may be divided into two groups-

(i) External

(ii) Internal

The external problems are those which result from factors beyond the control of the industrialist, such as the availability of power and other infrastructure facilities required for the smooth running of cottage industries. The internal problems are those, which are not influenced by external forces. The Internal problems affecting the industries are organization structure, production channel, distribution channel, technical know how, training, industrial relations and inadequacy of management etc. The problems of industries in the small-scale sectors are almost identical. It has weak financial structure and the resources are limited. There are several causes responsible for the gradual decline of bell metal industry of Sarthebari. The reasons applicable in respect of disappearance of the industry from Titabar, Raha etc. also hold good in respect of Sarthebari. Broadly, the reasons are due to discontinuation of raw material supply by the Government after 1969-70, non availability of virgin raw materials, low moral of artisans, hard physical toil for more than 12 hours, earning not commensurate with labour and their daily requirement of basic necessities, social outlook, substitution effect from cheaper but colorful and handy products coming from outside, non availability of credit facility from banks and financial institutions, lack of modernization and diversification etc. The relative progress of production trend can be gauged from the following table:

Table No 4.1

Production Trends of Bell metal Utensils in Sarthebari under Co-operative Society (1994-95 to 2005-06)

Sl. No.	Years	Finished Product (bell-Metal) at kg
1	1994-1995	20,665,000
2	1995-1996	22,186,000
3	1996-1997	22,278,000
4	1997-1998	24,314,000
5	1998-1999	25,866,000
6	1999-2000	22,580,000
7	2000-2001	28,888,000
8	2001-2002	35,018,000
9	2002-2003	35,183,000
10	2003-2004	35,237,000
11	2004-2005	35,120,000
12	2005-2006	33,154,000

Source: The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd. Sarthebari

The above table (No-4.1) indicates that during the last 12 years the industry as a whole made a steady progress. The only exception took place in the year 1999-2000 where it shows little decline to 22,580,000 kgs. as against 25,866,000 kgs in the preceding years indicating a fall 2,286,000 kgs. The production of bell metal in Sarthebari however, does not show any fall in during the year 2001- to 2005, but, shows a fall of 1,866,000 kgs in 2005-06. The figure shows an increase trend from 1994 to 2001, except in 1999 which has gone down to 22,580,000, which is a net fall of 2,286,000 kgs. From 2001 onwards the rise is from 28,888,000 to 35,018,000 kgs. From 2001 to 2005 the

production shows stagnation.. In the current year 2005-06 the production have declined by 35,120,000 kgs to 33, 154,00 kgs. But it is insignificant.

Table No 4.2

Production Rate of Artisans in Bell-metal Industry of Sarthebari

Size in gm	Name of Utensils	Rate of wage (per kg) in January 1999	Rate of wage (per kg) in January 2005	Rate of wage increase (per kg)	Percentage of increase
400-500 gm	Saroj Nag Feti Bata *(designable Bell-metal tray with a foot)*	Rs 138.10	Rs 156.00	Rs 17.90	12.9%
700-1100 gm	Saroj Nag Feti Bata *(designable bell-metal tray with foot)*	Rs 135.15	Rs 155.00	Rs 19.85	14.6%
700-900 gm	Charia *(a wash bowl)*	Rs 126.35	Rs 146.00	Rs 19.65	15.5%
1100 gm	Charia *(a wash bowl)*	Rs 124.40	Rs 146.00	Rs 21.60	17.3%
1000 gm	Bhortall*(a large kind of cymbal)*	Rs 125.00	Rs 152.00	Rs 27.00	21.6%
1500 gm	Bhortall *(a large kind of cymbal)*	Rs 130.00	Rs 157.00	Rs 27.00	20.7%
1000-2000 gm	School Bell	Rs 80.00	Rs 93.00	Rs 13.00	16.2%
700 gm	Kahi *(a metallic dish or plate)*	Rs 112.00	Rs 126.00	Rs 14.00	12.5%
200-500 gm	Khuti tall *(a kind of cymbal)*	Rs 115.00	Rs 147.00	Rs 32.00	27.8%
100 gm	Bati *(a cup)*	Rs 90.25	Rs 100.00	Rs 9.75	10.8%

Source: Kahar Silpi Sangha, Sarthebari, 2005

The table (4.2) shows that an artisan in the year 1999 was getting Rs 112.00 for doing production of smithy work of *Kahi* (metal dish or plate), now for the same work the artisans get Rs.126.00. Therefore the increases in wages are very insignificant. The artisans are not getting their dues as per their work load. The above table reveals that wage rate is fluctuating insignificantly depending on their products. Therefore there is hardly any major increase in wages.

The marketing problems of the industry have been examined in the **fifth chapter.**

Marketing occupies an important place in the management of cottage industry. It is a key factor in determining the success of an industrial concern. Traditionally, marketing has been consisted of "those efforts which affect the transfer of ownership of goods and care for their physical distribution 'In economic terms, marketing covers those activities which relate to the creation of time, place and possession of activities. Marketing is defined as the process of exchange between sellers and buyers. The bell metal producers do not generally make direct sale to the ultimate consumers at their premises nor do they sell door to doors. For effective marketing of bell metal items producers themselves channelises their sales with the wholesalers, local dealers and retailers.

Following are the principal channels of marketing prevalent in the bell metal industry of Sarthebari in Barpeta District.

(a) Bell metal whole sellers.

(b) Local bell metal dealers.

(c) Out side *"beoparies'* (traders) including those of Bhutan and Tibet.

(d) The Assam Co-operative Bell metal Utensils Manufacturing Society, Sarthebari.

The Assam Co-operative Bell Metal Utensils Manufacturing Society Ltd, Sarthebari plays an important role in marketing of the bell metal production .The society was established by the share holders to promote the growth of the bell metal industry and its economic development. Besides other services like marketing assistance to the units but due to lack of proper plan the society is unable to control the marketing division.

The guiding principles in the operation of the marketing are made to overcome the following shortcomings experienced by the industry in the field of marketing:

(i) Lack of standardization.

(ii) Lack of trade name that would assure quality

(iii) Lack of contact with a wide market.

The society makes arrangements for overcoming of these defects and provides suitable facilities for the marketing of the products of the bell metal units in Sarthebari and abroad. The technical personnel of the society need to inspect the goods in various stages of manufacturing for quality control. The goods that are manufactured strictly under the prescribed specification needs to be marketed under the trade mark for quality and reliability of the consumer. The existing marketing system in the bell metal industry in Sarthebari has many drawbacks. Thus getting a wide market for bell metal products within and out side the country is not consolidating owing to financial condition of industrial co-operatives.

The importance of bell-metal in social and cultural life and sustainability of Sarthebari bell metal industry have been discussed in the **sixth chapter**. The bell metal industry in Sarthebari is not properly developing due to non availability of local infrastructure, raw material and market, and many other factors. The major factors of growth of such industry have been mainly because of the availability of skilled artisans and their entrepreneurship. The skill achieved by the artisans are however purely hereditary. Till recently next to gold and silver ornaments bell metal articles were considered as one of the most valuable properties by the Assamese people. A substantial part of the savings of the people keeps for social status and prestige by investing in the metallic utensils. These products are inseparable items in social and cultural life of Assam. The bell metal products are used in traditional and religious occasions besides day to day use. The religious institutions like- *Satras* (a

monastery), *mandi r*(temples), *Namghars* (a place of worship in Assam) use of bell metal utensils are extremely important. The bell metal products used in those institutions are *doba* (a large kettle drums), *ashan* (tiny seat made of bell metal), *ghanta* (a bell), *bigrah* (the image of a God), *gasha* (a lamp stand), *dug-dug* (water vessel with a long neck), *sarai* (a platter or tray with stand) etc. These are mostly comes from Sarthebari.

Assamese marriages are incomplete without the bell metal items from Sarthebari. It is a tradition in Assamese marriages to accompany the bride with fine pieces of bell metal items like *kahi* (bell metal dish), *bati*, (bell metal cup) *lota*, (small water vessel) *ghati* (water pot), *kalah* (a pitcher), *bata* (a tray with a foot), *panbata* (small tray with foot), *sarai* (a platter with foot) as a gift. In Assam marriages and other ceremonies take place in the month of November to May. The demand of finished bell metal products increases during this period.

Religious occasions *"Dapani"*(a mirror framed with bell metal) and *"Khanti"* are important items for the bride, which are notable bell metal products moulded by Sarthebari artisans.

In Assam the traditional and cultural activities by *dhulia*, (a drummer) *khulia* ,(a man who plays on a musical instrument named khol) *gayan* (a singer accompanied with instrumental music), *bayan* (instrumentalist), *kaliya* ,(piper) *taliya* ,(cymbal player) *ojapali* (chorus singers), *bhortal*, (a large kind of cymbal) *khuti tal*, (a kind of cymbal) *pati tal*, (small cymbal) *manjra* (a small cymbal) are widely used. Some of these items are exported to western countries. The concentrating singing bowl, used by the Buddhist monks fetches a good market value in Kulu, Manali, Darjeeling, Sikkim, Tibet, Nepal and Bhutan. The finer is the work, the better is the market. Similarly the traditional cymbals have a high demand in these markets.

The study on the market channel of the products of bell metal industry shows that market channel is informal and un-organized. The use of many of the bell metal products are for various festivals, religious and ritual

purposes, therefore they are crucial and has a ready market in the society. The artistic products of the industry have always been in demand within and outside the state including foreign countries.

The **seventh chapter** presents the classification of artisans in the industry, their wage structure, their living standard, working condition of bell metal industry, welfare activities and indebtedness among artisans.

Here an attempt has been made to examine the standard of living on the basis of their wages, size of family, general price level and social and religious institutions. The personal traits of a man, his habits, education and outlook and the way of spending have also been taken into account. Dearness allowances are also not paid to the artisans in the bell metal industry of Sarthebari. There is no system of grades and scales of pay as is in other industries. The majority of the bell metal artisans of Sarthebari belong to the joint family. Out of 1000 households 520 (52%) artisans are belongs to the joint family and the rest 480 (48%) belongs to the nuclear family. The majority of the bell metal artisans of Sarthebari maintain a large family.

The study reveals that the average family sizes are 5 (five). Most of the artisans are from low income groups of the society and live below the poverty line. The skilled artisans accounts for 11 percent of the total artisan population of the bell metal industry in Sarthebari.. Like other industrial workers of India the bell metal artisans of Sarthebari are buried under debt. There is no actual figure available to find indebtedness statistics prevailing among the bell metal artisans of Sarthebari. However, the study reveals that nearly two third of the artisans i.e. 940 out of 1465 artisans (64.16%) engaged in the industry are indebted.

The study reveals that the bell metal units are established in huts or sheds in Sarthebari, which are in a unplanned manner. There is no specification about their sizes and shapes.

About 109 units (39%) have proper sheds to an extent. In fact during rainy season production is temporarily suspended therefore a proper

sheds are not felt as an essential part of the production. About 61% of the units are temporarily closed during the rainy season. The normal practice is that the units functions mostly from their respective houses. In Sarthebari 95 percent of the artisans working in the bell metal industry are local residents and rest commutes daily from nearby villages. There are 1465 artisans, out of which 586 (40%) could afford Assam type houses, 688 (47%) in thatch houses and remaining 191 (13%) in huts.

There are no medical facilities for artisans though they fall sick due to inhaling toxic smokes. Sometimes the local NGO's often provide free health facilities to the artisans, which is not adequate. Serious patients are normally taken to nearby Nalbari town for better medical facility which is 25km away from Sarthebari.

The **last chapter** deals with conclusions drawn from the present study, problems of the industry and suggestions for further development. The primary as well as secondary data analysis shows that the bell metal industry of Sarthebari is stagnant. The data shows that the income generated among the artisans are not sufficient even for two square meals a day for themselves. The next generations of the populations are showing negative interest in continuing this traditional industry.

The raw materials used in the bell metal industry are not available within the state and are imported from out side the state. The existing 280 bell metal units requires a minimum 10 kgs of raw material per day per unit (at least 3 weeks a month) Hence the total quantity of raw materials required for the 280 units are 280x21x10= 58,800 kg or 588 qtls, per month. The other raw material required is charcoal. The monthly requirement of charcoal is about 120 bags to 250 bags in each unit. All the bell metal artisans are facing acute shortage of all raw materials required for the industry. In fact, procurement of these raw materials is the most difficult task of the artisans. All these non-ferrous materials are being imported by the Metal and Minerals Trading Corporation (MMTC) a Govt. of India undertaking, which distributes to the artisans directly

or through the state Development Corporation. At present the system has been discontinued in Sarthebari. The society use to take delivery of the materials and supplies, but due to paucity of funds of the society fails in maintaining regular supply. In Assam The Directorate of Industries is making effort to the MMTC authority to open an office with warehousing facility of all these materials.

For uplifting the level of workmanship of the rural artisans, a common facility centre is an essential part of the area. At Sarthebari a common facility service centre (CFSC) was established in 1978 by the industries department but not functioning according to plan.

Use of traditional production technique is another drawback in the bell metal industry of Sarthebari. Slow in adopting improved and modern production techniques, machinery and equipment as compared to other bell metal industry in India is another setback.

Most artisans and workers engaged in the industry are illiterate. There is no facility for technical education and training for these artisans. They do not maintain any accounts on their incomes and expenditures. Power supply to bell metal industry is irregular and inadequate. Electric power is required for operating machines and equipments to transform coarse raw material. The periodic power cuts and failures have prevented the bell metal units from working to their maximum capacity and efficiency.

The absence of efficient marketing of bell metal products are a great problem for the bell metal manufacturers in the state. The existing marketing method i.e. sale through *'beoparies'* (traders) sales through order and wholesalers etc. are very inefficient and defective.

Major Findings:

- The study reveals that about 87.3% of the workers are wholly engaged in the bell metal industry in Sarthebari, while 12.7% workers are engaged partially in the industry.

- The most artisans do agricultural activities besides their engagement in the industry, but with the help of other family members those who are not directly involved in the industry.
- Most of the units do not provide proper sheds to the artisans where they use to work.
- It is a fact that the bell metal industry is not growing but it is declining slowly mainly due to scanty supply of raw materials, non availability of credit facility and competition from substitute products in the market.
- The entire 280 units in Sarthebari unable to procure scrap bell metal from their own resources. The units are dependant on the wholesale suppliers and partly on co-operative societies.
- The artisans are not provided with any medical facilities no dispensary no medical aid. All medical expenses are usually borne by themselves.
- The Assam Co-operative Bell-Metal Utensils Manufacturing Society, Sarthebari was started in 1939-40 with a view to promote the economic and craftsmanship of the artisans of the state. Also to facilitate with raw materials, equipments and other facilities required for the industry. The society could not supply 20% of the raw materials required for the units. Thus society could not achieve its objectives and goals. Ultimately most artisans depend on the *'mahajans'*(money lender) to run the units.
- The bell metal units of Sarthebari have so far utilized only 39.7 percent of their normal production capacity which is due to lack of scrap bell metal. The artisan's average

working days in the industry are not more than 15-17 days in a month.

- There is no improvement of tools that are being used in the units. The artisans fail to adopt new designs to suit the tastes of modern customers.
- Most of the artisans never maintain any expenditure accounts. Artisans are poor and there is no surplus amount to invest in the industry.
- The major share of the profits of the bell metal industry goes to the traders. The purchases of scrap bell metals to the sale of finished goods are controlled by the traders. Thus artisans never get the benefits since they are under the grip of the traders.
- The study reveals that about 72.5% of the units have taken loan from the village money lenders. The rate of interests charged ranges from 5 percent to 15 percent per month.
- Cottage industry in Barpeta district is providing employment to more than five thousand indigenous people.
- Assam Government Marketing Corporation and its branches in Assam is not making any arrangement to purchase scrap bell metal and sale the stock to S.O.I.D.C. to meet the requirement of the artisans of the state.

A GEOGRAPHICAL ANALYSIS OF BELL-METAL INDUSTRY IN SARTHEBARI, ASSAM

THESIS

SUBMITTED IN FULFILMENT

OF THE REQUIREMENT OF THE DEGREE OF

DOCTOR OF PHILOSOPHY IN GEOGRAPHY

SUBMITTED BY

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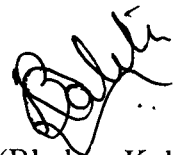
July, 2007

I, Bhaben Kalita, hereby declare that the subject-matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of award of previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/ Institute.

This thesis is submitted to North-Eastern Hill University for the degree of Doctor of Philosophy in Geography.



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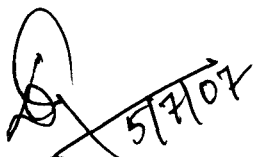

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Preface

Industry occupies an important place in the life and economy of a nation. The changing pattern of life and the advancement in the economic and social spheres have further added to its importance. The industry caters not only to the daily requirements of our life but also it is a means of livelihood to a large number of workers employed directly or indirectly in it. Bell-metal industry is a traditional cottage industry of Assam having records in history from the 7th century A.D. in Barpeta District. Especially Sarthebari area occupies a premier place in respect of the development of bell metal industry. Sarthebari area of Assam is a unique place in respect of the development of this industry which was introduced here centuries ago and has been flourishing till today although its infrastructure pattern, techniques of manufacture and types of products have undergone extensive changes.

There are 280 working bell metal units situated at Sarthebari, which have provided employment to 2500 workers directly and to an equal number indirectly. The industry possesses vast potentialities for further development and product diversification but it is considerably handicapped by several drawbacks which hinder its balanced and proper growth.

These problems are examined in detail and suitable ways and means have been suggested to modernize the industry for improvement of

production, and quality so as to face the competitions from sophisticated markets of its kind.

An attempt has, therefore been made in this study, in its historical background and development to examine the various aspects affecting the growth and development of the industry and problems facing the industry, to explore the prospects of its development in future and to put forth certain useful suggestions so that the industry could develop in a proper perspective in accordance with the changing needs and conditions. The present study is purely a non-technical one.

I deem it a great privilege to express my heartfelt gratitude to my supervisor Prof. B.S. Mipun, Department of Geography, North-Eastern Hill University for suggesting me the present problem of research and correcting the draft chapters painstakingly. Without his guidance and valuable suggestion it would not have been possible for me to complete this work.

I acknowledge Mr. K.S.Deka the President of *Asom Sahitya Sabha* who has been kind enough to help me with his resourcefulness and erudite suggestions.

I am extremely indebted to Dr. S. Sarma, Senior Cartographer, Department of Geography, North-Eastern Hill University, Mr. H.K. Dutta, Head of the Department of English, M.N.C. Balika Mahabidalaya who graciously encouraged me in the preparation of the present work at all stages. My thanks are also due to the authors especially Mr. K.C. Gupta, Dr.P.

Baishya, and publishers of many books, reports, and journals which I have arduously consulted during the course of work.

I am deeply indebted to Mr. B.K. Bhuyan the Head clerk, Mr. A.C. Deka, Principal (i/c), Sarthebari H.S.School. Dr. J. Barman, Lecturer, Suren Das College, Mr Surajit Barman, Lecturer, Tihu College, and my colleagues. I am extremely thankful to those Government Departments that helped me in getting relevant data and other related materials.

I am no less indebted to Kahar Silpi Sangha of Sarthebari, The Assam Co-operative Bell-Metal utensils Manufacturing Society Ltd, Sarthebari and the President Mr J, Deka and Secretary Mr. S. Tamuli who were kind enough to spare their valuable time in supplying the relevant data and the other related materials.

Special recognition is due to my wife Mrs. Labanyamayee Kalita, who provided four of year's patient understanding and encouragement while this research work was in preparation.

Bhaben Kalita

Contents

List of Tables

List of Figures

List of Plates

Chapter-I

INTRODUCTION

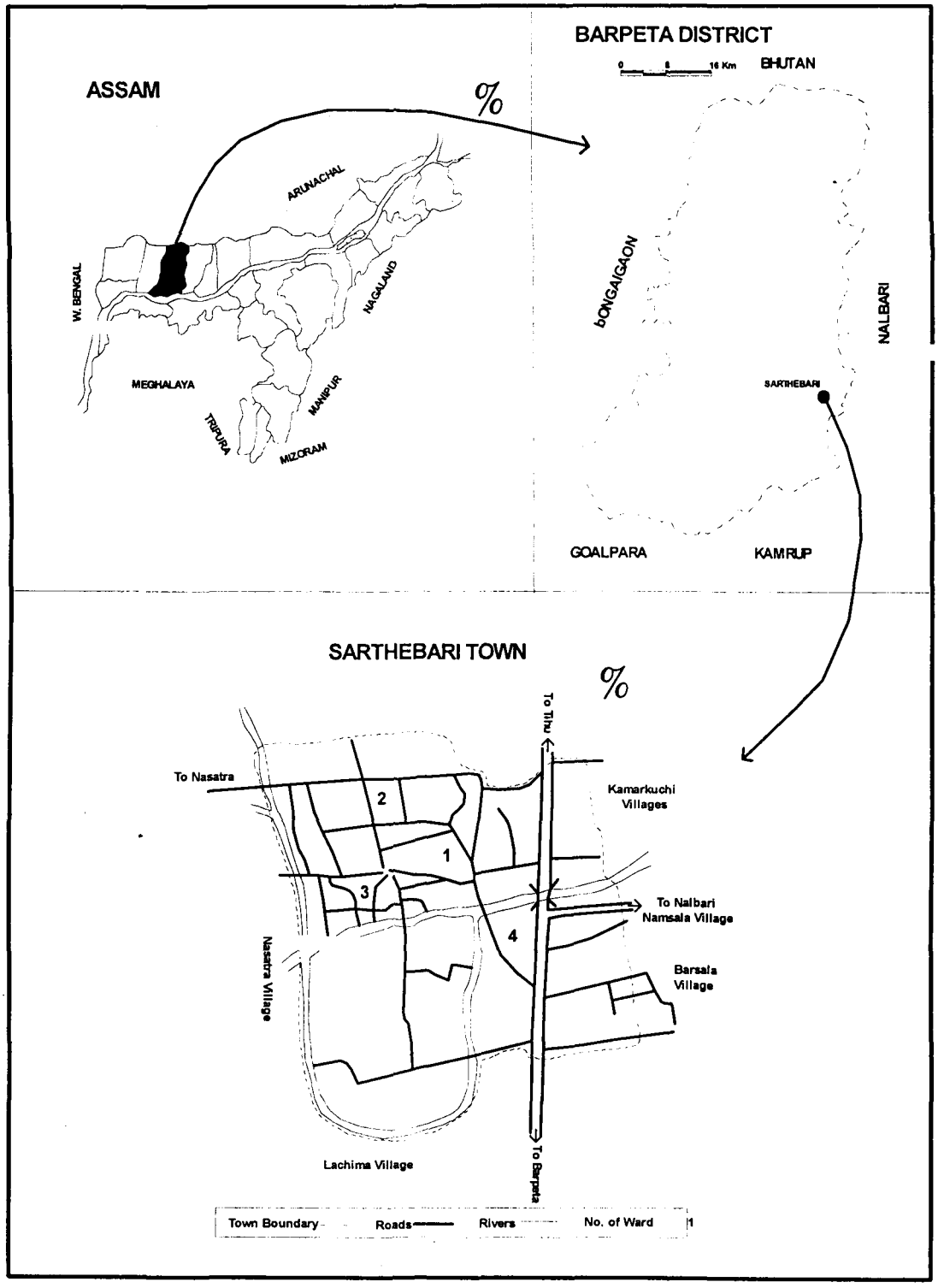
The base of industrial development in Assam was created more than a century ago with the establishment of tea, coal and plywood industry. Assam has the distinction of having the first oil refinery, first plywood factory and also first tea industry in the country,[1] but the state continues to remain industrially backward even after more than four decades of economic planning. However, like the rest of India. Assam also had a glorious past in traditional manufacturing of textiles processing and production of metals of iron, gold, copper, brass and bell- metal, earthen works of pottery, bricks and tiles, handicraft works of bamboo, cane, ivory and horn. The pattern of industrialization has, however, differed due to environmental factors, available resources aesthetic feelings and specific needs of the people. Bell-metal products have now become an essential part and parcel of our daily life and requirement. It has also widely in demand in a large number of other industries. The bell-metal industry has assumed a pride of place in all schemes of industrialization these days. Sarthebari under Barpeta district in Assam occupies a unique place in respect of the development of bell- metal industry,

which was introduced centuries ago and has been flourishing since then, although its infrastructure pattern, techniques of manufacture and types of products have under gone extensive changes. (Fig 1.1) Sarthebari was a big village having an area of 2.90 sq km till 1955 when the town committee was formed and the nomenclature was changed from village to town although the pattern of habitation style of the people, behavioural norms, tradition and culture remains same. Even today, in spite of the town being divided in to four wards, the old names of each sub area of the village such as *Tamuli chupa* (a division of a town or village), *Choudhary chupa*, etc are still prevalent and functionally too the population is engaged in primary activities. At present in Sarthebari 280 bell-metal units are functioning and provides employments to 5000 workers directly or indirectly. Among them about 1300 persons are local artisans, the rest are shop keepers and traders, and indirect employees. Also a large number of trader's are spread all over the state. The artisans use to work 12 to 16 hours a day for about 20 days a month when the supply of raw materials are regular. However, currently the industry is suffering from seasonality. Throughout the season industry units are not receiving regular supply of raw materials.

The industry provides means of livelihood to a large number of workers engaged directly or indirectly in it and required to meet the demands of its products.

Fig-1.1

LOCATION MAP OF SARTHEBARI



The village and cottage industries have been accorded special importance in the country for various social, economic and political reasons. Among the cottage industries of Assam, the position of bell- metal industry is next important to handloom industry. It is a house hold industry, where workers are mainly wage labourers. With the help of simple traditional tools and equipment the industry produces more than 147 types of bell-metal utensils. Till date this industry is not being modernized, rather neglected in respect of technological innovation. Though the products have demand in the market, its potential for further development and product diversification is yet to take place. It is in this consideration, the researcher is studying the bell-metal industry of Assam both in organized and unorganized sectors.

The study is designed not only at throwing light on the present state of affairs of the industry but also to highlight the various drawbacks and problems which have resulted in its growth. It also aims at the formulation of a suitable plan for its future development and economic benefit. This industry has a potential to create more employment opportunities with low investment. bell-metal industry is a labour intensive and capital investment is also much smaller than the large scale industries. Semi-skilled man power of the rural areas can easily be absorbed. The bell-metal industry with their extensive employment potential also plays an important role in marketing bell-metal industry is capable of reducing regional disparities in industrial development. Similarly, this industry is under the ownership and control of the producer

themselves. Moreover, this industry has much greater flexibility in is operational network and can meet the individual requirements of their taste and design.

1.2 Statement of the problem:

In the Gandhian concept of development much emphasis has been laid on the development of infrastructure in rural areas and towards expansion of village and cottage industries. The development of village industry was championed by Mahatma Gandhi by way of khadi and village industry which became an integral part of our economic life. Rural industrialization provides clinical remedies to many socio economic ills prevalent in the country. Village industry has a capacity to create more employment opportunities with low investment and a shorter gestation period. "There was a time when Gandhi was dubbed as a mystic who was dabbling in economics and politics without knowing his own limitation. But few have till recently realized that there is an ideology behind his views and like capitalist economics Gandhi had an economic doctrine. His emphasis on the need for the protection of village industries in view of the 'national' and 'social' importance is irrefutable indeed; the surprise is that it was given to a non-economist to state so clearly the implications of an immediately practicable programme. Let it not be thought for a movement that we should regard Indian economics as application of western economic theory to Indian condition." Indian economics must have its own assumption based upon Gandhian ideology of cottage

industries and have been accorded special importance in the country for various socio-economic and political reasons. They form an important and growing segment of the Indian industrial structure today. Their contribution to the country's domestic production and employment is also substantial. Precise quantification of the extent of such contribution is, however, rendered difficult by lack of sufficient statistical data and fact-finding studies in the field. Much is unknown about the operation, problems and prospects of most of the cottage and small enterprises in our country. Some information could, no doubt, be culled out from the data available in the Annual Survey of Industries but this is neither comprehensive nor up-to-date. Inspite of so many years of active promotion of small industries in this country, and a plethora of agencies involved in the matter, even the number of small industrial units actively in operation in the country is not precisely known. Much of the observation in this sector about capacity utilization, wide range of products catering to different strata of consumers both at home and abroad, or employment potential, have seems to be unauthentic. Hence, a systematic and detailed study of the operations of the small scale and cottage industry is seriously needed.

The cottage and small industries not only in the state of Assam, but in country they have been playing an important role in building the country's economy. Even with the growth of large and medium industries these cottage and small industries are still maintaining their importance, providing a good volume of income and employment in the rural areas. There are problems

of industrial development, particularly cottage industry development in the state of Assam. The problems are mainly geographical. Geographically Assam is located in the north -east corner of India and connected with the rest of India through a bottleneck of about 16km.and exposed to foreign countries only through Bhutan and Bangladesh. In true sense, Assam is a land locked state. The only outlet is the mighty river Brahmaputra which is passing through a foreign country (Bangladesh). Moreover, about two third of the total boundary of the state is mountainous. The great physical distances from the main consuming centers of India have been multiplied by the bad transport system to and from, and within the state with poor infrastructural facilities of power, government and administrative assistance, technical education, institute etc. The state has been experiencing an unprecedented power failure. From time to time the government of Assam has been formulating industrial policies for the growth of industries in the state, but sincere efforts are lacking.

The heritage of cottage industries in Assam is very rich, but these industries are handicapped with innumerable problems. The bell-metal industry of Sarthebari has been facing problems of economic and technical support.

One of the major requirements of the bell-metal industry is credit facility. This affects the production process adversely. The small scale industrial sector has been recognized as a priority sector and the banks have been advised by the Reserve Bank of India to give special attention to the credit requirements of these industries. It is observed that due to none sanctioning of

working capital by the Banks to the bell-metal units the beneficiaries are discouraged. There are also no initiatives from the Government to promote cottage industries like bell-metal and others. Therefore, the bell-metal industry units of Sarthebari are facing difficult time though it gives means of livelihood to thousands of people.

1.3 Review of literature:

The review of literature available on the concerned study has its own importance because it provides a background material. Reviewing the literature on cottage industries studies, it is found that there are many works have been done on the industrial pattern and causes of their variation.

Keynes (1936) for the first time studied industrial development focusing his attention on the forces which determine the employment policy followed in industrialization process. He propounded the theory that entrepreneurs will offer the amount of employment which offers maximum out put and advocated also that employment can increase only with increase in investment and vice-versa.

Further studies of industrial linkages and of industrial complex freed the concept of industrial linkages from the narrow confines of an urban centre, and interdependence between industries could also be others aspired to find the best combination of industries for the whole of Puerto Rico (1959). The industrial linkages are often perceived as channels through which the growth impulses are stimulated and transmitted not only within the growth

centre but also in regions other than the centre. Industrial linkages are accepted tools of regional development, which include the development of backward areas as well as the rural areas. Thus the system of forward and backward linkages between complementary industrial units expected to be able to develop a self supporting growth process. Streit (1969) was of the opinion that in fostering such system of complementary industries it can be expected that the strength and variety of backward and forward linkages involved would soon initiate a self supporting growth process.

Scholars on industrial activity also recognized the functional relationships between the firms and industries leading to considerable overall economic in industrial production. Thus with regards to the functional relationship of firms or industrial establishment agglomeration has been identified as one of the locational factors besides the least costs of transportation and labour. Britton (1969).

Maizels (1970) analyses the long-term relationship between industrial growth and international trade in manufactured goods. Several distinct aspects of this relationship can be separately considered. In particular, it is useful at the outset to distinguish the problems of industrialization in a primary-producing country such as India and Brazil, and the impact of such industrialization on that country's trade, from the continuing industrial advance of a mature industrial country and the consequent effects of this trade. In the first example, industrialization sets in motion is quite new economic forces,

involving a greater or less transformation of the social and economic balance of the country. Such profound changes may substantially affect the export potential as well as the import demand, of the industrializing country; and are likely to do so in different ways, or to a significantly different extent, from the continued economic development of an industrial country with a population enjoying a relatively high level of income.

A case study on rural industrialization was made by Delenye (1973) on the basis of detailed and objective study of China's economy, arrived at the conclusion that the creation of small scale industries constituted the only means of creating a large number of jobs for the young people coming in to the labour market. Another important analysis of the pros and cons of adoption of a labours intensive technology has been presented by Dandekar and Rath (1970). These two scholars pointed out that there are three important questions which must be asked and answered before accepting the labour intensive technology as the most suitable employment oriented strategy of industrialization such as (i) Does the adoption of a labour intensive technology, which is also a technology with low labour productivity enable a person to earn a minimum desirable living. (ii) Is it a feasible solution in the sense of one which can be maintained in the face of economic forces operating in an economy in which the means of production are privately owned? (iii) If the solution is perforce maintained over a period, dose it create condition for progressive economic development or is there a danger of its leading in to condition of stagnation.

A number of specific case studies conducted in different countries by World Bank (1978) led to the conclusion that small manufacturing firms generate more direct and probably more indirect jobs per unit of invested capital on the average. The study indicated that in many activities where the optimal size of production unit is small, it proves to be the most efficient organization and as firm size increases (a) capital investment per worker rises, (b) value added per worker rises (c) the wage rate rises, and (d) value added per unit of capital falls. A detail study of industrial patterns of India and South Asian countries was carried out by Mehta (1976). In the light of inter regional, inter country and inter industry analysis, he suggested that the broad frame work of an employment-oriented industrial strategy should include vigorous, sustained and concrete measures for (i) fuller and more efficient utilization of idle capacity in manufacturing industries (ii) reducing the capital intensity of industrialization through (a) Promotion of labour intensive manufactures and (b) application of economically sound labour intensive techniques of production, and (c) rapid expansion and promotion of technically sound and economically viable small scale and cottage industries that could secure simultaneous increase in out put, employment, savings and investment.

Coming in to the Indian context it appears here too that the large amount of industrial literature is found on the ground in industrial labour employment. This is mainly because the Indian scholars are always preoccupied by the spirit of scarcity of capital and prevailing large scale

unemployment coupled with over dependence of population on agricultures as the country is highly populated. Therefore, most of the studies in the field are strategy for employment generation. In fact in a country like India, even the national planners are left with little choice except to adopt the strategy of labour intensive small scale industrialization programme to increase employment opportunities.

Blal (1965) studies the relationship between productivity structures and economic growth with special reference to India. The concern and capacity of the working population to utilize its time productively, to keep its social and monetary costs low and to improve its inputs and outputs constantly determine basically the overall economic growth that is the performance levels of all the work units in the national economy have to be regularly promoted and preserved in relation to the socio-economic goals without planned institutional conduct and adequate distributive justice. However the country men can not be spontaneously motivated to put in harder and judicious work.

Rao (1966) has made a humble attempt to show how small scale and cottage industries play a distinct role in our economy particularly when our capital resources are limited and population is tremendously increasing. Great stress was laid on this aspect in the plans for the development of small industries. While making rapid headway in the matter of industrialization, we have been wise in taking care of small industries. The importance of small

industries in the changing pattern of economic and social life, especially to countries that are still in the early phases of industrialization, need not be overstated. We should not only organize production in small units but also organize on cooperative lines wherever possible.

Datta and Sundharam (1979) studied the employment oriented strategy of industrialization by working out employment out put, capital out put and employment generated in different industrial sectors. Their studies revealed that though productivity is the lowest in the small scale sector, its employment generating capacity was eight times that of the larger sectors. Another important finding of their studies was that the net capital out put ratio of the small and medium sectors worked out to 4.0 and 3.2 times respectively than that of the large sector in 1965. They therefore, strongly advocated for the Small Scale and Household Industrial Establishments as an important and potential employment generation sector.

Srivastava (1984) carried out his study on rural industrial development based on the actual survey in five Community Development Blocks of Jaipur district in Uttar Pradesh. His study focused mainly on the extent and nature of unemployment among agriculturists and agricultural laboures. He opined that for the industrial development of such rural areas the best strategy would be employment oriented small scale and village industries. He however concluded his studies with severe limitations of such strategy as a solution to unemployment. He opined that eradication or even substantial

reduction in general unemployment or underemployment of the study area, through the development of industries was a practical impossibility.

Rau (1985) has take attempt at a descriptive run of the existing status of rural industries in India, Philippines, Republic of Korea and Japan. The concentration with details is on India. Philippines, Korea and Japan are touched without any effort for a comparative analysis. The Central Handicrafts Board has 34 marketing and service extension centres in different parts of India. These provide package of services to improve the marketability of their goods, information is disseminated about the marketing requirements and they also mould the production programme suitably in frequent meetings. At the lower level about 218 rural marketing service centres are in function. The activity of the centers covers supply of raw materials procurement of finished goods and also other financial assistance also. The Board assists State Handicraft Corporation and co-operatives to help the purchasers from the artisans directly.

A large number of studies on organizational requirements of village and small scale industries in India are done. Mishra (1986) has attempted the role of rural industrialization in India. The role of cottage industry in India has been the major focus in a large number of studies by Gupta (1988) have analysed the growth and development of the pottery industry in India. He has examined at length the organizational structure in details.

Choudhary (1970) focused his attention among the decay of the cottage industry in India. At present mention may be made of the following (a) Old implements (b) Want of technical skill (c) Want of capital (d) The difficulties of transport for marketing of finished products. Small scale and cottage industries have been accorded special importance in the country for various social, economical and political reasons. They form an important and growing segment of the India industrial structure today, Gupta (1988).

Since inception of the five year plans industrialization in India has been progressing significantly. The industrial structure has become more diversified and expanded and faced with problems of varied nature. The problems 'pose a challenge to the scope and content of industrial geography as a topic of research (1970) made a critical analysis of the industries in India from spatial and structural points of view.' Singh (1972) attempted a study on industrial geography of India which contains a large amount of information on industries in India.

Indian geographers have attempted to study the varied aspects of man's economic activities in relation to natural environment. The studies on economic geography in India may broadly be grouped into geography of resources, agricultural geography, land use studies, industrial geography and geography of transport and marketing.

Economic geography, a distinct branch of the discipline of geography is the study of the relation of the environment and political and

economic conditions to the productive occupations and the distribution of output. It deals with the productive occupations and attempts to explain why certain regions are outstanding in the production and exploration of various articles and why others are significant in the exportation and utilization of these things.

Industrial sickness is one of the serious maladies of Indian economy, Nagaiya (1991). Industrial sickness has assumed alarming proportions, leading to widespread losses in production, income and employment on various reasons such as non available project, mismanagement at the unit level, labour unrest, shortage of funds, technological obsolescence, stringent governmental regulations have often been advanced as background factors contributing to industrial sickness in India. Sad to relate the sickness has been largely confined to the small scale industries.

The beginning of the modern factory system in India can be traced back to the second half of the 19th century. Ramavatar (1992) before 1850, there were some stray attempts to set up modern factories in India. Those were the pioneering efforts, mostly of the Europeans and they got success because of political privilege control over external business and control over organized money market. The first Indian to think on the line of industrial development or industrial entrepreneurship was Rachod Lal Chotalal, a Nagpuri Brahmin in 1847, Ramavater (1992) who envisaged the textile manufacturing on modern factory line. A number of studies have been carried

out or conducted by Government agencies as well as scholars in India to work out the proper strategy of industrialization which could help in accelerating the national economy as a whole, whereas most of such studies are on the sector based approach. The village and small scale industries committee, dealing with employment oriented strategy of industrialization, planning commission (1956) suggested the setting up of village and small scale industries in the rural areas would be suitable as the rural areas or people have been traditionally trained. The committee realized the necessity of introducing better technique among the village industries so as to make them go along with the progressively expanding national economy. The committee further recommended that such injection of better technology in the rural industries should not hamper employment generations within itself.

Ashok Kumar has focused his study in Rural Industrialization in India (1995), the productivity is so low that without an increase in their scale of operation, or improvement in technology their income is likely to remain below the poverty line. Increase in the scale of operation and improvement in technology call for development of entrepreneurship and facilities of finance, marketing, procuring of input etc. The small scale industry sector, as an important segment of the Indian economy, accounts for 95 percent of the industrial unit. The 40 percent of output of the manufacturing sector, 35 percent of the total export provides employment to about 18 million people. The small scale industry has emerged as the most dynamic sector of Indian industrial

economy for over 55 percent of the total value of industrial production, Desai (2003).

There have also been numerous studies on the industrial development of the North Eastern Region of India. According to Das (1970) the industrial development of the state is mainly handicapped by her isolation from the rest of India, a bad transport system, a very small local market and lack of sufficient capital and labour.

The proceeding of the seminar on the impact of the five year plan on the Socio-Economic Development of the N.E. Region of India, organized by Gauhati University, Guwahati in the month of January 1988 have emphasized on many aspects of industrial development in this part of the country. Different scholars have prepared research papers on different topics on the theme. Therefore, at the time of the seminar the scope of industrial development approaches to industrialization, problems and prospects of industrial sectors of the economy and their factors in the case of each and every constituent state were discussed elaborately. The seminar concluded that there are enough potentials in the industrial sector of North Easter Region which can absorb more labour force and the fact that the sector has enough employment opportunities in the future with increasing industrial production and productivity especially of the small scale and cottage industries, Bhorali (1988).

In this regard Mali and Bandopadhyay (1993) noticed that the industrial backwardness of this region is reflected in the fact that the contribution of the manufacturing sector to the state domestic product of the North Eastern Region is much smaller, that the contribution of this sector to the national product of the country. However, Mali (1993) observed that the problems are mainly geographical, infrastructural, financial, marketing, entrepreneurial etc. particularly as regard to small scale industries.

In Assam very little works on economic geography have so far been done. Barthakur (1965) in his doctoral thesis analysed the economic activities of the Lakhimpur District. Based on intensive field work, his treatment of the land-use, agriculture, tea and oil industry, transport and communication and other infrastructural facilities etc. are of great help for planners as well as other academicians. In another research paper he (1969) identified the resource regions of Assam and pointed out the problems of resource utilization in different regions of the state.

Das (1970) in his book Geography of Assam dealt with agriculture, industry, and other resources and their utilization in the state. Sarma (1971) examined the spatial pattern of the distribution of market centres in Assam and various services offered by those centres. Bhagabati (1978) in a representative village study examined the economy of a village in Nalbari District, Assam and suggested measures for planning for economic development of the village.

A limited studies and research work including Deka (2001) are glaring attempts to understand the bell-metal artisans life and problems. This study relate to the cultural heritage. According to her study Sarthebari is one of the villages which contributed much to the cultural heritage of Assam. It is popularly considered as industrial village. The village is widely known not only in Assam, but also in the country for its bell metal industry. Most of the people of the village carried their livelihood through this industry since long past, and their artistic skill contributed much to the Assamese culture besides assuaging economic hardship.

There are many other notable works related to the bell-metal industry of Sarthebari area. The works which are illuminating are number of articles which have been published in various journals, papers etc. Out of them Deka (1976), Deka (1983), Patowari (1986), Choudhary (1995), Choudhary (1995), Deka (1995), Tamuli (1995), Deka (2005), Talukdar (2006), are remarkable. The present study in context of Assam where micro level study on cottage industry related to bell-metal industry is yet to make headway.

1.4 Objectives:

The main objectives of the study are-

(i) to examine the present status of bell-metal industry in Sarthebari area, of Barpeta district,

(ii) to study the locational setup of bell-metal industry and its geographical setting,

(iii) to examine the performance of the bell-metal units in the Barpeta District of Assam and in particular to Sarthebari area,

(iv) to study the socio economic conditions of the workers engaged in the industry,

(v) to evaluate the economic prospect of the industry with the use of modern tools,

(vi) to study the health problems of the workers engaged in this industry, and

(vii) to study the distributional patterns and trends of growth of the existing bell-metal units of Sarthebari.

It is expected that the present work will prove useful to the present and the prospective small entrepreneurs working or intending to undertake manufacture of bell-metal works on small scale basis. It would also help the Assam Government in obtaining detailed information on the existing conditions of the bell- metal units and their problems in leading centres for the purpose of determining the future policy and course of action to rehabilitate or revitalize the industry.

1.5 Data base and Methodology:

The bell metal industry in Sarthebari generally runs on a small scale basis. Here 280 units constitute the entire industry; most of them are active at the time of field survey. These units are working at different *chupas* (a division of town or village), most of the units are found in the municipality area. No units are registered with the Directorate of Industries, Govt of Assam. The information was collected through questionnaires and on the spot personal interviews with artisans, government officials, officials of Assam Co-operative Bell-metal Utensils Manufacturing Society. Field surveys as well as empirical studies were used for collecting various types of data and informations. The two sources of data collected are (i) secondary and (ii) primary.

The secondary data were collected from Directorate of Industries, Directorate of Assam Small Industries Development Corporation, Assam Co-operative Bell-metal Utensils Manufacturing Society and District Industries Centre, Barpeta. Relevant books, journals, souvenirs, papers and various reports from different agencies, like Khadi and Village Industries Board, Assam, Khadi and Village Industries Commission, Handloom & Handicraft Industries, Assam have been consulted.

The primary data were collected from direct field observation and survey of bell-metal units. For this purpose questionnaires were prepared. (Appendix-B). The questionnaires include question on socio-economic, annual income, wages, recreation, raw material, tools, business, capital, marketing

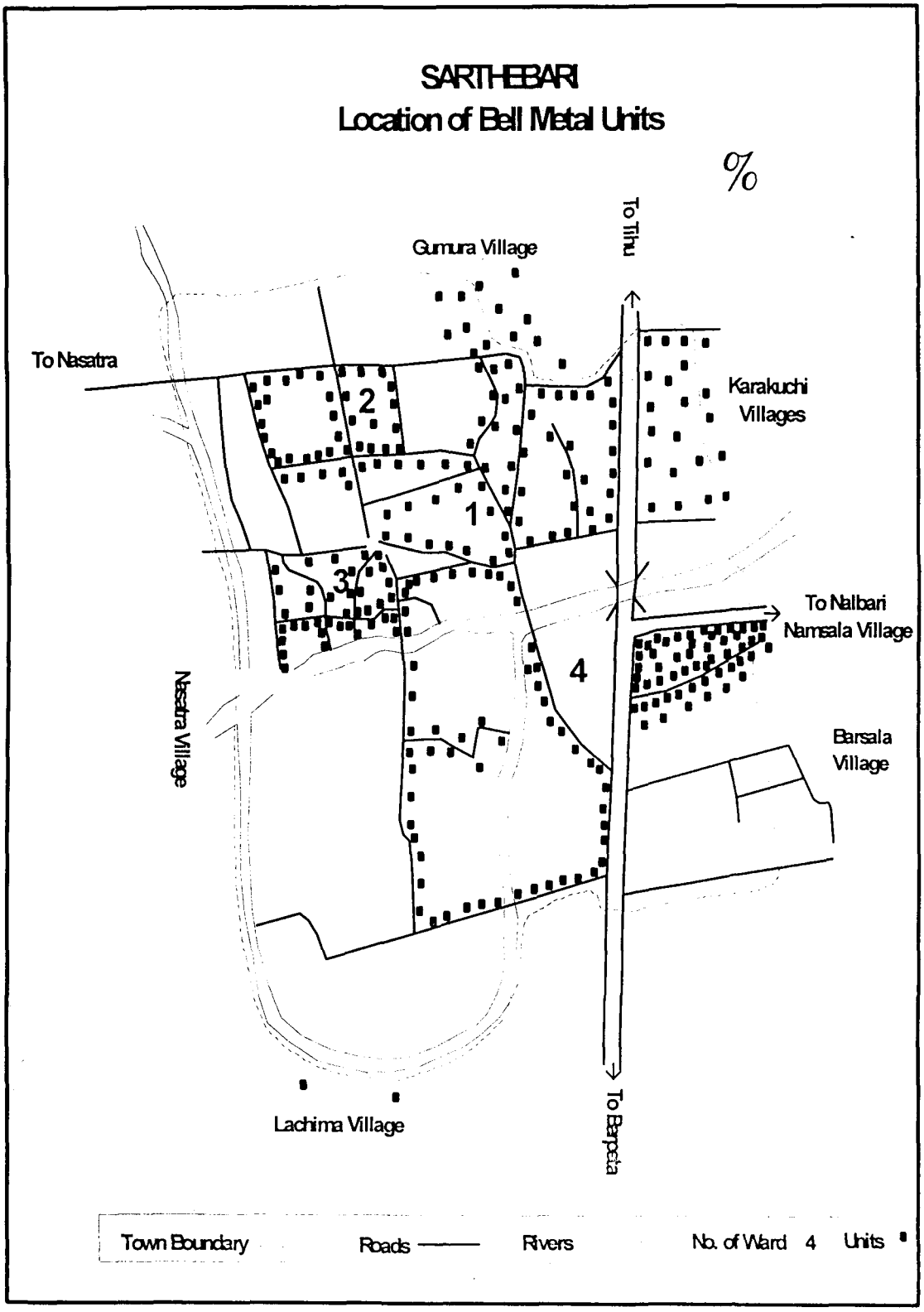
system, production and process etc. The questionnaires comprised of personal data, recruitment of labour, size of family, standard of living, welfare and trade unionism etc. In the 280 units the total numbers of artisans engaged are 1465 persons. Each artisans were distributed an identification card to identify them and then questionnaires were distributed to individuals to fill the question. In this way the entire 1465 person's information was collected and also interviewed them personally one by one. The Assam Co-operative Bell-metal Utensils Manufacture society (*Asom Samabai Kahar Sangha*), Assam Samobai Kahar Silpi Santha, Directorate of Industries, Barpeta District were also visited for essential data During the course of the investigation the bell-metal artisans hesitated in giving the information regarding various aspects of their units. The researcher however got over this difficulty by personal persuasion and assurances of confidentiality and for academic uses only. The collection of detail information from the bell-metal units posed a more serious problem since most of the enterprises were organized as proprietary or partnership concern and hence were not obliged to publish on a regular basis their financial statements. The data supplied by the artisan was generally based on the approximation of their memories. They have neither maintained proper books of account nor have they prepared their profit and loss accounts to evaluate their operational efficiency.

The data collected from the secondary and primary sources are possessed, calculated, analysed and interpreted using various statistical and

cartographic techniques. Bar diagram, wheel diagram, distribution map showing location of bell-metal units are prepared based on the collected data. Co-relation coefficient (Pearson's) method also used to show the relationship of supply of raw materials and production of finished products of the units in the study area. Again, economic condition and standard of living of the workers are studied with suitable cartographic technique. The data base covers mainly 1991-2005 (15 years).

Survey was conducted taking the households dealing with bell-metal artisans in Sarthebari Town area and its adjoining villages. During the time of listing of households, the Bell- metal industry had been mostly found in Sarthebari town committee area and other villages namely Namsala, Karakuchi, Gomura and Lachima. (Fig 1.2) Household survey was done in the month of were taken for study the other organizations related to marketing, supply and store of bell-metal products were also considered. For the purpose of the analysis of the data obtained, annual income size wise classification of these 280 units had been done so as to examine the comparative performance of the small units (annual income less than 15,000/-) medium units (annual income 15,000/- to 20,000/-) and large units (annual income above 20,000/).

Fig-1.2


SARTHEBARI
Location of Bell Metal Units
%
To Tihu
Gumura Village
To Nasatra
Karakuchi
Villages
2
1
3
4
To Nalbari
Namsala Village
Nasatra Village
Barsala
Village
Lachima Village
To Barpeta
Town Boundary
Roads
Rivers
No. of Ward 4 Units

The sets of questionnaires were devised for the study and the information were sought for from the Director of industries, Managing Director of Assam Small Scale Industries, Assam Co-operative Bell-metal Utensils Manufacturing Society Ltd, Sarthebari, including its branch of Sarthebari Natun Bazar and Director of Industries, Barpeta. Detailed questionnaire at the level of the artisans was prepared and collected informations from the units. With the help of field survey various informations were collected on the related crafts through personal interview with the artisans. For preparation of this study consulted various reports and studies carried out by a number of organizations, agencies and scholars on this field. Moreover, at the time of field survey learned and experienced people associated with this craft and their views were taken while preparing the reports and making suggestions.

1.6 Hypothesis:

The study is made on to test the following hypotheses in the context of cottage industry in the study area.

1. Bell-metal industry is the main occupation of *Kahars* (Bell-metal artisans) of Sarthebari, their entire economy and livelihood depends on this bell-metal industry.
2. Stagnation in the development of bell-metal industry in the study area is primarily due to lack of entrepreneurship zeal and absence of motivation.

Reference :

1. Bhagabati, A.K. Kar B.K, Bora, A.K. (2002) *Geography of Assam,* Rajesh Publication, New Delhi, 110002, 2nd Edition, p-21

Chapter-II

ENVIRONMENTAL SETTING OF THE STUDY AREA:

A. PHYSICAL BACKGROUND

A.2.1 Location of the Study Area

The district Barpeta occupies a unique position amidst complex geologic make up of Assam. It has a distinct physiographic and structural characteristic. Barpeta district is not a homogeneous unit; it consists of variety of physiographic elements such as flood plain and foot hills etc. The region extends from 26° 5′ N to 26° 49′N latitudes and from 90°99′ E to 91°17′ E longitudes. It is almost a reverine plain forms a part of the lower Brahmaputra valley and surrounded by the Bhutan Himalayas on the north, the plain of the south-western part of Kamrup district and the south-eastern part of Goalpara district on the south, the Nalbari district on the east and the plains of Goalpara and Kokrajhar districts on the west. Politically it has international border with Bhutan on the north. The region has a total geographical area of 3,307.3 km. for administrative purposes. The space occupied by the Brahmaputra river including the *char* (river sand bar) lands are included within the Barpeta district whose actual southern boundary touches a portion of south Kamrup and a portion of south Goalpara. There are 1030 inhabited villages, 51 uninhabited

villages and six towns (1971) in this region. The towns are Barpeta, Barpeta Road, Howli, Pathsala, Sorbhog, and Sarthebari town.

A.2.2 Geology:

The geologic formation of Assam belongs to the Archaean, Precambrian, Tertiary and Quaternary period. As revealed by its geologic history, the formation may be broadly classified into five divisions. These include:

(i) the Archaean group of rocks

(ii) the pre-Cambrian rocks

(iii) the lower Tertiary sediments

(iv) the upper Tertiary sediments and

(v) Quaternary alluvial sediments

The Archaean rocks comprise the metamorphic rock type of gneisses and schists which are intruded by younger acidic and basic intrusive. These rocks are found in the northern and central parts of the Karbi plateau along the Assam-Meghalaya border. The isolated monadnocks like remains consisting of genisses and granites scattered along the north and south bank of the Brahmaputra in Goalpara, Barpeta, Nalbari, Kamrup, Darrang, Sonitpur and Nagaon districts also belong to the Archaen group of rocks.[1] The geological formation of Barpeta district is almost similar to that of other parts of Brahmaputra valley.

It consists of (i) Recent and sub-recent alluvial deposits and

(ii) A thin strip of upper tertiary sandstone belonging to the Siwalik group associated with clay alternations, which occur all along the Bhutan foothills. The sand stones are light grey to whitish grey, medium grained mica with pebbles at the top. Recent and sub-recent deposits can be divided into older alluvium and newer alluvium. The older or high level alluvium deposited during or at the end of the Pleistocene period consists of reddish to brownish impure sands and irregularly distributed pockets of unassorted rocks pebbles covering a considerable area in the northern part of the district. The newer alluvium consists of sands, silts and clays, covering the alluvial plains along the Brahmaputra valley.

A.2.3 Physiography:

The Physical characteristic of Barpeta district is more or less similar to the Lower Brahmaputra Valley. Physiographically it may be divided in to four regions- (Devi, G. 2000)

a) The foothill zone

b) The high plain in the Northern part

c) The built-up mid-plain in the middle part and

d) The low-lying plain in the southern portion.

The natural demarcations of the four regions are not distinct as each of the four regions changes its characteristics gradually to be merged with the next region. They are almost parallel in east-west direction to the Brahmaputra River, although the middle portion of the built-up area is extending towards further south. The above regions are not homogeneous in physical characteristics. There are small micro-regional variations within a region. The low-lying region is extending further north of Barpeta town which looks like an island surrounded by water during flood. There are innumerable undulations inside each of the four regions at the micro-level which can be observed distinctly in toposheets, but becomes obscure on small scale maps.

i) The foothill zone:

The northernmost part of Barpeta Region consists of a relatively high and narrow "Bhabar" zone and a flat "Tarai" belt lying in the border of the Bhutan foothills. In this zone numerous small streams and tributaries, coming down abruptly from the Himalayas to the plains, percolate down to the unassorted soils strewn with gravels, pebbles, cobbles and sand of the Bhabar zone and reappears a few kilometres downward at the Tarai zone. Here the waters of numerous streams are recollected again to give rise to integrated courses of the major tributaries which flow with slight gradients and current cutting through deep deposit soils of the built-up region. The foothill zone

contains a part of the large forest area of the North Kamrup Reserve Forest including the Manas Sanctuary. Except a few forest villages there are no human settlements in this region. As a revenue mouza it is included within this region, but excluded in this study.

ii) The High Plain Region:

This is the northern part of the alluvial plain of the district towards the south of the foothill zone and is demarcated on the north by the boundary of the Reserve forest and on the south by the contour of 49.00 meters forming northern boundary of the built-up mid plain. The high plain comprises the Chapaguri, Kokilabari, Bijni, Gobardhana and Kharija Bijani mouzas. The northern part of this region is mostly inhabited by indigenous tribal people and a small number of Nepali immigrants, whereas the southern part is the mixed habitat of both the tribal and the non tribal people. Though the elevation of this plain is relatively higher than that of the southern low-lying plain, there are small number of low lying swampy lands. The alluvial soil is generally fertile and crop yields are higher provided water supply is assured.

iii) The Built-up Mid-plain:

Between the high plain region and the floodplain of the Brahmaputra river lies this part of the alluvial plain of the district intersected by numerous tributaries, all of which meet the river Chaulkhowa. This plain is made up of alluvium and attains fluvial maturity in comparison to the low-lying areas in the south. The built-up mid-plain with extensive paddy fields is most

densely populated. The main arteries of communication of the region are The National High way No. 31 and N.F.Railway is running through this built-up region in east-west direction. Some important state roads also cross the region in different directions. Most of the present urban centres of the study region namely, Pathsala, Sorbhog, Barpeta Road and Howli are located in this region. Due to the construction of roads and embankments for flood control, it has been possible to bring extensive areas of this region under cultivation leaving insignificant wasteland. Manikpur, Howli and Domkachaka-Bousi mouzas are lying in this built-up plain.

iv) The Low-Lying Plain in the South:

Between the built-up mid plain and the river Brahmaputra, there is an extensive low-lying plain subjected to recurrent floods. The *'Char'* (river sand bar) lands amidst the river courses are also included in this region. This region is swampy and contains *beels* (wet land) and waterlogged areas formed as a result of the tremendous volume of detritus carried and deposited by the north bank tributaries on the northern bank of the Brahmaputra. Such a huge deposition of detritus gives rise to a natural levee which obstructs the north bank tributaries from directly meeting with the Brahmaputra. Another reason is that tremendous loads of sediments are deposited on the beds of the north bank tributaries giving rise to the sluggishness of the water current as a result of which water from the tributaries remains logged in the saucer-shaped depression of this plain. Numerous *charlands* are also formed in this region of

the district as a result of the fact that the Brahmaputra becomes very wide here after it escapes from the constriction imposed by the relatively stable granitic structure on both banks. In its up streams leading to the decrease in the velocity of water which causes increased sediment loads to drop out to create river island intersected with braided channels. Such river islands between braided channels are called *charlands*. The monotony of the homogeneous character of the low-lying region has been broken by the presence of their scattered erosional hillocks viz-, Baghbar, Phulara and Chatala. Baghbar, Bagaribari, Chenga, Mandia, Jania, Barpeta, Nagaon, Ruposi, Sarukhetri (Including Sarthebari), Titapani, Chilajhari, Betbari and Paka mouzas are lying in this plain .[2]

A.2.4 Relief:

The present physiographic configuration of Assam has taken its shape only during the recent geological time. The geologic and tectonic base of the state has given rise to a variety of land forms under varying climatic conditions and geomorphic processes. The low hill ranges with hot and humid climate and heavy rainfall concentrated to a few months of the year, experience of sheet erosion and landslides. On the other hand significantly dominant on the valley bottoms and plains where alluvial deposition takes place due to erosion of the higher surfaces by rivers and flooding in the valley. The erosional and depositional processes conspicuously intensified by copious rainfall and frequent seismic movement play dominant role in shaping various

physiographic unit of the district. Physiography may be described, in terms of the physiographic elements like plain, floodplain and river valleys. The flood plains of the Brahmaputra including the *charlands* inside the river lies between north and south bank plains. The flood plains are irregular in its transverse extension due to the occurrence of occasional hillocks and incipient leaves on both the bank of the Brahmaputra. On the north bank the floodplain contains numerous swamps and *beels* and is fairly wide in Barpeta district.

The large channels of the Brahmaputra having an average width of 6-8 km, represents a most dynamic fluvial regime and is marked by intense braiding, rapid aggradations and drastic bank line changes, such a dynamic fluvial regime is highly responsible for the formation of large number of sandbars on its own bed. The wide alluvial bed is thus dotted with more than 600 small and big sandbars locally known as *'chars'* or *'chaporis'*, which are the characteristic features of a braided river. In the south of the middle plain of the north bank there lies an extensive flood plain of the Brahmaputra on its both banks. The *charland* with the river course may also be included in this zone which is swampy and contains numerous *'beels'* and water logged areas. The extensive flood plains are found in Barpeta district also. This flood plain region contains rich jute growing areas of Assam.' The relatively high but narrow northernmost part of the region, which is the continuation of the lesser Himalayas, runs in east-west direction. The average elevation of this range varies from 150 m to 1000 m. The elevation generally decreases from north to

south. There are three Pre-Cambrian hillocks named Baghbar, Phulara and Chatala in the south-western part of the Barpeta Region. These are geologically detached parts of the Meghalaya plateau. The remaining areas of the region are covered by extensive plains and active floodplains of the Brahmaputra and its tributaries generally sloping from north to south.[3]

A.2.5 Drainage System:

The river Brahmaputra is controlling the drainage system of the Barpeta region. The major tributaries of the Brahmaputra draining the region are the Manas, the Beki or the Mora Manas, the Pahumara, and the Kaldiya. All the tributaries of the Brahmaputra originate in the Himalayas. The Manas originates in the Bhutan Hills and flows towards south along the western boundary of the region receiving several small tributaries and ultimately debouches in to the Brahmaputra River. The small tributaries of the Brahmaputra in the Barpeta district are Hakua, Burha, Dong, Dhir, Chikni, Saru-Beki, Bhelengi, Nakhanda, Karekhowa, Kumbhira, Gyati, Chorphuli, Chamgurijan, Rabang, Gopuchapara, Singmari, Lukakunri, Sula, Rupsi, Dhanbil, Kokdong, Tikibhanga, Makhora and Ghoramara, all of them release their water in to the Chaulkhowa river. The Chaulkhowa river flows from east to west through the southern part of the region and it receives water supplied by almost all the tributaries of the region except the Manas and it meets ultimately in the north of the Phulara Hills. It runs almost parallel to the Brahmaputra and gives the impression that once in the recent past perhaps the Brahmaputra itself

flowed through it subsequently to become the abandoned course after the Brahmaputra shifted towards south. Now the Chaulkhowa looks like a channel linking the tributaries together with the Brahmaputra through the Manas, but geomorphologically it may not be so. Such a geomorphological phenomenon is not found anywhere in the Brahmaputra valley. In any case, the water of almost all the tributaries of the Barpeta region have been collected in the Chaulkhowa and interestingly not a single tributary meet the Brahmaputra directly. Such a geomorphological anomaly may be accounted for by the seismic instability of the region and subsequent adjustment of the drainage to the disturbed landform condition, leading to peculiar fluvial processes.

It is observed that almost all the tributaries of the region flow in courses sub-parallel to each other near their lower courses taking south westerly turn before they reach the master stream Brahmaputra.[4]

A.2.6 Climate:

The Barpeta district lies in the regime of monsoon climate of the sub tropical belt. It enjoys heavy summer rainfall, drought winter, high humidity and relatively low temperature. The district shows marked spatial variation in the climatic pattern primarily because of its location and physiographic conditions.

The subtropical location, foothills in the north, the Brahmaputra in the south and the hills of south Kamrup and Meghalaya not far from southern border, and open plains to the west and the east are the local factors

controlling the climate of the region. The climate of this region is normally characterised by orographic lows during summer, the plains becomes hot and the air over the hills and mountains remains relatively cool. The foothill range in the north protects this region from the cold air mass of Bhutan and Tibet during winter.

The Himalayan range standing on the north and east of the Brahmaputra valley protects the area from the chilly cold winds of the Tibetan region in winter and obstruct the warm moist winds blowing from the south-west in summer. The Himalayas provides conducive orographic conditions for the relief and rainfall of the plain. The region being converging and bounded by highland on its north, east and south is open on the west to orographic and other cyclonic disturbances of the south west monsoon, so far the spatial distribution of rainfall is concerned there is a marked variation within the district. The unique physiographic features of the district affect the distribution of rainfall in the area. The district head quarter Barpeta gets annual rainfall of 229 cm on an average, another point Patacharkuchi enjoy a annual rainfall of 239 cm on an average.[5] Due to the location on the lee ward side of Bhutan Himalaya which obstructs the warm moist south-west monsoon air mass and deflects the currents of wind along with their clearing and adiabatic, an 'orographic law' that's developed here during the onset of the monsoon and these depression attracts the south-west monsoon and results in heavy incessant rains.

The Barpeta district is a part of the Brahmaputra valley so its weather condition is similar to those of other parts of the valley. The district experiences four climatic seasons viz-

(i) Pre monsoon

(ii) Monsoon

(iii) Retreating Monsoon and

(iv) Dry winter.

i) Pre-monsoon:

The pre-monsoon begins in the early part of March and continues up to the end of May. Temperature starts rising gradually from the beginning of the season onward. Pleasant morning, hot and dry afternoons and occasional thundershowers are some of the important characteristics of the season. In this season marked atmospheric instability develops and severe thunderstorms occur, sometimes preceded by dust raising squalls. Rainfall increase both in amount and frequency as the season advances which greatly favours the cultivation of jute and *ahu rice* (a species of paddy).

ii) Monsoon:

The monsoon sets in by the last week of May or in early June and it lasts up to September or the first part of October. It is the rainy season when the state receives spells of continuous and moderate to heavy rains. June, July and August are the rainiest months where more than 70 percent of the total annual rainfall occurs. This is the most important season during which *'Sali'*

rice (rice cultivated in low moist land), the principal crop of the state is cultivated on the one hand, and the tributaties of Brahmaputra starts rising causing extensive floods on the other hand.

iii) Retreating Monsoon:

The south west monsoon withdraws sometime in between the last part of September and first part of October. Consequently, the intensity of rainfall and number of rainy days goes on decreasing. The season continues up to the middle of November, when fogs commonly occur. This season with a stable surface wind, clear sky and mild temperature is the most pleasant period of the year.

iv) Dry Winter:

The winter season begins in the middle of November and continues up to the end of February. This season is characterized by cool weather, absence of rainfall and regular morning fogs and very little amount of rainfall. December and January are the driest months and January is the coldest month.[6]

A.2.7 (a) Temperature and Rainfall:

The average temperature of Barpeta district during the winter season from December to February is about 18.8^0 C. The average diurnal range seldom exceeds 5.5^0C from March to May. The average temperature rise upto 23^0C with an average diurnal range of about 6.1^0C from the month of June to September, it further rises upto the average of 27.17^0C with an average diurnal

range of 6^0C. From October to December the temperature is about 20^0C with an average diurnal range of 2.8^0 C to 5.6^0C. Due to abundance rainfall during the summer season, the climate is damp and relatively less hot on the whole. During the month of June and July, incessant rainfall with heavy downpour continues for a week sometimes and with a gap of few rainless days, such rainfall occurs again and again. But during the pre-monsoon as well as in the retreating monsoon period there are only occasional rainfalls with more rainless days. The cyclonic rainfall of the pre monsoon period is very heavy, but continues only for a short time. On the other hand, rainfall in the retreating monsoon period becomes gradually thinner and lighter. During the winter season, prolonged drought prevails for at least three months from the later part of November to the mid- February. About 70 percent of the total annual rainfall is confined to the month of June, July and August, whereas December, January and February experience little rainfall.[7]

A.2.7 (b) Fogs:

Fogs occur in most places of the region for a few days during the months of December and January. The prevalence of fog is mainly due to the supply of sufficient moisture evaporated from the river beds and numerous beels and swamps of the region.[8]

A.2.8 Natural Vegetation:

The vegetal cover has close relation with the productivity and the stability of the natural environment. The ecological set up has direct and

indirect control over the activities and work efficiency of the people, mainly natural vegetation of the region. The natural vegetation in the region belongs to the classes of mixed deciduous and semi-evergreen trees to savannah and bamboo, cane and miscellaneous varieties. According to the 1990 census the total geographical area of this region is 330730 hectare. There are 23411 hectares under the forest area. 7.08 percent are covered by forest in Barpeta district.[9] The forests are widespread in the northern most part of *Bhabar zone*. It is a part of the North Kamrup reserved forest and only Deodhara, Kokilabari, Kahitama and a part of Batabari forests are included in the reserved forest area of the district.

The most wide spread semi-evergreen forest includes some important species like holong (dipterocarpus macrocapus), Maki (Shorea assamica), Titasopa (michalia champaca), Bonsum (phoebe goalparensis), Sal (shorea robusta), Amari (amoora wallichi), Nahar (mesua ferrea), and Gomari (gmelina arborea).

The mixed deciduous riverine forests are found along the alluvial tracts of the sub-Tarai zone which are inundated by streams during the monsoon. The main species of this area are simul (bombax malabaricum), khair (acacia catechu), sisoo (dalbegia sisoo), kadam (anthocephalus cadamba) and udal (starculia villosa). Bamboos (bambusa species) are common species in the low-lying and built-up mid-plain whereas reeds and grasses are observed in the low-lying region. Minor forest products of the region are medical plants,

spices, aromatic plants, gums, resins and elco-resins, oil seeds, tans and dyes and fibres. Out of the total area of the region, about 18.18 percent was covered by forest. During this period the whole forest area was under unclassed state forests (U.S.F.). Later on the management of a large proportion of the forest area was vested in the State Forest Department. Such forests under the management, supervision and protection of the Government Forest Department have been designated as 'Reserved Forests'. The reserved forests of Barpeta district include a portion of North Kamrup Forest and a part of the Batbari forest stretching in the northernmost part of the region.

The Barpeta region along with the other parts of Assam can be proud of the rich variety of endemic fauna. A good number of tigers are found in the region. Manas tiger reserve is a famous sanctuary. Asiatic water buffalo is also found in the reserved forest of the Brahmaputra valley. Elephants are found in good numbers in the state though its habitat is under threat. Great Indian one-horned rhinoceros has its last stronghold in the state. A good number of rhinoceros (Rhinoceros unicornis) are found in Manas sanctuary. The noteworthy fauna of the region are elephant (eliphas maximum), wild buffaloes (babalus bubalis), langur (presbytis geei), cevet cat (viverra zibetha), swamp deer (cervus unicolor), tiger (panthera tigris), and leopard (panthera pardus, neofelis nebulose). Small species like rodents (rattus rattus, dremnomys lokriah, sorex), reptiles (najanaja hannah), amphibians (buffomelanostictus) and other microscopic organisms are also found.

A.2.9 Manas National Park:

Manas National Park is situated at the foothills of Bhutan covering major parts of the Barpeta district. It has a total area of 430 sq. km. with an altitude of 76.22 metres to 225 metres above mean sea level. The Manas Sanctuary is very rich in wild life. The important animals of the national park is capped langur, Assamese macaque, rhesus macaque, panther, golden cat, clouded leopard, fishing cat, jungle cat, Indian civet, bear cat, Himalayan black bear, sloth bear, Indian flying short-nosed fruit bat, Indian elephant etc. The most commonly seen animals are wild buffaloes. There are few great Indian rhinoceros, gaur or Indian bisons and tigers. A rare species of apes known as golden langurs are seen on the Bhutan side of the sanctuary. The birds of the sanctuary include pelicans, hornbills, peacock, comorant, egrets, herons and others. The sanctuary is also known as the anglers' paradise. The land encroachment and ruthless poaching led to the diminution of some of the rare species of animals in the habitat. The government has launched a Tiger Project within the sanctuary. After launching of this project the tiger populations have been increasing and poaching and encroachment also have been checked to a certain extent.

B. SOCIO-ECONOMIC BACKGROUND

B.2.1 History of Cottage industry:

Cottage industries and handicrafts have constituted the central elements in the organic unity and culture of the people. In the numerous far flung villages of the country, the colorful strands of tradition and culture were woven into these unique objects making each of them beautiful and beautifying. Cottage industries thrived through the ages when society was organized more or less into self-sufficient and self-contained units. The products of cottage industries spread out to all the corners of the world. Changes of political and historical fortunes did not affect them.[10]

The British power in India was imposition of restrictions and they had taken steps to destroy specially Indian Cottage industry. The dawn of machine age and the introduction of large-scale industry also dealt further blows.[11] During this period manufacturing took the form of small plants and its evolution led to the gradual understanding of artisan production a form based on more mass production, more developed division of labour and steady increase in the application of machines and mechanization of production. The late seventeenth and early eighteenth centuries are marked by crossing over the threshold of what Prof. Rostow calls the traditional society based on 'Pre-Newtonic science and technology, and entered into the domain of mass production on large scale. As a result the role of small industry, declined and handicraft of the traditional type lost more and more of its pre-dominant

position as producer of goods its domain being confined to artistic product of individual needs. [12] Handicraft and traditional industries of the backward and colonial countries were ousted by the natural process of competition by the products of large scale manufacturing industries and by deliberate policies of the imperial country which in order to encourage her rising manufactures; ruthlessly suppressed the traditional industries as well as their products.[13]

The demand for the production of the cottage industry suffered through competition with cheap factory made products. Cottage industries, however, continued to be one of the chief means of livelihood for a large number of people in this country. After India became free in 1947 the Government realized that further decay of cottage industries should be stopped and they should be given the legitimate place in the national economy and every help should be rendered to them to organize themselves in a manner capable of meeting the changing conditions.

In the second half of the nineteenth century Assam came into the industrial map of India by starting of an experimental tea garden by the British Government at Jaipur in Lakhimpur district in 1833, extraction of coal from Makum coal field in 1881, opening of the Dibru-Sadia Railways in 1882 and drilling of mineral oil during 1886-88 near Margherita, erection of an experimental refinery in 1889 and starting of some 14 saw mills, which produces tea packing boxes. However, like the rest of India, Assam also had a glorious past in traditional manufacturing like textiles, processing and

production of metals like iron, gold, copper, brass and bell-metal, earthen works like pottery, bricks and tiles, handicraft like bamboo and cane works, ivory and horn works etc. Human skill could produce a surplus over consumption. All the wants could not however satisfy within the household production. So, there arose the artisan production to meet other's wants. Such artisan production served as a supplement to peasant farming. Specialist-artisans engaged in some time exclusively, some time in conjunction with agriculture, in tanning, black smithy, bell metal, pottery etc.[14] With the growth of artisan industry or handicraft, there arose division of labour in between different trades and vocations. Not only in the state of Assam but all over the country such division of caste system. The castes living in a village or a group of neighbouring villages are bound together with economic ties.[15] Kautilya in his Arthasastra had mentioned that several manufactured articles like *agaru* (agallochurn) *bhadrasriya* (camphor) *tailalparnika* (oil like fragrant substance or perfume) and such other commodities were available, various fabrics like *karpasika* (cotton) *kshauma* (eriendi or attacus ricini) and *patrorna* (pat or mulberry silk) were also produced in Kamrup. Smelting of iron from ore which is said to be a megalmathic culture of the Neolithic age of human civilization was practiced by the Khasis since prehistoric times. Production of gold and manufacturing of jewellery were other important traditional industries of Assam. Gold was collected by washing sands from the rivers of Assam valley and gold was sent to the market places near Ganga delta. Circulation of silver

coins too indicates that silver was produced in plenty. As a matter of fact platinum was found in the sand of the Dihing River. In Assam other metal works including bell metal wares of various sizes, shapes and designs were used as a container in the temples as well as for domestic and decorative purposes.[16]

The Bell metal industry of Assam is confined in a few areas, viz Titabar, Sapatgram, Bilasipara and Sarthebari. Although the highest concentrated centre of this industry is Sarthebari. Sarthebari of Barpeta district is the main centre of this hereditary cottage industry, yet a substantial portion from here moves to different parts of the state in search of employment during the slack season. In fact the artisans of Raha, Titabar, Sapatgram, Bilasipara had almost given up the bell metal industry and started other business. The industry is reported to have been in existence at least from the seventh century when the great king Kumar Bhaskarvarman of Kamrupa, generally known as the Kumar Raja of Eastern India (594-650 A.D.) had made present inter alias of several kinds of drinking vessels made of metal by'skiledl artists' to Sri Harsa of Kannauj (Harsavardhna) and the rich tradition of Kamrup was established through the offering *'Tal'*(cymbal) instrument to eminent scholar Hieuen-Tsang of China on his visit to India and Kamrup. It can be assumed that bell metal production had been there at Sarthebari long before 7th century A.D. As cited earlier bell-metal industry flourished in other areas of Assam such as Titabar, Raha and Bilashipara but later died down as a result of the artisan's

inability to reach the people's changing demand. The credit goes to the artisans of Sarthebari for keeping the bell-metal industry alive under strenuous conditions at different times.

In 'Asiatic Life' detail description of life style, trade and industry including utensils, they used are depicted vividly. It can be mentioned that there is a prudential similarity between the utensils like Jug, Kalah, Jgari etc in central Asian Civilization and that of the utensils manufactured by the Sarthebari artisans. So it can be ascertained that this art of metallographic is adopted from the above discussed civilization and rooted at Sarthebari in Assam. The great Chinese traveller Hu-An-Tsang also pointed out that there was a route through Arunachal Pradesh of such human migration concluding it is assumed that the Sarthebarians are of central Asian origin of the old civilization.[17]

The chemistry behind moulding of bell-metal has been traditionally known to the Indians since two thousand B.C. In social and cultural life of Assamese also bell-metal plays a an important role from time immemorial and the credit for sustaining the knowledge of manufacturing and moulding bell-metal goes to the people of Sarthebari where every house hold of the village has devoted in surviving this age old historical industry. According to several historians, copper was the first metal harnessed by man. Alloy and copper has been used widely throughout the history of human civilization. Copper metal and its compounds have been used by man since prehistoric

times .Copper is an essential element for plants, animals and human and is a component of many.

The history of bell-metal is very ancient. According to the archeologists' bell-metal or bronze civilization started in the deltaic banks of Amudoria river on the south of Aral sea before four thousand years ago. In ancient time, that part of thing which remains after other parts have been destroyed is known as Tazabayab was there are the lands of khuorism and it was contemporary to Mahenjodaro civilization as determined by the Archeologists. They pointed out that Tajabagyab culture was the time line the Bronze Age. It has been established by the famous Russian archaologist Talstovor that the culture of Tajabayab in the second millennium before Christ is considered to be a Bronze Age culture.[18]

During Muslim rule in India it had beautifully deigned bell-metal utensils made in 'Parashya Desh' are used by the people of Assam. These items are still preserved in Guwahati Museum. These has a similarity with bell-metal utensils of Sarthebari, therefore there is a possibility that this art of metallographic might have been adopted from 'Parashya Desh.' Remarkable point is that though Muslim Community is living in the heart of Sarthebari but they are not attached to the bell-metal industry. But in Hajo which is 50 km. away from Sarthebari, the brass metal artisans are dominated by Muslims and they are known as Moria community, who might have come along with the Mughals invasion and settled here. Their locality is known as Moria patty, now

called Muslim patty. The brass metal manufacturing however, did not remain as a monopoly business of the Muslim alone. Several Hindu families had also undertaken it long ago, probably due to the demonstration effect. It can presumed that the Muslim community of Sarthebari might have come with Mughals.[19]

During the Ahom regime, the bell-metal industry in Assam has achieved the golden period. Every one including the king, nobles and the subjects have been accustomed with the use of bell-metal utensils and as such bell-metal production of Sarthebari flourished. The Ahom king gave incentives to the artisans engaged in Sarthebari bell-metal industry. Encouraged by royal patronage, the artisans have enabled themselves to mould lovely looking *Sarai,* (a platter or tray) *Gudgudi*, (hooka) *Temi-bata* (small lime container) *Pikdani*, (spittoon) *Bhog-jara* (water vessel with a spout) etc. The artisans have made bell-metal cannons for the battlefield use. The Ahom King and Nobles were complacent in using *Maihang kahi* (metallic plate) and *Maihang bati* (metallic cup) produced under special care by artisans of Sarthebari bell-metal industry. King Siva Singha is known to have showered laurrels upon bell-metal artisan Jieu Dhan Kahar at the beginning of the 17th Century. Jeu Dhan Kahar was highly interested in pure art. As a token of recognition of his talent in art he was endowed with the title 'Choudhary' along with a grant of 100 *bighas* (measure of land) of *nispikheraj* land. Jeu Dhan Kahar made a wooden tiger and its inside placed a pair of *bhortals* (large cymbals) made of bell-metal,

which produces roaring sounds while moving. This tiger was presented to his Majesty Siva Singha, Ahom King. The descendants of Jeu Dhan Kahar are using the Choudhary title till date.[20]

In various *'satras'* (monastry), *mandir* (temple), *Namghars* (place of worship) both inside and outside Assam bell-metal finished products like *doba* (large drums), *asan* (tiny chair), *ghanta* (bell), *bigrah* (image of God) *gasa* (lamp stand), *dug dugi* (vessel with a long narrow neck), *sarai* (tray with stand) etc. of Sarthebari are used with a sense of satisfaction in those religious institutions. It is still a social practice that Sarthebari products must accompany the brides in the wedding. Sarthebari made kahi (metal plate), *bati* (cup), *lota* (vessel), *ghoti* (vessel), *kalash* (pitcher), *bata* (tray with foot), panbata (small tray with foot) and other bell-metal products are part of the bride's dowry even today. The *dapani* (mirror) that the bridegroom takes with him are of bell-metal products made in Sarthebari.

In the traditional cultural activities perpetuated by *dhuliya* (drummer), *khulia* (instrumentalist), *gayan* (accompanied singer), *bayan* (instrumentalist), *kaliya* (piper), *taliya* (cymbalist), *oja-pali* (chorus singer) etc. The bell-metal products of Sarthebari such as *bhortal* (large cymbal), *patital* (small cymbal), *khuti-tal* (cymbal), *manjira* (small cymbal) are widely used by the Assamese society at different requirements. Some of the wonderful bell metal and brass handicrafts products such as the brass doors at Batadraba (Nagaon) and Kamalabari satra (Majuli) Bulanighar at Kamakhya temple

(Guwahati) are some of the memorable pieces made by artsans of Sarthebari. During the Ahom King Rudra Singha, the trade between Assam, Tibet and China was flourishing with bell-metal, brass, copper products. The records in *'Ahom Deshar Buranji'* bears a ample proof about the trade and commerce relationship between the people of Assam and the nighbouring China and Bhutan in the Ahom days.[21] During Ahom kings time, along with other bell-metal products, *Tal* (cymbal) instruments was exported to Bhutan. This traditional trade is still alive. The bell-metal industry of Sarthebari has expanded upto Manipur, Shreehatta, Jalpaiguri, Rangpur, Kochbehar and other adjoining areas of both hills and plains. It is pertinent to note that although the *Tal* (cymbal) instrument was used in Assam and Bhutan there is a difference between the products of Assam and Bhutan. The Bhutiya *tal* contains beta which is smaller and surrounding flake is bigger.

Even during the British rule, there was no spectacular improvement of bell-metal industry at Sarthebari. In 1893 when Queen Victoria organised an exhibition of handloom goods in London, Mr. Pushpa Ram Kahar of Sarthebari sent a piece of bell-metal plate for display in the exhibition. The artistic plate is still preserved in the British museum in London. Thereafter many artisans of Sarthebari were awarded by the Govt. of India for their craftmanship.

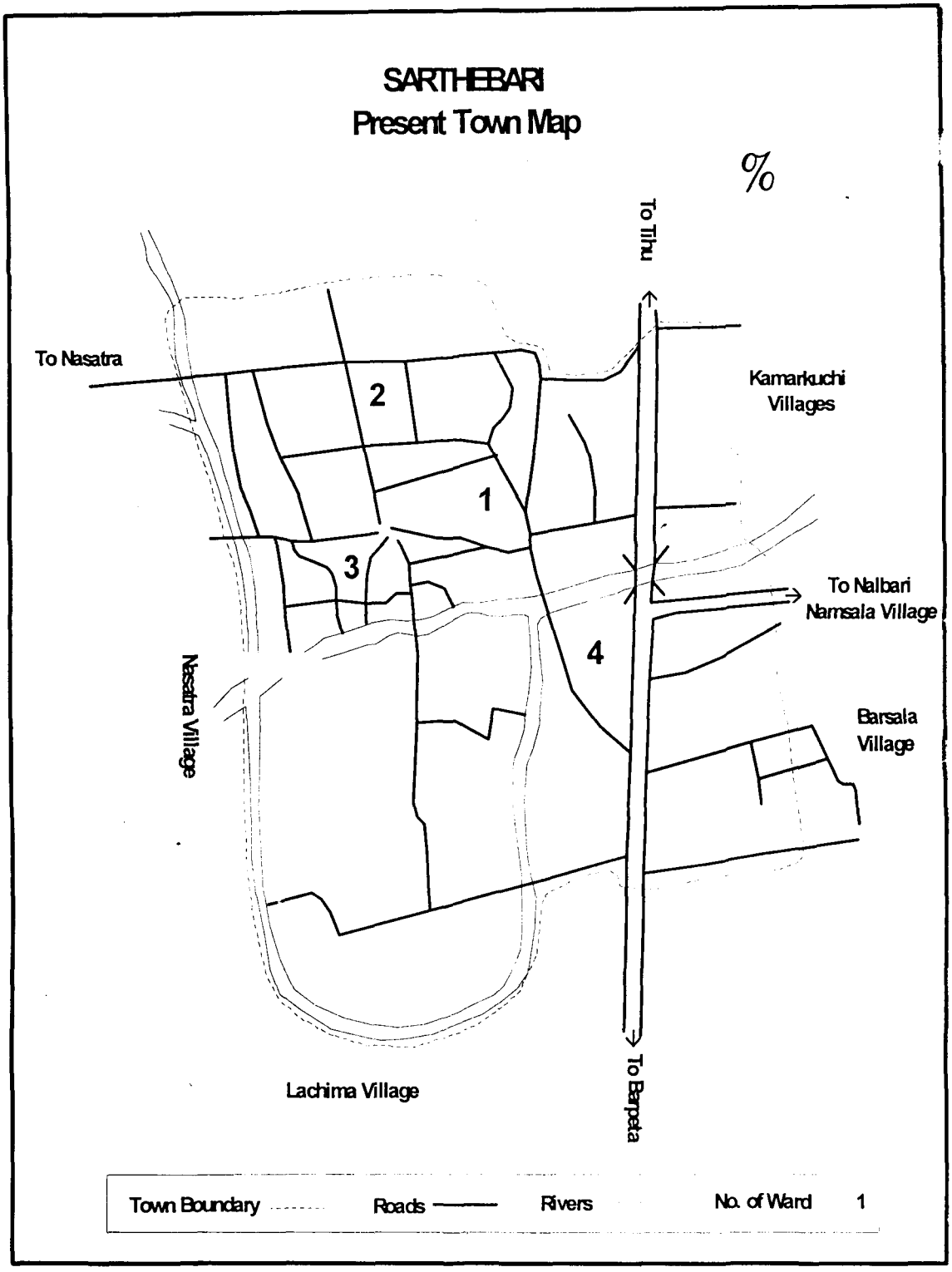
B.2.2 Background of the area:

Sarthebari is situated at a distance of 90 km to the west of Guwahati in Barpeta district of Assam. The localities were originally craft villages, specializing in bell-metal industry. It was a big village of 2.90sq. km. till 1955 when town committee was formed and the culture was changed from village to town although the pattern of habitation of people, remains the same. Even to day, inspite of the town area being divided into four wards, the sub area of the village under five *khels* (group), which is called '*pash kheal gayan gayaraha* '. These five *khels* are:

(i) *Atather khel*
(ii) *Kazither khel*
(iii) *Salakatiather khel*
(iv) *Talukdarther khel*
(v) *Tamulither khel*

The old *khel* of each have sub-area also, such as *Atather puran khel, Atather natun khel, Jogirbari, Jabor (saru) supa, Ojather supa, Natun Talukdar supa, Puran Talukdar supa, Jabor (danger) supa, Jojada supa, Kazither supa, jamother supa, Katiather supa, Salakatiather supa, Patowary supa, Choudhary supa, Tamuli supa* are still prevalent and functionally too the population is engaged in primary; activities. Sarthebari provides residence to about 12,000 populations (according to 1991 census) in 1132 holdings in 2.90 sq. km. area with a density of 410 persons per sq. km. as per a town committee report. In Sarthebari a town committee was formed as early as 1955.

Fig-2.1


SARTHEBARI
Present Town Map
%
To Tihu
To Nasatra
Kamarkuchi
Villages
2
1
3
4
To Nalbari
Namsala Village
Nasatra Village
Barsala
Village
Lachima Village
To Barpeta
Town Boundary
Roads
Rivers
No. of Ward
1

Educationally, however Sarthebari stands above the state as well as district urban averages with 59.23% literacy rate. It has eight primary schools two high schools, one higher secondary school and one arts collage for general education. There is a circle office, a police out post, a dispensary and a branch of United Commercial Bank established in 1971. The famous bell-metal industry has also spread probably through kith and kins to some neighbouring villages, like Karakuchi, Namsala, Gomura, Baniakuchi and Haldibari and few units are still reported to be in existence at Ramdia near Hajo. There is one bell-metal unit organized by one of those who were an apprentice and partner at Sarthebari for some time. After coming back home he started the bell-metal industry in Ramdia.[22]

Sarthebari is one of the eight revenue circles under Barpeta district of Assam. Paka and Sarukshetri are the two mauzas under Sarthebari revenue circle. It is situated 90 km. west of Guwahati. A section of the villagers turned to bell-metal utensils production and trading yet they adhered to cultivation. Due to continous flooding of the area *Ahoo crops* (paddy in June-July) and *Sali crops* (wet rice) could not be done. Therefore people practices *Bao crops* (paddy grown on flood land) which suits the climate of the area.

The communication systems connecting Sarthebari is still the worst. People go on foot or use boats to go to Barpeta, Tihu, Nalbari, and Pathsala. On rare occasions some uses horses. During British Raj a narrow road connecting Sarthebari and Barpeta was built but remains under water during

rainy season. After independence, P.W.D. has constructed roads connecting Sarthebari with various places near and far.[23]

Sarthebari was declared as a municipality in 1955, but no urban looks have been traced in the life of Sarthebari. The basic facility which a town provides to the citizens can hardly be seen at this place. Sarthebari area lacks proper drinking water, electricity facility and health facility and communication system.[24] The economic condition of bell-metal artisans inspite of day long strenuous work, they remain poor. Thus the artisans are compelled to do cultivation, small trades, Govt or Semi Govt jobs. The artisans are illiterate thus they fail to realize the need for modernizing the age old industry. They are yet realized that the industry products are being challeged by the products of different metals such as pottery work, stainless steel, aluminum etc. The existence and continuity of bell-metal industry is due the dedicated consumers which give preference to bell-metal products because of its quality and resale value. It is a fact that bell-metal industry will never perish, due to its quality and social value.

B2.3 Social Custom and Behaviour:

Sarthebari having its own historical importance is a large area and its socio-cultural behaviours are unique and commendable. In recent past, bell-metal artisans use to camp at Maligaon, Kalbari, Bharalumukh, (Phukaner Hawli) Kumarpara, North Guwahati, Rajaduar, Auniati and Guwahati for moulding bell-metal utensils of day to day use and they were doing this for

months together. Some of them used to go to the upper Assam districts and sold their products with dignity.

Nao- khel (Boat Game)is a very popular age old festival of Sarthebari which coincides with *'Janmastomi tithi'* and as soon this festival is ever the artisans go out for the annual trade and they return to their native place just before the festival popularly known as the 'Sarthebari Sabha'. The *sabha* (association) is of great significance and it has contributed a lot to the social life of Sarthebari. The unity of the people led the emergence of *Bhadrakali Puza*. This puja gained tremendous popularity among the people who ultimately founded Jagannath temple at a focal point for the *sabha*, a festival of the people held under the sponsorship of five *khels* (group) common platform *gaya gayarhar* in every full moon month (January-February) of a calendar year. This *sabha* has been going on to the much joy and merriment of people far and near. The *sabha* has been leading a key role in maintaining social harmony among the people. The *sabha* is the confluence of various communities such as Sylheties from Bangladesh, Garos from Meghalaya, Mikirs from Mikir hills or the Bhutias from Bhutan and also others from the Brahmaputra and Barak valley.

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Chapter-III

COTTAGE INDUSTRY WITH SPECIAL REFERENCE TO BELL-METAL IN SARTHEBARI AREA

The growth of the cottage industries has been one of the most significant features of the industrial development in India. The cottage industries are playing a key role in the process of industrial growth. Though there has been a rapid growth of cottage industries in the country, yet the growth in Assam is comparatively slow. In 1961 Assam had only 197 registered Small Scale Industries against 35,783 in India. But this sector plays an important role in the economy of Assam. In the sphere of industrialization, Assam is yet to make much headway although the base for industrial development was created more than a century ago with the establishment of tea, coal, oil, plywood, bell-metal industries etc. Assam has the distinction of having first bell-metal industry in the country. But due to several factors the state continues to remain industrially backward even after more than four decades of economic planning. In Assam Barpeta district is also industrially backward. Not a single large and medium scale industrial (LMSI) unit has been established in the district till today. But the district is famous for ivory products and bell-metal industry. Sarthebari area in Barpeta district is the main centre of

this type of traditional cottage industry. This is a household industry, where workers are mainly paid members of the family.[1]

Industrial units can be classified on the basis of their investment limit on plant and machinery type of organization and basic raw material processed.

(a) Small scale industries, ancillary units and export oriented units with investment in plant and machinery up to Rs. 5 lakh (irrespective of their location) are termed as tiny enterprises.

(b) The fixed investment in plant and machinery (original value) whether held on ownership terms or lease or by hire purchase that does not exceed Rs.60 (sixty) lakhs is termed as small scale industry.[2]

Rural industries are usually those industries which are self financed for manufacturing, processing, preservation and servicing in village and small towns involving utilization of locally available natural resources and human skills and small amount of capital. The various rural industries can be broadly classified into three categories viz.

(i) Cottage industries

(ii) Agro-based industries and

(iii) Small scale industries.

(i) Cottage industries are mostly traditional industries employing traditional methods to produce traditional items. These are essentially household enterprises employing little or no hired labour

(ii) Agro-based industries depend not only on the outputs of agricultural and allied activities but also on the inputs of agriculture like agricultural equipment, fertilizers and pesticides etc. The planning commission has set forth criteria for distinguishing agro –industries as industries which

(a) Encourage greater input in agriculture.

(b) Lead to better processing and conversion of agricultural commodities

(c) Ensure high returns of processed goods, and

(d) Increase agricultural production

(iii) Small scale industries are those engaged in the manufacturing, processing or preservation of goods and whose investment in plant and machinery (original cost) does not exceed Rs.35 lakhs. These would interalia,include units engaged in mining or quarrying ,servicing and repairing of machinery (original cost) should not exceed Rs. 40 lakhs to be classified under small scale industries.[3]

In the sixth five year plan 1980-85, the planning commission uses a composite term 'Village and Small Scale Industries (VSI) to connote two groups of industries-

(a) Traditional industries such as handloom, khadi, bell-metal, and village industries, sericulture, handicrafts and coir and

(b) Modern small scale industries including tiny units and power looms.

It does not state clearly whether traditional industries should be treated as village or small although the distinction between traditional and modern small scale industries are very clearly distinguishes. More than three decades of planning of our country with the industrialization issue of classifying industries into several groups like traditional, modern, cottage, village, small, medium, or large-scale etc. is still under question. But contrary to the government agencies in our country including academicians and professionals, have used different terms at different times to cover a particular group of industries. For example the planning commission of India had used in the first five year plan the term village, cottage and small industries in an interchangeable manner.

Small industries were divided in to two groups:

a) those which represent traditional skill and crafts and

b) those which are more recent and are connected with the corresponding large scale industries.

The estimates of output, employment and exports of village industries have been shown as a separate category within the traditional group. Khadi and village industries are those which fall under the purview of the khadi and village industries commission and the small scale industries refer to those under the purview of the small industries development organization for the above explanation given by the planning commission. But definition confounds with confusion. Small scale provides investment in plant and machinery, but not exceeding the selling limit of 7 lakhs. The industries with investment up to Rs. 35 lakhs and registered under the factories act.

The Director of Economics and Statistics, Assam while conducting a survey of the cottage industries in Assam in 1954-55 covered handloom, brass and bell-metal, black smithy, pottery and a host of such other industries numbering 72 under the term 'cottage industries'. The same directorate has announced bell-metal, black smithy and pottery units as small scale industries. The Director of Industries, Assam, has also shown in their directory as small scale industries. Several bell-metal units have registered as 'small scale industries'. It is not clear about the registered units (with the Directorate of Industries) along with small scale industries and non registered

units of the same group whether they are considered as cottage industry, village, khadi or small scale industry.

Bell-metal artisans from Sarthebari have represented the state in the Republic Day handicraft fair to show their craftsmanship. In some artisans have received master craftsman awards from the National Handicrafts Board, New Delhi in 1966. From this point of view bell- metal smithy is treated as a handicraft by the Handicrafts Board. But after the registration with the Directorate of the Industries it is treated as small scale industry. It shows that the same traditional industry at one time becomes cottage industry in one village and in another 'handicrafts' after 'registration' it becomes 'small scale industry'.[4]

Small scale and cottage industries have been accorded special importance in the country for various social, economic and political reasons. The important and growing segments of the Indian industrial sector have received a large contributions from small and cottage industries. Their contribution to the country's domestic production and employment is also substantial. Not much is known about the operation, progress, problems and prospects of most of the cottage and small enterprises in our country. In India 80 percent of its population depends for its livelihood on agricultural land, traditional arts and crafts and village and cottage industries.

This sector has enough potential to solve unemployment and under-employment problems if proper government supports are received.

Cottage industries have more employment opportunities. Illiterate and unskilled or semiskilled rural people could be easily employed in cottage industry. This industry requires very little technological involvement. Similarly, the village industries are under the ownership and control of the producers themselves.

In our country it is not clearly demarcated or defined the cottage industries, village industries, handicrafts and 'small' industries. There are several boards, commissions and organizations formed at different times such as the Central Silk Board, All India Handicrafts Board, All India Handloom Board, All India Khadi and Village Industries Commission, Coir Board, and Small Industries Development Organization. But there are absences of co-ordination among them.[5]

Handicrafts of India includes handloom woven fabrics and hand printed artistic cotton and skill textiles, hand printed artistic cotton and skill textiles, bamboo and cane works, pottery, jewellers and metal wares and a host of such other artistic products of cottage artisans as handicrafts. Where as the Khadi and Village Industries Board show some of them (endi, muga and other silk fabrics, village leather, pottery etc) as village industries. All these shows that the similar traditional industry (bell-metal) at one time becomes cottage industry in one village and in another place it becomes 'handicraft' and ultimately after registration it becomes a small scale industry.

The definition of small scale industry is rather ambiguous. As such the real beneficiaries are the medium and large industries. There is a need to redefine industries on the basis of capital, net assets, employment, turnover and type of activities considered as an integrated criterion. There is a need for serious thinking by the Government and the policy makers to strengthen the base of small scale enterprises, so that they play a key and dynamic role in the rapid industrialization, to compete globally. Except India in other countries the anomalies seems to be less and rare on a global view of small scale industries.

In China, the definition of small industry is less quantified and varies with the product. These industries are designed to mobilize local raw materials, local skills, local finances and local markets.[6]

The working group of the economic commission for Asia and the Far East had suggested in 1952 that small industries be defined for statistical purposes as establishment of employing not more than 20 persons when using power or 50 persons when not using power.[7]

In Indonesia there is no differentiation between small-scale enterprises and cottage enterprises. More than 90 percent of the enterprises in small scale and the small-scale industries in Indonesia as hybrid of the traditional and modern industries.[8]

In Thailand, a small industrial enterprise is defined as an enterprise, the fixed deposits of which do not exceed baht 2 million

(approximately Rs 12 lakhs). Industrial enterprises are grouped under four categories, namely, manufacturing servicing, handicraft and cottage industries.[9]

In Germany, Sweden, Norway and Denmark, there is no official definition of a small industry. Units employing up to 300 workers are considered to be small. There is no clear-cut definition of a small industry in Scandinavian countries. However, such units as employ 10 to 100 workers are taken to be small-scale units.[10]

In Iran Small industries are defined as those:

(i) With 100 percent Iranian ownership and management;

(ii) Whose assets do not exceed 5 million rails;

(iii) Whose products are not artistic in nature.

It has been further mentioned that investment in land and building must not exceed 25 per cent of the total capital.[11]

In Italy units having a capital investment of not more than 1,500 million lire and employing not more than 500 workers are considered to be small industries.[12]

In Korea the term small and medium industry is defined in the small and medium industry co-operative act as any unit:

(i) In manufacturing with more than 5 and less than 200 employees or with total assets of less than 50 million won; and

(ii) In mining with more than 5 and less than 300 employees or with assets of less than 50 million won. (275 won =1 U S dollar) [13]

In Netherlands there is no definition of small-scale industry which generally employs 10 to100 workers.[14]

In Philippines the institute for small scale industries, defines the small industry as "a manufacturing or industrial service enterprise in which the manager is not actively engaged in production but performs as a varied range of tasks involved in guidance and leadership without the help of specialized staff officer"[15]

In Sudan small industries are defined as those industries which have a capital investment of less than Ls 50,000 ($ 142,000) or which employs less than 30 full-time workers. Most industries in this category are workshops, small oil mills, perfumes, ice factories and tanneries, etc.[16]

In Taiwan the manufacturing and processing sector (including handicrafts), any business employing less than 100 persons or with assets worth NT $5 million is a small industry.[17]

All industries employing less than 10 workers and having a connected load of less than 10 h.p. are considered small industry in Turkey.[18]

In Vietnam a small industry is defined as one employing less than 300 persons and having not more than 20 million pilasters ($ 250,000) in capital investment.[19]

In U.S.A. the term 'small business is used to cover almost any type of business that is locally owned and in which the owner is in charge of the operation". The United States department of commerce defined 'small business" as industries in 1951 as 'firms employing less than 50 persons in some industries and firms employing less than 2500 persons in other "with specification of the manufacturing or servicing activity.[20]

In the Federal Republic of Germany the term 'handwork' is used and it covers 124 trades and professions 'fixed by statute "embracing" not only master -craftsmen working on their own as for instance, stove builders, photographers or gold and silver smiths -but also concerns employing 50, 100 or indeed at time even hundreds of persons, for example house building, road making and machine building'. It is to be recalled that the German word 'handwork' and its English equivalent 'handicraft' originally indicated 'work performed by hand' and we Indian instinctively form the mental picture of the skilled and practiced hand that contrast the simple tools. There are also academicians and professionals in our country who think that some of the 'fine arts and crafts' like cane work, gold and silver work, ivory articles, wood carving etc, by their very nature are not capable of being run on machinery or

electricity and are dependent exclusively on the accumulated dexterity and craftsmanship.[21]

In Japan by small industries is mean those relatively small in the scale of management and capital investment, although the basis for classifications varies according to the type of industry, and cannot be generalized. In Japan the term 'small business' or 'small enterprise' cover any enterprise including trade and services like hair dressing and the small Business Basic Law of 1963 defined small enterprise industry as one. Those industries which invests less than 300 million yens ($133,000); and in the commercial and professional services sector, with a capital of less than 10 million yens ($26,000) employing less than 50 persons. The small enterprise includes retail shop, shopping districts, beauty salon, hair dressing establishment, and laundry shop (basic law of 1963).[22]

Japan is an outstanding example of those who have achieved rapid industrialization through the small and medium industries. Commenting on industrial productivity, the Economist (August 2, 1980) observed;

"Japanese work more entrepreneurially in teams. Components flow into each big Japanese factory from many tiny mini firms, which operate under the big factory's financial umbrella; along the automated production line, the factory's 'permanent' workers; in teams of six or seven; are responsible for jointly checking each product as it passes their station, at the end of the line the completed product may be backed by a separate 5-10 employees of mini firm."

This is a salient feature of Japanese industrial production in rural and urban areas. The small-scale sector in Japan plays a catalytic and predominant role in the accelerated growth of its industry; and this has been made possible by a long span of regulated and undisciplined process of industrial development backed by progressive legislation.

In Japan, however where small-scale industry is, highly developed, the term is used in a much wider context. No distinction is made between handicrafts and other small-scale industries, but instead, according to the small enterprise credit insurance law (December, 1950) the term 'small enterprises refers to such companies with a capital of not more than five million yens, companies with not more than 200 personnel regularly employed or co-operatives engaged in industries as designated by cabinet order. According to the smaller Enterprise Co-operatives Law (June 1949) the term 'small enterprises means firms regularly employing not more than 300 employees in industry or not more than 30 employees in commerce'.[23]

This is where, small industry playing an important role even in highly industrialized countries like the U.S.A, U.K., Canada, West Germany, Japan, Sweden and Switzerland. Small industries are also playing a dominant role even in the socialist countries where large scale production is considered to be a necessary condition for the application of modern technology and the most effective utilization of resources.[24]

India is predominantly an agricultural country. Proper developments of small- scale industries are vital for the healthy growth of our economy. The country can benefit by Japan's bold experience in this direction, spread over more than three decades. Village and small industries in their different aspects are an integral and continuing element, both in the economic structure and in the scheme of national planning. The primary objective of developing small industries in rural areas is to generate better employment opportunities, raise income and standards of living and bring about the growth of a more balanced and integrated rural economy. The prevailing scarcity of capital for the promotion of large-scale industries and a plentiful supply of labour favours the development of small-scale industries. Besides, the setting up of small but efficient units of production a suitable location throughout the country would reduce the cost of transport involved in the haulage of raw materials or finished products of centralized industries. The low purchasing power of the mass people tends to restrict the market and the scale of production in certain spheres; and the needs of the people, therefore, to be met in several ways by production on a small, and often, on a semi-mechanized scale. Small-scale industries are also essential for providing subsidiary or alternate occupations and the utilization of local raw materials constitute a progressive and efficient decentralized sector in large-scale industries. Small units exist and thrive even in highly industrialized countries. In Japan, for example, the small units serve as feeders to the larger ones. These small units

operate alongside large -scale industries either on their own or in conjunction with large units.

In 1947, a conference convened by the Government of India decided that decentralized production should be encouraged in cottage and small-scale industries. The resolution passed by the conference is cited below; "The conference recognizes the importance of cottage and small-scale industry to the economy of the country and is of the view that while the size and nature of these industries make unavoidable that their proper development must remain the responsibility of the provincial and state Governments; the Central Government should investigate how far and in what manner these industries can be co-ordinated and integrated with large scale industries. The healthy expansion of cottage industries depends on the provision of organized marketing for these purpose, the Central Government should establish a Cottage Industries Board." In India, while there is no official definition on the subject, the report of the Fiscal Commission (1949-50) makes a reference to them as follows.[25]

"A cottage industry is one which is operates mainly or primarily with the help of the members of the family either as a whole or part-time occupation. On the other hand the small-scale industry is one which is operates mainly with hired labour normally numbering 10 to 50 hands."

Similar but rather different view is adopted by the planning commission according to which cottage industries are in the main rural in

character and are generally associated with agricultural involving operation mostly by hand and are carried on at home either as a whole-time or as a part - time occupation, primarily with the help of members of the family. Small-scale industries are located in urban centres and produce goods with partially or wholly mechanized equipment employing outside labour, small in size having little capital resources and a small labour force.[26]

In India, the state has taken a greater interest in the development of small-scale industries. It renders two kinds of assistance to them, viz., financial and non-financial. The state assists the small-scale industries to:-

(i) Improve their techniques of production and management;

(ii) Provide credit facilities, both for investment and for working capital

(iii) To provide common services facilities.

In order to co-ordinate these activities the Central Government set up a small-scale Industries Board, appointed a Development Commissioner for small - scale Industries and established Regional Small Industries Service Institutes and a National Small Industries Corporation.

The cottage industry is an important component of rural industries. By the term 'rural industry' is meant industry appropriate for the rural areas as demarcated by the census records. The concept here has a special

demographic undertone. The rural industry serves the requirements of rural people as well as other markets. By and large the financial needs of rural industry are small. More, importantly they function in the absence of infrastructural facilities and are environmental friendly.

3.1. Benefits of Rural Industrialization:

(i) Rural industries provide additional employment opportunities, raise production and improve economic conditions of rural areas.

(ii) Rural industries are labour- intensive. They provide additional employment to men and women. Ensure decentralization of economic power and elimination of monopolistic exploitation.

(iii) Decentralized production through network of well-knit rural industries removes the necessity of complicated managerial and competitive marketing techniques, thus reducing the cost on account of overheads.

(iv) Rural industrialization leads to the development of rural areas thereby lessening the disproportionate growth in large cities, reduces the growth of slums, social tensions, exploitations and atmospheric pollutions.

(v) Rural industry helps in human resource development.

(vi) Rural industrialization provides ample scope for the promotion of artistic achievement and creativity that is suppressed in rural areas.

Although, agriculture is the main stay of the rural economy, rural industry is a complementary industry. The pressure of population on land is already high and increasing. In the process, it has resulted a surplus of labour in rural areas, both educated as well as uneducated. Agriculture alone cannot absorb the surplus force and thus rural industry is an essential requirement. Even if rural industry is considered as the main stay, agriculture too is an important part of this process. Rural industrialization aims at the maximum utilization of local resources. The revival and development of traditional industries have established a new unit by integratiing agriculture and industry. Thus it brings economic prosperity to the people. The other important aspect is that it has also prevented migrations of people from rural to urban.[27]

The traditional industries are again divided in to two groups,

(i) Those which produces goods for markets either in the neighborhood or far off places or abroad, and

(ii) Those which processes or produces goods mainly for home use or consumption at home.

The first group could be termed as 'cottage industry'. The use of terms like 'village' or 'rural' for cottage industry is not proper here. No doubt traditional cottage industries are prevailing mainly in the rural areas; but they

are in the urban areas too. Bell- metal industry of Sarthebari is under the 'cottage industry' group.

Still some people still prefer traditional ietems like hand spinning, hand pounding, khadi and other traditional village industries as immediate and short term measures for providing job to the rural unemployed and under-employed as means of raising or supplementing family income.[28]

The use of the word 'house hold industry' in place of 'cottage industry' is gaining popularity among the academicians. We think this term should be reserved for traditional processing or manufacturing activities carried out in the household, mainly for use and not for exchange.[29]

In recent years various types of industries have been set up in the state of Assam. Based on basic raw materials processed and their nature the industries of Assam, the Techno-Economic Survey of Assam (1962) conducted by National Councial of Applied Economic Research (NCAER) has classified into following eleven categories:

(i) Agro based industry

(ii) Forest based industry

(iii) Mineral-based industry

(iv) Chemical-based industry

(v) Textile-based industry

(vi) Animal-based industry

(vii) Engineering and allied

(viii) Building materials

(ix) Electrical-based industry

(x) Miscellaneous industry

(xi) Cottage industry.

Besides the above (a) Cotton, Silk and Handloom (b) Bamboo and Cane products (c) Handicraft (d) Black-smithy (e) Pottery and (f) Bell-metal icould be included in the cottage industry. Sarthebari area in Barpeta district of Assam is the main center of this type of cottage and traditional industry.[30]

According to Dhar (Economist), the village and cottage industries includ handloom, weaving, rope making, brass and bell-metal, cane and bamboo work, gold and silver work etc. These industries provide subsidiary employment to good number of people in the rural areas. Some of these industries are organized and managed by artisans and craftsmen. With the growth and development of these cottage and village industries many poor families have been able to raise their income and improve their standard of living. Cottage industries of Assam is producing different types of artistic good, e.g. bell-metal products which has a large market throughout the country.[31] The artisans of Sarthebari are known for their fine artistic work and they produce variety of bell-metal items like - *vortal (large cymbal), khutital* (cymbal), *barkah* (drum), *ghanta* (bell), *bata* (tray with foot), *sarai* (tray), *thagi* (tray with foot), *gasha* (lamp), *kahi* (plate) *bati* (cup), *lota* (vessel), *kalah*,

(pitcher), *charia* (wash bowl) etc. The bell-metal products of Sarthebari are exports to the neighbouring countries like Nepal, Bhutan, Tibet, Bangladesh etc. Different varieties of cymbals used by the Lamas of Tibet were procured from Sarthebari.

The three major problems faced by the artisans of bell-metal units of Sarthebari are finance, marketing and raw materials. Problem of finance is a common obstacle for development of the units. Among the cottage industries of Assam the position of bell-metal industry is next to handloom industry. Sarthebari in Barpeta district is the main center of this family cottage industry. The industry produces various types of bell-metal utensils decorative items with the help of simple traditional tools and equipments. Such industry is run by mostly family members with some local wage labourers.

An artisan is also known as 'artmaster', 'designer' or 'draftsman apprentice'. The categories of craftsmens specialisations are: turner, potter joiner, cabinetmaker, carpenter, woodworker, sawyer, cooper, brass-smith, metal worker engineer, civil engineer, mining engineer, smith, coppersmith, steel-worker, house decorator, etc.

3.2 Bell-metal a hereditary cottage industry:

Cottage and small industries have a very important role in the national economy. This industry provides opportunity to individuals, village or co-operative enterprises and rehabilitation to displaced persons. These

industries are particularly suited for the better utilization of local resources and for the achievement of local self-sufficiency in respect of certain types of essential consumer goods.[32]

Cottage Industries are classified under the following heads:

a) The peasant art & crafts that are carried out on subsidiary occupations by the cultivators for their household needs and sometimes for an external market.[33]

b) The industries which provides requirement of the village.

c) The village art industries that is operated by the artisans.

d) The urban arts and crafts.

Bell-metal industry is a family based cottage industry of Assam. In this industry capital requirements are for simple tools like anvils, hammers, tongs, chisels, iron scissors, files, pincers and a bellows fitted to a hearth on the ground. The bell-metal artisan smelts scrap metals in the hearth; cast them on required moulds with their weight, size, shape and thickness. The items are made by hand through incessant beating or hammering to get their required shape. The rough products are then made plain again by heating and beating with small hammers, final smoothening is done by using files. Finally the

utensils are polished in the *'Kund'* (wooden wheel apparatus fitted with chisel rotated by man with the help of strings). After polishing decorative items are engraved with required patterns. In a bell-metal unit investment varies between Rs. 50,000/- to Rs. 1,00000/- providing employment to four persons in an average. In the past bell-metal units were using soft skin bellows but it has been replaced with hand operated iron bellows. A bell-metal establishment with four persons can produce about 220 kgs of metal items in a month. The cost of this production is about Rs. 76,560/-. The cost of charcoal and chemicals that are used during manufacturing process is about Rs 55,400/- to Rs 1,26,960/- exclusive of wages.

Due to lack of information, illiteracy and conservative attitudes of the people the Sarthebari industry is yet see its modernization. Outdated tools and old method of production system still prevails. Artisans borrow money from money lenders by paying high rate of interest since there are no other sources. This ultimately increases the production cost. Non-availability of timely raw materials is also a great deterrent to production. The main raw materials used in the bell- metal industry is alloy of Tin (Rang 20 percent) and Copper (Tam, 80 percent).

The raw materials for production of these alloy is also very expensive. Therefore the manufacturings of new utensils are made by collecting maimed bell-metal items and getting them is also not easy. The artisans are not trained; they learn through practice, so there is no new design

and style of the products, which is not attracting the market. The marketing of the products are not dynamic thus artisans sell their products without much profit.

Currently the industry is facing a stiff competition fro the big industries which sells their attractive items with cheaper prices than the bell-metal products of Sarthebari. Still these small cottage industries are capable of economic contribution to the states to a great extent. Despite of loosing market share the bell-metal units of Sarthebari is still in a position to provide employment to large number people. Even after all these threat it can maintain its demand in the market till date. It is an everlasting metal and can be reused by remoulding its shapes and sizes. Thus bell-metal units receive raw materials from the customers or other agents and co- operative societies and products are directly sold back to the customers or to the co-operative societies.

3.3 Cottage industries vs domestic industries:

There are several counts of similarities and dis- similarities of cottage and domestic industries. Both use traditional methods of production and produce traditional goods which can be improved and modernized. While cottage industries are operated by family and or hired labours, a domestic industry is mostly run by family labours alone. A cottage industry is run either in or near the household or far away from the artisan's home.[34] A bell-metal unit is forms with 5 to 7 workers, but not more than 11 persons. The chief

operator (oja kahar) "Maithnar', 'Kaitnar' and Advagiar' (helper) are the hierarchy of the artisans of the unit. Where as domestic industry is run within the household alone. The products of cottage industries are meant for sell to customers, dealers or markets near or far, but the domestic industries are mainly for use at home and rarely for exchange. It can defined that, cottage industry is a market oriented traditional manufacturing activity carried on with traditional technique. Domestic industry, on the other, may be defined as traditional processing or manufacturing activity carried on at home mainly for the family's consumption. As a matter of fact there is no plant or 'machinery' in the cottage industries, the fixed capital goods consists of a few tools, implements or accessories. For providing facilities of finance, marketing, tax concession, subsidy modernization etc, the industries may be registered if considered essential as 'cottage 'industries with the state Directorate of Industries or as 'handicraft' with the All India Handicrafts Board. And the activities of the various boards and commission like the central Silk Board, Coir Board, Handloom Board, Handicrafts Board, Khadi and Village industries commission and the small industries Development Organisation should be coordinated by a central authority. It may be recalled that Jayaprakash Narayan had mooted in 1961 a proposal for establishment of a rural industrialization Commission and the Ashok Mehta Committee on khadi and village industries (1968) had, besides recommending the setting up of the Commission, even suggested its organizational structure and functions.[35]

As against the above industries it is divided into 'registered' and 'non-registered' or 'organized' or 'un-organized' sectors. This division is done from the point of view of industrial hygiene and for implementing the provisions of labour regulation of the international labour organization. The legislations relating to the enforcement of labour regulations are covered by the factories acts. In our country a comprehensive Factories Act was passed in 1948 by amending or repealing the earlier legislation since 1881; this act is known as the factories or industrial concern engaged in 'manufacturing process' employing 10 or more 'workers' if using power (Section 2m) (i) or more 'workers if not using power (Section 2m) (ii) are required to obtain a license and get themselves registered with the chief inspector of factories of the states.(the act is administered by the state government). Industrial Statistics (formerly Census of Manufacturing industries) were collected under the Industrial Statistics Act 1942 for the 'registered sector'. The Committee of the Loka Sabha in its 77 th report in 1960 had also recommended inter alias, setting up of a committee to suggest measures for reducing the multiplicity of organizations and eliminating the overlapping function of the existing organization relating to small industries at the central and state level.[36]

The scheme of classification of industries viz, domestic, cottage, small scale and large scale is expected to leave least room for confusion and help avoiding of overlapping of functions of the host of promotional agencies existing and functioning in our country. The type of classification of industries

suggests that shall not present any difficulty in the implementation of labour laws and welfare schemes.

The coir industry has been brought within the purview of the factories act 1948 by the coir industry (Regulation and Licensing) rules 1958 which enjoys registration of other industrial establishments with the Coir Board. Likewise all other industrial establishments in the cottage, small scale may be brought, like the large scale industries, under such regulations and labour benefits may be enforced under the provisions of the factories act 1948.[37] Besides the modern small sector, there are also household or cottage industries. The 1961 census report, however, shows household industry engaged 383,987 persons in all manufacturing activities excluding mining, quarrying etc. The numbers of persons engaged in household industries are 280,353 persons. With the help of these data the census report had commented that the household industries in Assam had engaged only 2.4% of the population of the state as against 2.7% in India. These figures do not fail to show that household industries are gradually dying out in Assam.

The Directorate of Economics and Statistics, Assam had also conducted a sample survey of 'Cottage Industries' in Assam in 1954-55 with a 'diagnostic' rather than 'estimating' purpose in 18 urban and 39 rural areas of Assam plains (and 4 urban and 18 rural areas in the hills). This survey had listed 72 different types of industries like handloom, weaving, silk rearing, black smithy, brass smithy, bell metal smithy, oil pressing, furniture making,

bamboo and cane works, pottery, tailoring, chemical work like soap, candle etc. There are total numbers of 27,759 establishments which employs 62,953 persons. The establishments of 99% are family units, and co-operatives or partnership units constitute only 1%. Among the family units about 64.4% provides subsidiary occupation and 35.6% provide principal occupation to the families. In these 56.5% of the workers is engaged as part time and 43.5% as full time workers. However workers within the family is about 82.8% and there are 17.2% wage earners. On the other hand in 1954-55 according to cottage industries survey the metallic industries group viz black smithy, brass and bell metal smithy etc had 2963 establishments in the state.[38]

The industrial development of the state is mainly handicapped by her isolation from the rest of India, a bad transport system, a very small local market and lack of sufficient capital and labour. Handicraft is playing an important role in the economy of Assam. Particularly a substantial percentage of its rural population is dependant on alternative occupations like this. Bell-metal industry in Sarthebari area is an important cottage industry of Assam. It is a hereditary occupation in Sarthebari in the Barpeta district.[39] Most of the establishments are running on partnership basis. This system is an age old practice among the artisans. Locally this system is known as "*Oja-Pali*" 'or '*Kahar-bhaiga*'(partnership). The industry requires considerable number of skill workers and the workers are all male members. Child labour, and female workers are never engaged in the industry since the work is labourious and

requires physical strength. The tools and equipments in such establishments are normally owned by the main *kahar* (chief artisan). The main *'kahar'* used to get a higher share only because the tools and equipments are belonging to him. Incomes generated from sales are shared by the workers in mutually agreed ratios. The *bhaigas* (share holder) receives equal shares and the *oja* or chief *'kahar'* (artisan) use to get more (usually one half the share of *bhaiga*). *Oja kahar* (chief artisan) is the main stream of the unit. When the *oja kahar* (chief artisan) is absent due to illness or some other reasons, the unit is closed till he returns to work. In the event of death of the *kahar*, the unit may be closed forever or it may continue with a new *'kahar'*.

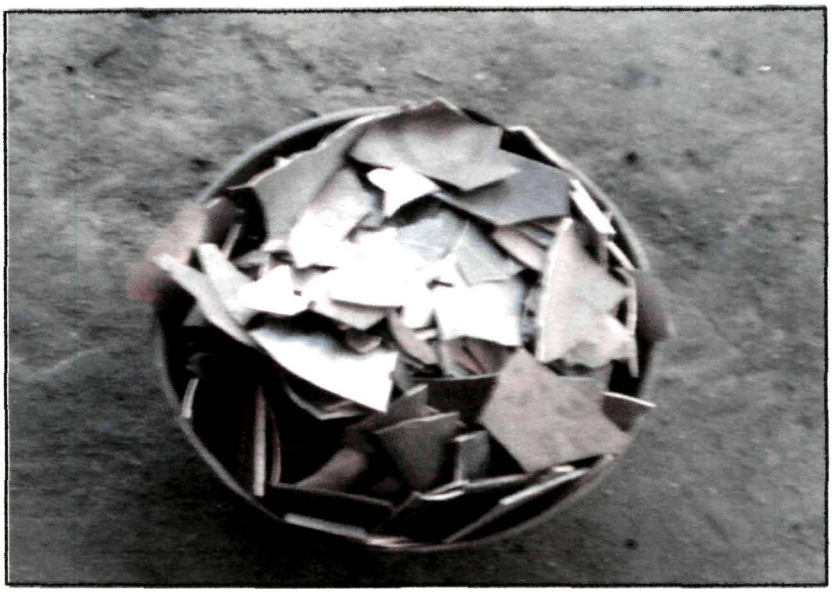

Plate 1 - Scrap Bell-metal ready for melting

Plate 2 - Melted metal in the earthen pot (*muhi)*

Plate 3 - Melted product poured in to earthen pot

Plate 4 - Shape taken when cooled

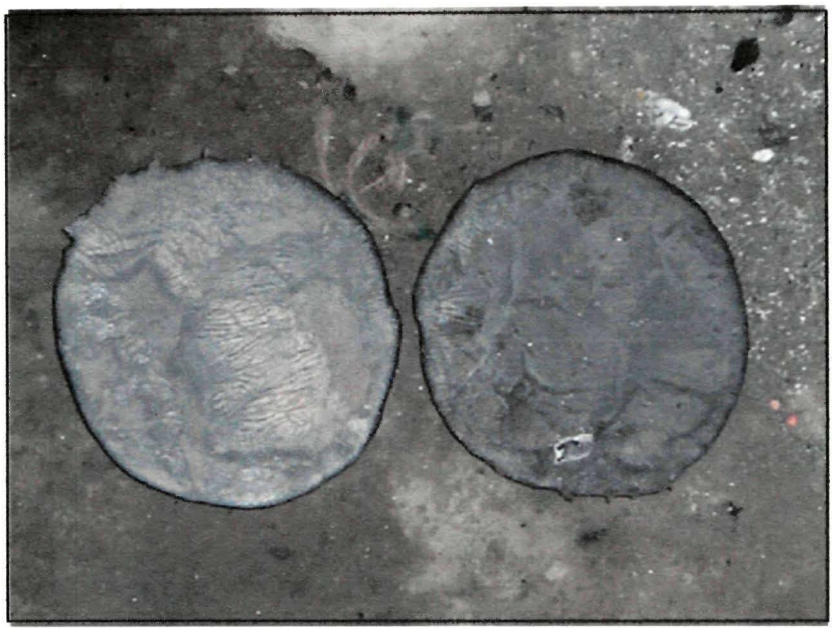

Plate 5 - Product ready for shaping

Plate 6 - Artisans are ready to mould Bell-metal products

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Chapter-IV

BELL-METAL INDUSTRY AND ITS STAGNATION

Assam is one of the most industrially backward states in the country. Although Assam has the potential for resource based industrial development. The factors responsible for the poor industrial development of the state due to high cost of production, the vulnerability of the region, inadequate economic and basic infrastructure facilities, dearth of technical personnels, lack of entrepreneurial motivation and low level central sectors investment.

Until the nineteenth century, Indian village had a rich heritage of cottage industries. People use to produce their requirements in a traditional and hereditary manner. Village handicrafts of the rural areas were quite popular in urban centers. There were a guilds in urban areas and were governed by their own rules.[1]

The Greek traveler, Megasthenes also wrote about the fineness of Indian textiles, jewelry and other manufacturing industries of that period. Fa-hien, the Chinese traveler also wrote about the textiles, leather, ivory works, and metal works of the Gupta Emperor. The Moghal Emperors also encouraged

the production of those items in the state of "Karkhanas" where high quality goods were manufactured.[2]

During the British period, the process of industrialization was initiated in Assam with the growth of bell- metal industry. With the development of the industry, the industrialization process gained its momentum in the last half of the British period and subsequently after independence. After independence planning started in Assam along-with the other states of the country. The aim of the state plan was tilted towards the development of cottage sector thus neglecting the industrial sector.

During the first decade it is observed that the industrial planning sector remained stagnant. It was during the third plan period that the bulk of industrial development took place. The state Government also directed its limited resources towards the creation and development of adequate infrastructure, the expansion of power facilities, improved transport, technical training, surveys of natural resources, the development of industrial sites and private enterprises, etc. Thus a favorable climate for investment in industries was created. But the response of private sector investment was not so encouraging. Public sector investment by the Central Goverment was also meager. It brightened the scope when the Government of India took the initiative to set up number of resource based industries in the state.[3] Further

accelerating the process of industrial development host of organizations have been setup by the state Government through the Assam Industrial Development Corporation, The Assam Small Industries Corporation, The Assam Small Industries Development Corporation etc.

To provide employment opportunity in this sector the government decided to establish additional incentives to small scale and tiny sector industries. To accomplish the goal of increased employment the Government decided to strengthen the District Centers (DIC). Assam is traditionally known for its rich handicraft products. The Government has proposed several developmental schemes for promoting this sector through technical and financial assistance from the central government.

In underdeveloped states like Assam small scale industries have a big role to play have ample scopes for the development. The development of small industries will not only mobilize local resources but will provide employment opportunities to many rural youths. The village and cottage industries include brass and bell-metal industries which provide subsidiary employment to good number of people in the rural areas. These industries are organized and managed by artisans and craftsmen them without any government support. With the growth and development of these cottage and village industries, most poor families have been able to raise their income and improve their standard of living.

The industrial policy resolution of 1948 stated the importance of small-scale sector specifically in better utilization of local resources of our country. It also stated that this sector can help in achieving local self sufficiency in respect of certain types of essential consumer goods. Similarly, the industrial policy of 1956 recognized the significant role of small-scale industries in providing large employment opportunity, bringing more equitable distribution of national income and facilitating an effective mobilization of resources.

In these way organizations like the State Directorate of Industries, Industrial Estates, Small Industries Service Institutions and various training institutions were setup. A large number of developmental schemes were undertaken during the subsequent plan periods, realizing the importance of small scale industry. The seventh five year plan put more emphasis on the improvement of production and quality and to reduce cost by upgrading technology and modernization to optimize utilization of existing capacities through supply of adequate inputs like credit, power, raw materials etc. to expand share of (village and small scale industry) product[4]. Recognizing the important role that small industries play in the national economy, the central and state Governments have taken active steps to promote and foster their growth. These measures have been very effective, but many of the problems of production, distribution and finance still continue to afflict the small-scale sectors. While some of them are more or less common to a wide range of small

scale industries, others have particular relevance to a group of small scale industries and to industries situated in rural and backward areas.[5] A major handicap of the small scale sector have been the absence of the latest technology, which alone can ensure quality and high productivity. The whole production process is manual, except the rolling machine; modernization is distant dream of the bell-metal artisans of Sarthebari.

Industrialization is the corner stone of economic growth. Almost all countries of the World are trying to strengthen their economics through industrialization. Assam is no exception, but modern industrial culture is still alien to the indigenous people of Assam though development is take place very slowly in urban areas. The industrialists of other parts of the country are less interested in investing in this region. The process of industrialization is not confined to the establishment of manufacturing industries alone, but it involves the whole economic structure of the country.[6]

4.1 Trends in Production:

The trends in the production of bell-metal statistics from 1994-95 to 2005-06 have been considered for analysis. During the last 12 years period shows that the industry has shown some progress in terms of value and variety of production. The relative progress of production trend can be gauged from the following table:

Table No 4.1

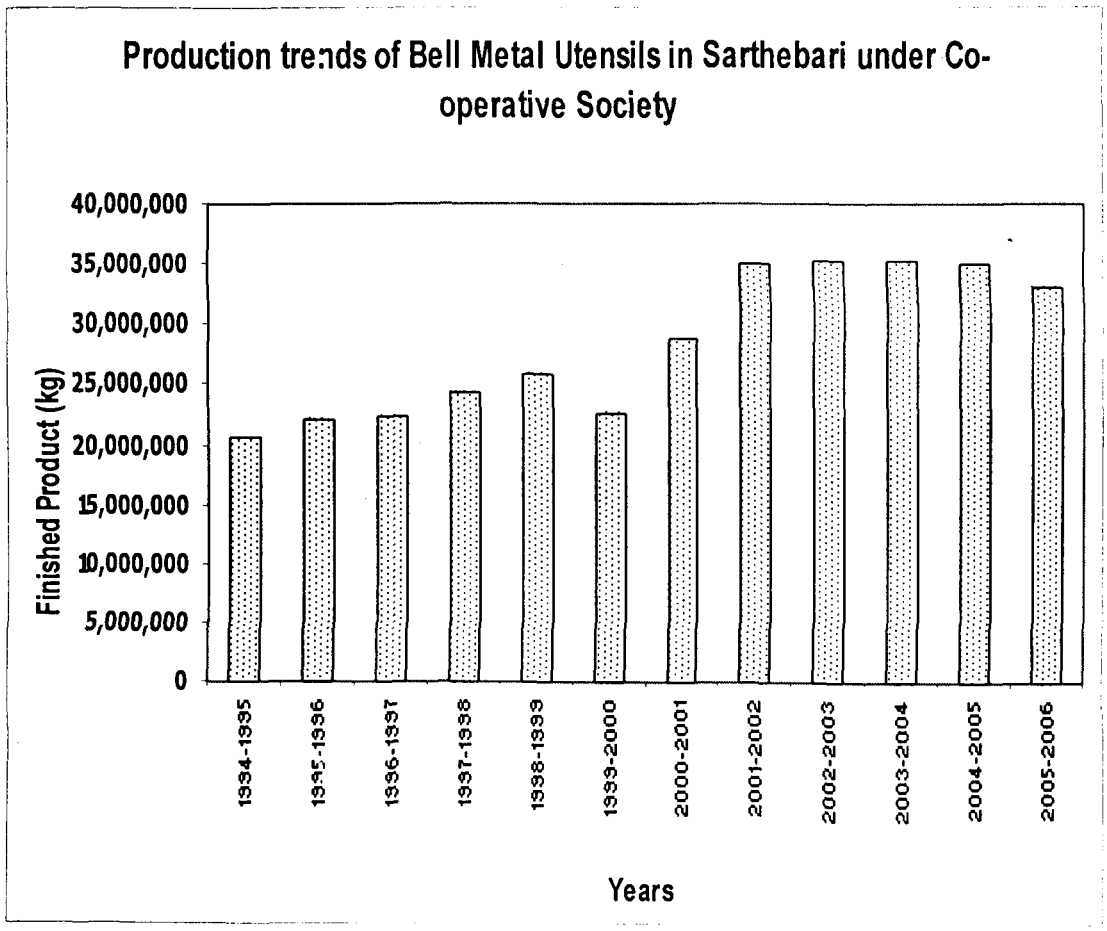
Production Trends of Bell-metal Utensils in Sarthebari under Co-operative Society (1994-95 to 2005-06)

Sl.No	Years	Finished Products in kgs.
1	1994-1995	20,665,000
2	1995-1996	22,186,000
3	1996-1997	22,278,000
4	1997-1998	24,314,000
5	1998-1999	25,866,000
6	1999-2000	22,580,000
7	2000-2001	28,888,000
8	2001-2002	35,018,000
9	2002-2003	35,183,000
10	2003-2004	35,237,000
11	2004-2005	35,120,000
12	2005-2006	33,154,000

Source: The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari.

The above table indicates that during the last 12 years the industry as a whole has made a steady progress. The only exception took place in the year 1999-2000 where it shows little decline of 22,580,000 kgs. as against 25,866,000 kgs in the preceding year indicating a fall 2,286,000 kgs. The production of bell-metal in Sarthebari however, does not show any fall in during the year 2001- to 2005, but, shows a fall of 1,866,000 kgs in 2005-06. The figure shows an increase trend from 1994 to 2001, except in 1999 which was down to 22,580,000 a net fall of 2,286,000 kgs. From 2001 onwards the rise is from 28,888,000 to 35,018,000 kgs. From 2001 to 2005 the production shows stagnation. In the current year 2005-06 the production shows a decline of 35,120,000 kgs to 33,154, 00 kgs. But it is insignificant. (Fig-4.1)

Fig. 4.1



The table (4.2) shows that an artisan in the year 1999 normally earns an amount of Rs 112.00 for their production in smithy work, now for the same work the artisans earn Rs.126.00. This show the increase in wages is very insignificant and most artisans are not getting their dues as per their work load. The table above manifests that there is a stagnant in the production process.

Table No. 4.2

Production Rates of Artisans in Bell-metal Industry of Sarthebari

Size in gm	Name of Utensils	Rate of wage (per kg) in January 1999	Rate of wage (per kg) in January 2005	Rate of wage increase (per kg)	Percentage of increae
400-500 gm	Saroj Nag Feti Bata *(tray with foot)*	Rs 138.10	Rs 156.00	Rs 17.90	12.9
700-1100 gm	Saroj Nag Feti Bata *(tray with foot)*	Rs 135.15	Rs 155.00	Rs 19.85	14.6
700-900 gm	Charia *(wash bowl)*	Rs 126.35	Rs 146.00	Rs 19.65	15.5
1100 gm	Charia *(wash bowl)*	Rs 124.40	Rs 146.00	Rs 21.60	17.3
1000 gm	Bhortall *(large cymbal)*	Rs 125.00	Rs 152.00	Rs 27.00	21.6
1500 gm	Bhortall *(large cymbal)*	Rs 130.00	Rs 157.00	Rs 27.00	20.7
1000-2000 gm	School Bell	Rs 80.00	Rs 93.00	Rs 13.00	16.2
700 gm	Kahi *(plate)*	Rs 112.00	Rs 126.00	Rs 14.00	12.5
200-500 gm	Khuti taal *(cymbal)*	Rs 115.00	Rs 147.00	Rs 32.00	27.8%
100 gm	Bati *(cup)*	Rs 90.25	Rs 100.00	Rs 9.75	10.8%

Source: Kahar Silpi Sangha, Sarthebari, 2005

4.2 Problems of Small Scale Industries:

Though the small and cottage industries of Assam have their resources but they are handicapped with innumerable difficulties. Some of these difficulties and problems faced by cottage and small industries are discussed below:

Due to lack of information, illiteracy and conservative attitudes of the people the Sarthebari industry is yet see its modernization. Outdated tools and old method of production system still prevails. Artisans borrow

money from the money lenders by paying high rate of interest since there are no other sources. This ultimately increases the production cost. Non-availability of timely raw materials is also a great deterrent to production.

The lack of proper marketing facilities prevents expansion of these small cottage industries. Due to the absence of good marketing arrangements these industries sometimes go for distressed sale of their products to private dealers with fewer profit margins.

The cottage and small industries are always facing steep competition from the large scale organized industries. Due to high production cost and poor design, these industries cannot ompete with the organized industries and thus their very existence has been threatened.[7]

4.3 Problems of Bell Metal Industry:

There is a declining trend of this industry in Sarthebari. The bell-metal industry of Titabor and Raha in Assam has already been shut down in 1969-70 due to lack of raw materials. Also due to substitute products which are available with much cheaper prices. Lack of diversification and modern outlook are also reasons for this industry's stagnant.

Bell-metal industry forms the largest industrial complexes in cottage and small scale industry in Assam, especially in Sarthebari of Barpeta district, in regard to number of units and outputs. There are 280 working establishments engaged in the manufacturing of bell-metal utensils in the state. Most of the units are dependents partially or fully on the supply and availability

of raw materials. (Table-4.2). The units are entirely dependent on raw material supply from the middlemen and cooperatives. Charcoal is an important raw material for this industry which is also supplied by a middleman.

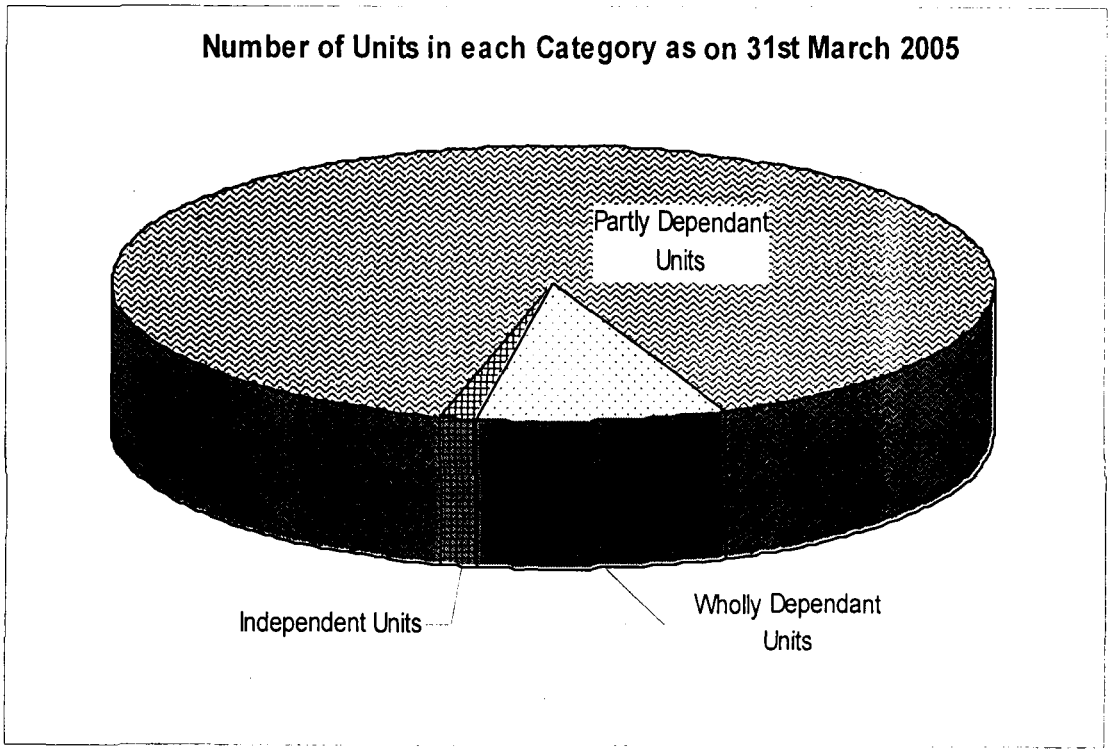
Table No 4.3

Number of units in each category as on 31st march 2005

Sl. No	Type of units	Number of units
1	Independent Units	4
2	Partly dependant units	250
3	Wholly dependent units	26
Total		280

Sources: by the researcher through field work, 2005.

Fig-4.2



The bell-metal units of Sarthebari may be classified under the following categoris according to their status:

a) Proprietary concerns,

b) Partnership firms,

c) Co-operatives

Table No: 4.4

Distribution of Bell-Metal Units According to their Status

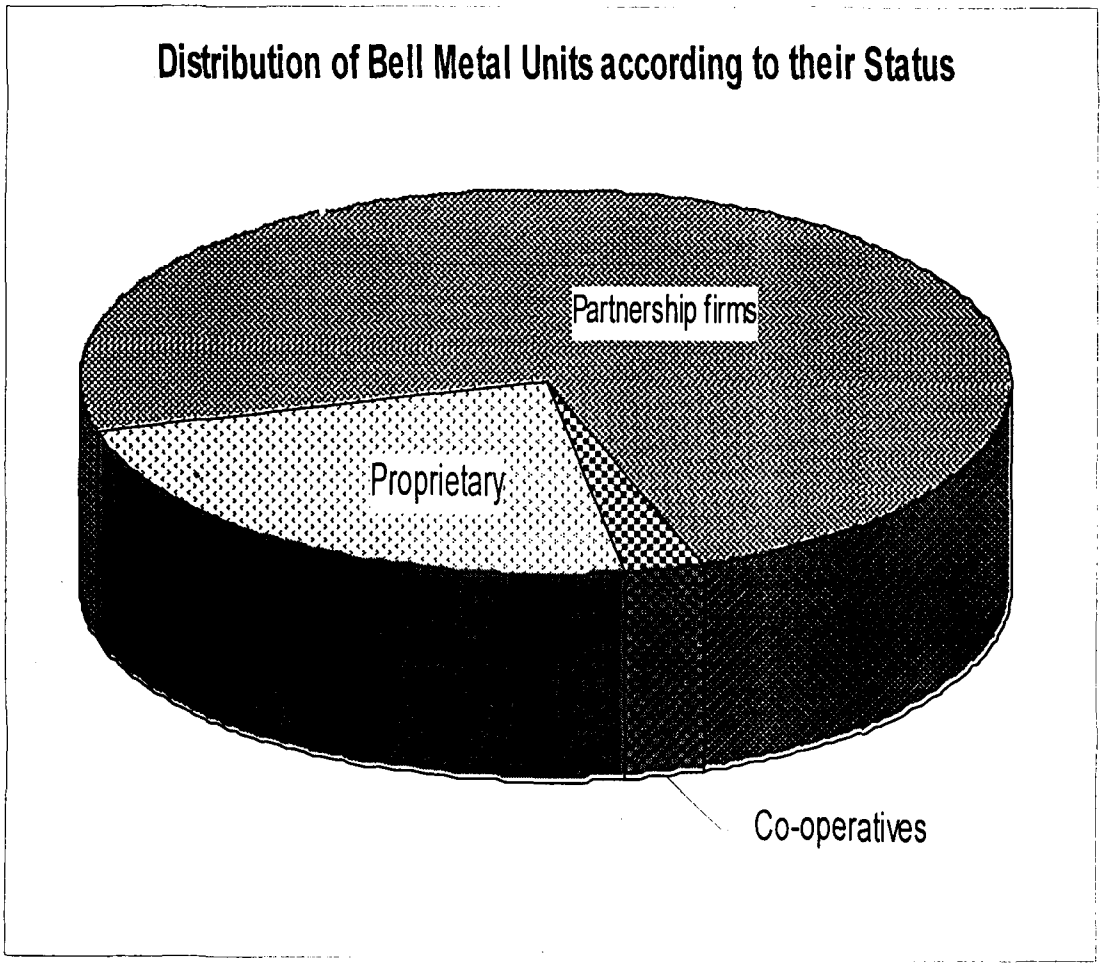
Status of the Units	Number of units
1. Proprietary concerns	65
2. Partnership firms	207
3. Co-operatives	8
Total	280

Source: by the scholar through field work, 2005

The table reveals that sole proprietorship is one of the forms of business organization in bell-metal industry of Sarthebari. Out of 280 units only 65 units are under the proprietorship (23%). The main reason for creating this from of organization is to earn more profit. The other 207 units (73.9%) of Sarthebari belong to the category of partnership firms. The most leading bell-metal manufacturing units of Sarthebari are partnership firms, where a group of 4 to 5 artisans forms a partner of a unit. They collect raw materials, from the

traders or from the cooperative society on condition that after manufacturing the products, they are to hand over to traders or to society. Majority of the partnership firms are family run and some are outsiders who runs as a partner. Co-operative firms are not many in the bell-metal industry of Sarthebari. Only 8 units out of 280 units (9.2%) are regularly working under the co-operative society. (Fig-4.3)

Fig-4.3



The bell-metal units of Sarthebari are divided into following four categories according to their year of existence:

(i) 5 years and below

(ii) 6 years to 10 years

(iii) 11 years to 15 years

(iv) 16 years and above.

The numbers of bell-metal units belonging to each age-group are classified as follows:-

Table No. 4.5

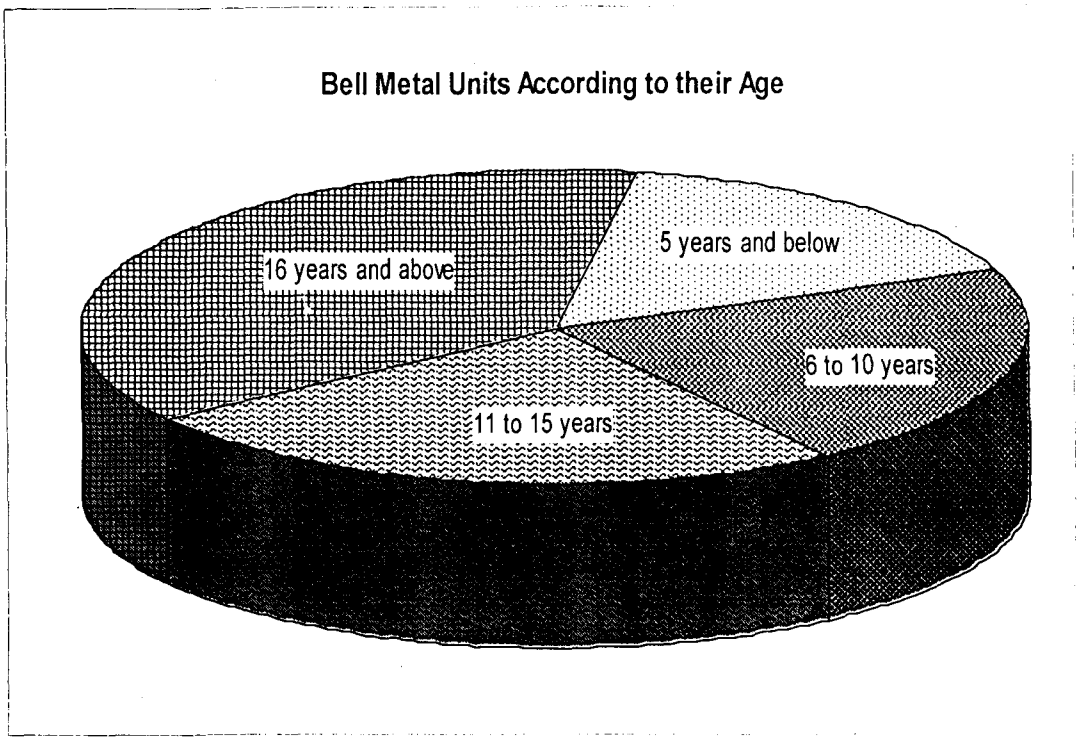
Bell Metal Units According to their Age

Age of Units	No. of Units
5 years and below	45
6 to 10 years	60
11 to 15 years	70
16 years and above	105
Total	280

Source: by the scholar through field work, 2005

Table No. 4.5, indicates that most of the bell-metal units in the Sarthebari (some 37.5%) are more than 16 years old. Only 45 units (16.07%) are less than five years old. Thus it reveals that bell-metal industry at Sarthebari is not expanding in recent years. There are only 70 units (25%) in the medium group aged 11 to 15 years. The remaining 60 units (21.4%) belong to the age group of 6 to 10 years. (Fig-4.4)

Fig-4.4



This is evident from their composition and the articles they manufacture. Some 65 bell-metal units (23%) are organized on the proprietary structure and 207 units (73%) on partnership.

According to the engagement of skilled and unskilled artisans, the organization of bell-metal industry of Sarthebari reveals the following situation. (Fig-4.5)

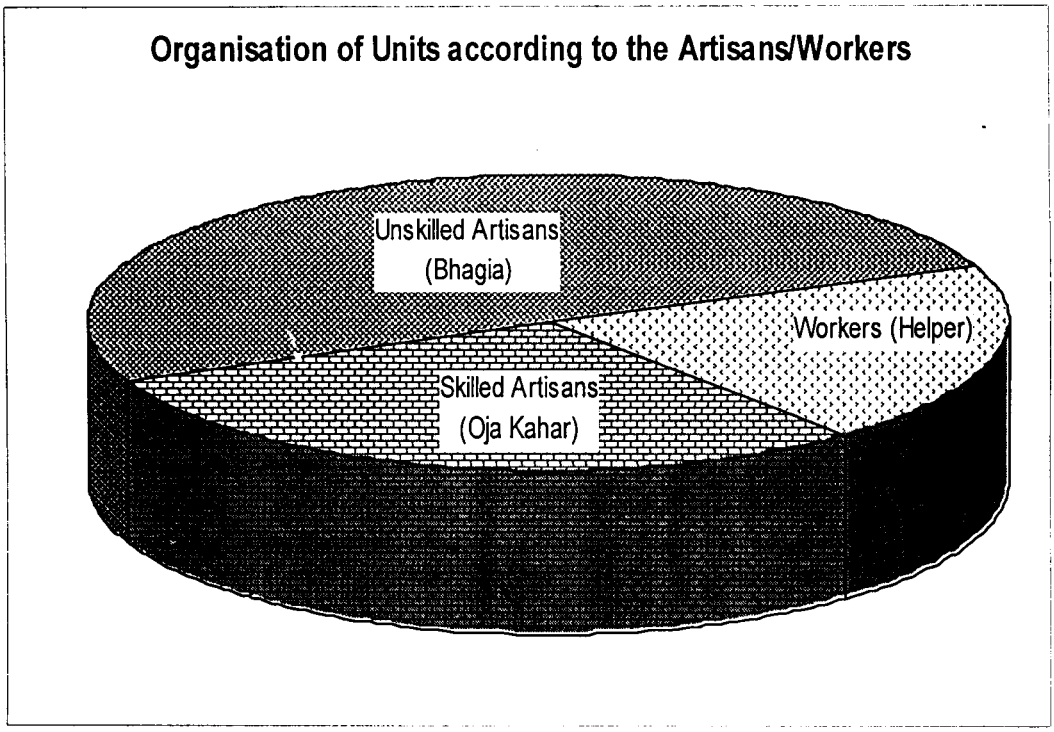
Table No. 4.6
Organisation of Units according to the Artisans/Workers

Category	Units	Artisans/Worker
1.Skilled Artisans (Oja Kahar)		430
2.Unskilled Artisans Bhagia)		740
3.Workers (Helper)		295
Total	280	1465

Source: by the researcher through field work, 2005

The above table shows that the bell-metal unit of Sarthebari engages workers on an average 7 persons per unit.

Fig-4.5



4.4 Causes of Stagnation in Bell-Metal Industry:

Many problems of production, distribution, and finance still continue to afflict the small scale industry of the state. While some of them are more or less common to a wide range of small industries, others have particular relevance to a group of small industries and to industries situated in rural and undeveloped areas. The surveys, that have been carried out by economic investigation team attached to small industry services institutes in each state. They have thrown valuable light on various difficulties and problems faced by

different small scale industries, and have recommended measures to over come them.[8]

The problems of small industries are divided into two groups – external and Internal.

The external problems are those which results from factors beyond the control of the industrialist, such as the availability of power and other infrastructure facilities required for the smooth running of small scale industries.The internal problems are those, which are not influenced by external forces. The internal problems affecting the industries relate to organization structure, production channel, distribution channel, technical know how, training, industrial relations and inadequate management. The problems of industries in the small-scale sectors are almost identical. They have weak financial structure and limited resources.

4.5 Finance:

Small units are not exclusively dependant on Government aid. Most of these units exist due to the demand for their products in local and or neighbouring markets. The initial investment in these units comes mainly from the entrepreneur's own funds, locally borrowed funds or from relatives, friends and professional lenders. Very little is available from the banks or Government channels. These small units are unable to provide guarantees required by the banking sector for availing loans.

Loan problems are common to bell-metal industry also. The lack of minimum financial facilities at reasonable rate is a great impediment to the industry. The bell-metal artisans are usually poor and have no surplus amount to invest in the industry. The most common complaint of all the artisans dealing with bell metal industry is lack of finance. The units are depending on their own and borrowed funds from non-banking and non-Governmental sectors. The banks and Government financial corporations are reluctant to grant advance money to this industry due to lack of proper establishment. Most of the entrepreneurs are illiterate or semiliterate and lacks knowledge in entrepreneurship. They are unable to store raw materials when they are available or stock their finished products since they lack in capital. Friends and relatives are also not coming forward to offer any financial help to the artisans regularly. Hence the alternative source of credit was only the village money lenders, who always exploit them by charging high rates of interest. The artisans of Sarthebari depend mostly on the traders who provide advance scrap bell-metal on credit with harsher conditions. The traders take the finished products at a price they decide. Thus the major share of the profit of the bell-metal industry goes to the traders through various processes, right from the purchase of scrap bell-metal to the sale of finished products.

The following table shows the number of units that have taken loan with their amount and interests as per income groups:

Table No. 4.7

The amount and range of Loans the units borrows

Income group (Rs)	Total Units	Units	Amount	Interest (monthly %)
Below 15,000	10	5	5,000-10,000	5 -15
15,000-20,000	10	7	10,000-20,000	5 -15
Above 20,000	10	9	25,000-45,000	5 - 10

Source: by the scholar through field work, 2005

Out of 30 units 21 (70%) have taken loans from village money lenders amount between Rs.5,000/- to Rs.45,000/- during 2005. The rate of interest charged by the money lenders ranged from 5 percent to 15 percent per month. The study reveals that about 50% of the units have repaid their loan and the remaining units are yet to repay back. At present the interest rates are high and that benefits the traders only.

The state Bank of India provides loans with limited amount to units who have the capacity to repay or provide guarantors. Financial assistance provided by the Government is insufficient to meet the requirement of the bell-metal artisans.

4.6 Shortage of Raw Materials:

The raw material for the industry is always at short supply and also not at standard price. This has been always a perennial problem of the small scale industrial sectors in Assam. Because of their small in size and weak financial condition, small scale industries have to utilize the services of middlemen to get raw materials on credit. Such an arrangement, however,

Plate 7 - Charcoal (Raw material) heaps for the smithy

Plate 8 - Bell-Metal Products exhibited for sale

increases the costs of the material and then production cost. Thus reduces the profit margins of the artisans. Most of the time raw material manufacturers and suppliers frequently create artificial scarcities to raise prices of the materials. The Government policies also changes frequently in regard to price controls of such commodities.

The Sarthebari bell metal industry is not an exception in terms of supply of raw materials. The artisans always face shortage of raw materials. The industry requires virgin metals like copper, zinc, tin, lead, and alloy scraps. There are no regular sources of supply of these materials. The artisans of Sarthebari always depend on mutilated bell-metal utensils bought back from people. The bell-metal industry of Sarthebari requires a minimum of 588 quintals of raw metals every month. Moreover, the other raw-materials like wood charcoal required for Sarthebari bell-metal artisans are also not readily available. The monthly requirement of wood charcoal is about 250 bags. Unless all these basic materials are made available to the artisan one cannot expect them to improve their craftsmanship too. Presently, all these non-ferrous materials are being imported by the Metal and Minerals Trading Corporation (MMTC) of India and they are distributed to the actual artisans directly or through the State Development Corporation. In Assam as well as in the North Eastern Region, there is no brance office of the MMTC to supply raw metals to the artisans.[9]

4.7 Technical Knowledge and Primitive Tools:

The artisans have limited knowledge about modern tools and technology use in bell metal production and they still use primitive tools and equipments. This industry runs on hereditary system where they inherit from their father and forefathers. Most bell-metal units do not maintain income and expenditure accounts. Using primitive tools artisans are unable to manufacture attractive pieces. The younger generation is not attracted to this industry. The main tools are anvils of different sizes (*balmuri, chatuli* and *akue*), hammers, pincers, files, chisels and some minor equipment. The study reveals that the average capital required to run a bell-metal industry unit is between Rs 2000 to Rs 2500.

The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari was started during the year 1939-40 with a view to promote the economic and cultural interest of the people by supplying the artisans with raw materials, equipment and other facilities connected with the industry. The society received a loan of Rs 2.00 lakhs from the Government of Assam during the year 1956-57. The rolling machine requires about 1800/1900 kg of raw materials daily for its normal running. The Manager and Secretary of the society reported that due to inadequate supply of raw materials including the state Government's insufficient allocation of fund and non availability of skilled workers and high production cost the metal processed in the machine is running at a loss.[10]

Plate 9 - Varieties of Tools and equipments

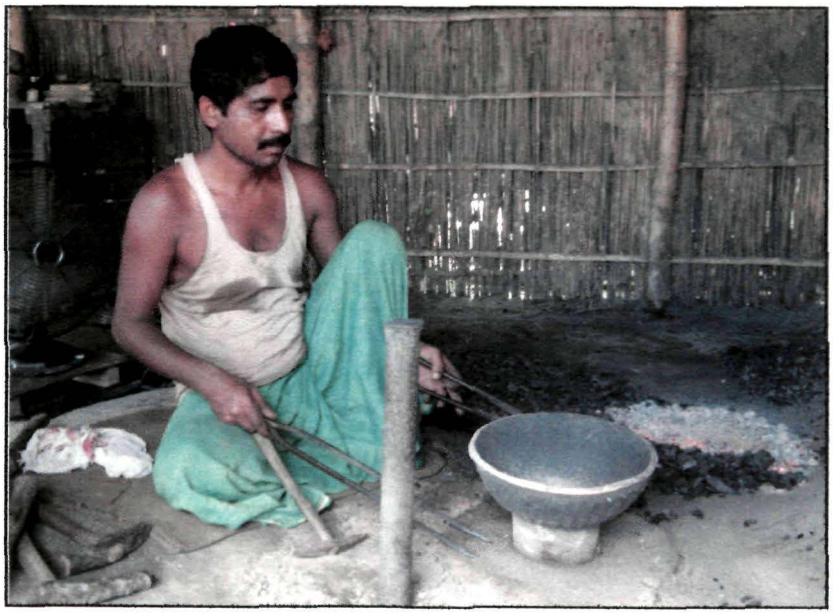


Plate10 - Moulding (*Dafala Bati*) tumbler

Plate 11 - Polishing the moulded metal

Plate 12 - Moulded to *taal* (Cymbal) using hammer

4.8 Substitute Products:

It is also a fact that the utensils manufactured at Sarthebari are facing steep competition with the similar products from Muradabad and Agra. The articles from Muradabad are light in weight and attractive in appearance, but the articles manufactured at Sarthebari are heavy and semi-finished. Articles produced in Sarthebari cost more than similar articles produced in Muradabad. The main threat to this industry has been competition from modern utensils. A bell-metal utensil contains more amount of metal therefore it is bulkier in weight and more expensive in cost. Labour salary component constitutes 14.6% of the total cost of the production; the rest is amount is for fuel and chemicals etc.[11] Many bell-metal traditional utensils like *'lota'*(vessel), *'kalah'* (pitcher), *'charia'*(wash bowl) are being replaced by tin, aluminum and plastic products off various designs for domestic and social uses. Gradually demands for bell-metal utensils are decreasing in the face of Chinese crockery and other products which are easily available in the market at low prices.

Table No.4.8

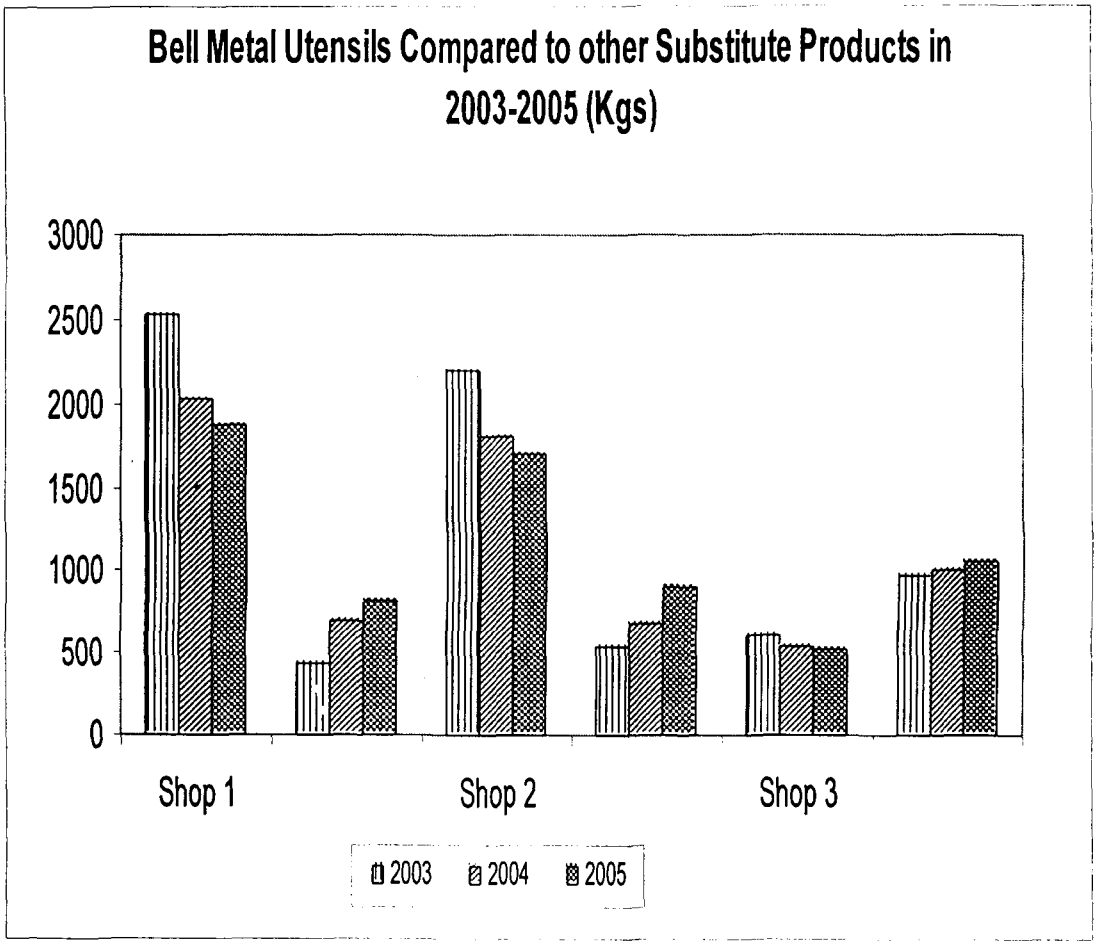
Sale of Bell -metal utensils and other substitute products in 2003- 2005 in kgs

	Shop No. 1		Shop No. 2		Shop No. 3	
Year	Total sale of bell metal utensils	Other utensils including stainles steel	Total sale of bell metal utensils	Other utensils including stainless steel	Total sale of bell metal utensils	Other utensils including stainless steel
2003	2528	425	2205	530	600	970
2004	2025	702	1808	680	530	1000
2005	1880	815	1700	900	525	1050

Source: by the scholar through field work, 2005

The above table reveals that the sales of locally made bell-metal utensils have no more demand in the market. The total sale of other cheaper utensils such as stainless steel and aluminum products are commanding more market. This shows how bell-metal industry in Sarthebari is surviving with a handful of buyers and manufacturers.

Fig-4.6



4.9 Modernization and Diversification:

The artisans of Sarthebari manufacture only traditional utensils for domestic and social use. There is no demand for old fashioned, traditional bell-metal utensils especially in cities. To create a market for the bell-metal products the industry needs to be modernized so that it can produce utensils of modern design to cater to the needs of the present population. Mention should be made that a few artisans have taken the initiative to make utensils of upto date designs.

Mr. Khindra Pathak a young bell-metal artisan of Sarthebari is trying to catch the trendy market with his innovative idea of product diversification. Through his effort the products manufactured at Pathak's unit gets a steady market share. The range of bell-metal articles produced by Pathak's operation includes both household and decorative pieces. For example, the concentrating singing bowl used by the Buddhist monks has a high market value in places like Kulu, Manali, Darjeeling, Sikkim, Tibet, Nepal and Bhutan. Products with finer work and ethnic traditional touches also command a greater market share. While decorative pieces manufactured in Khindra's unit also have a steady market. The utensils, especially the bowls with decorative lids and handles are gaining an increasing market outside the state. There are lean periods between June and September annually.[11]

Uttar Pradesh is one of the oldest and most important metal ware centres in the country. It constitutes about 80% of the export metal wares from

India. There are number of metal craft centres in the state which makes distinct type of items to fulfill the requirements of both inland and foreign markets.

Census figures of 1980 reports that as many as 725 families/units are engaged in this craft. In 1920 there were only 87 units. At present the Bell-metal industry of Sarthebari is on the verge of decline due to lack of infrastructure, market and diversification.[12]

Table 4.9

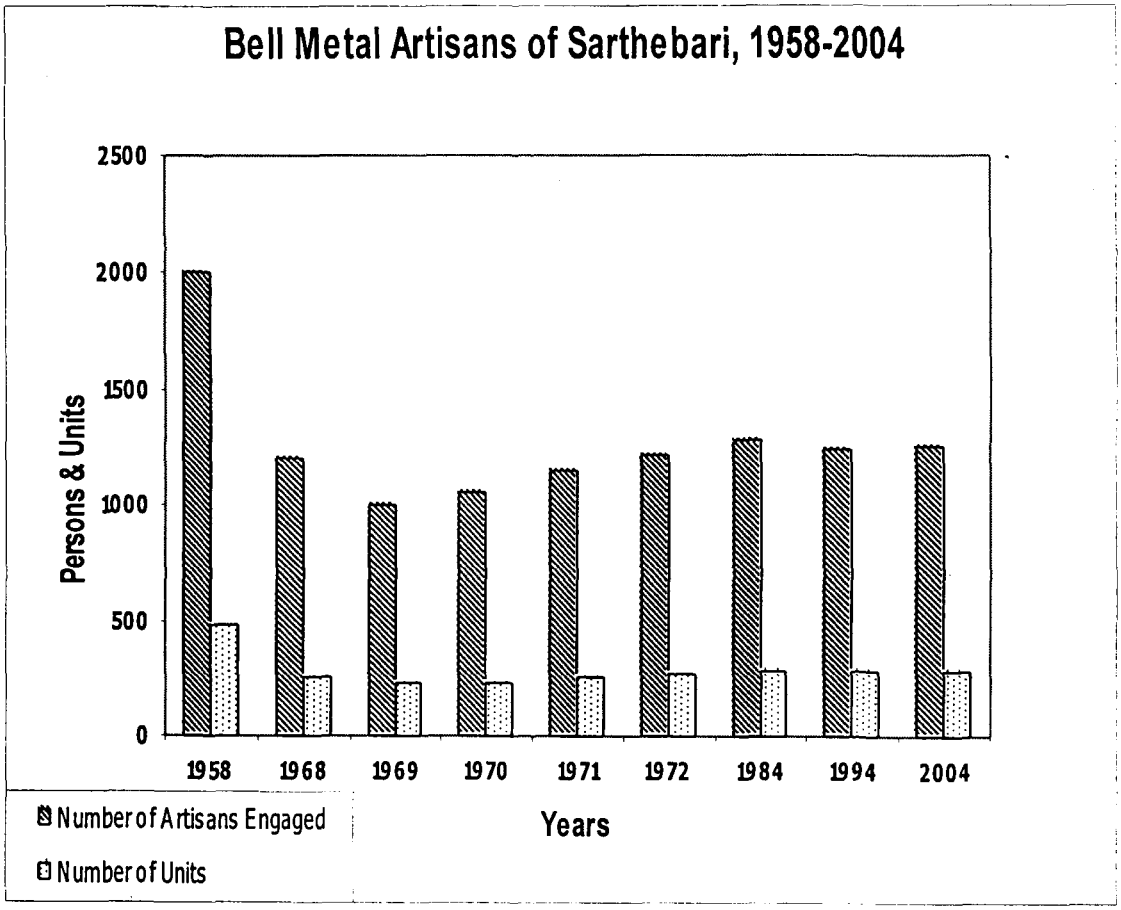
Bell-Metal Artisans of Sarthebari, 1958-2004

Year	Number of Artisans Engaged	Number of Units
1958	800	478
1968	800	248
1969	1000	222
1970	1050	233
1971	1150	258
1972	1210	268
1984	1280	284
1994	1250	278
2004	1260	280

Source: Co-operative Society, Sarthebari, 2004.

Table No 4.9 Reveals that the bell metal industry of Sarthebari has become stagnant. The number of people engaged and number of units are not changing in the last decade.

Fig-4.7


Bell Metal Artisans of Sarthebari, 1958-2004
2500
2000
1500
1000
500
0
Persons & Units
1958
1968
1969
1970
1971
1972
1984
1994
2004
Years
Number of Artisans Engaged
Number of Units

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Chapter-V

SPATIAL DISTRIBUTION OF CO-OPERATIVE MARKETING NETWORK OF THE BELL METAL INDUSTRY

Marketing is an important productive function on which the ultimate success or failure of a production unit. Unless the goods produced are sold off on remunerative prices quickly by without to wait for long in the *godowns and ware houses by the manufacturers, no productive activity can be* continuous and successfully carried on.The primary objective of all marketing effort is to place goods in the hands of consumers. In fact, marketing implies the performance of business activities that direct the flow of goods and services from producer to consumer or the user. If the proper marketing organization does not exist, adequate profits would not accrue on account of the weak bargaining power of these producers, the innumerable handicaps under which they work and the existence of cut-throat competition among the producers. Marketing implies "the performance of business activities that direct the flow of goods and services from producer to consumer or the user.[1] Clark and Clark also define marketing in the same sense. "Marketing consist of those efforts which effect transfers in the ownership of goods and services and care for their

physical distribution. The marketing process, consequently, involves both mental and physical aspect, mental, in that seller must know what is for sale, and physical in that goods must be moved to the place at which they are wanted by the time they are wanted."[2]

Marketing occupies an important place in the management of cottage industry. It is a key factor in determining the success of an industrial concern. Traditionally, marketing has consisted of "those efforts which effect transfer in ownership of goods and care for their physical distribution", 'In economic terms, marketing covers those activities which relate to the creation of time, place and possession of activities. Marketing is defined as the process of exchange between seller and buyer. Kotler defines marketing as a human activity directed at satisfying needs and process' The American Marketing Association defines market as 'the performance of business activities that direct the flow of goods and services from producer to consumer or user.

The salient features of marketing are:

a) It is a creative function.

b) It promotes trade and employment.

c) It co-ordinates finance, production, and distribution, and also determines and direct the scale and value of the total efforts.

d) There is an emphasis on what the consumer wants and

e) There is an emphasis on the social, good, on increasing employment, on giving the consumer to change and to decide.

For the growth of rural industrialization marketing of their products would be a vital component .With the improved technical background and availability of funds, the production of rural artisans and tiny sector is bound to increase many fold. In India generally suffers from many ailments; where marketing is concerned.

The most important ailments are:

a) Lack of brand names and places of respectability for the goods of small industry.

b) Identification of proper markets and consumers.

c) Research and market investigation and services.

d) Standardization and quality improvement.

e) Introduction of goods in foreign markets.

f) Raw materials.[3]

One of the most essential requirements of a good marketing system is the satisfaction of customers. This is the heart of the marketing process. The policies, programmers and strategies of the production unit should be planned, organized and executed to satisfy the existing needs of the customer in the most efficient manner and to anticipate their changing tastes and buying attitudes. To satisfy its customers more effectively, the firm should

lay greater emphasis on the value and services provided by products rather than its mere physical or technical features.

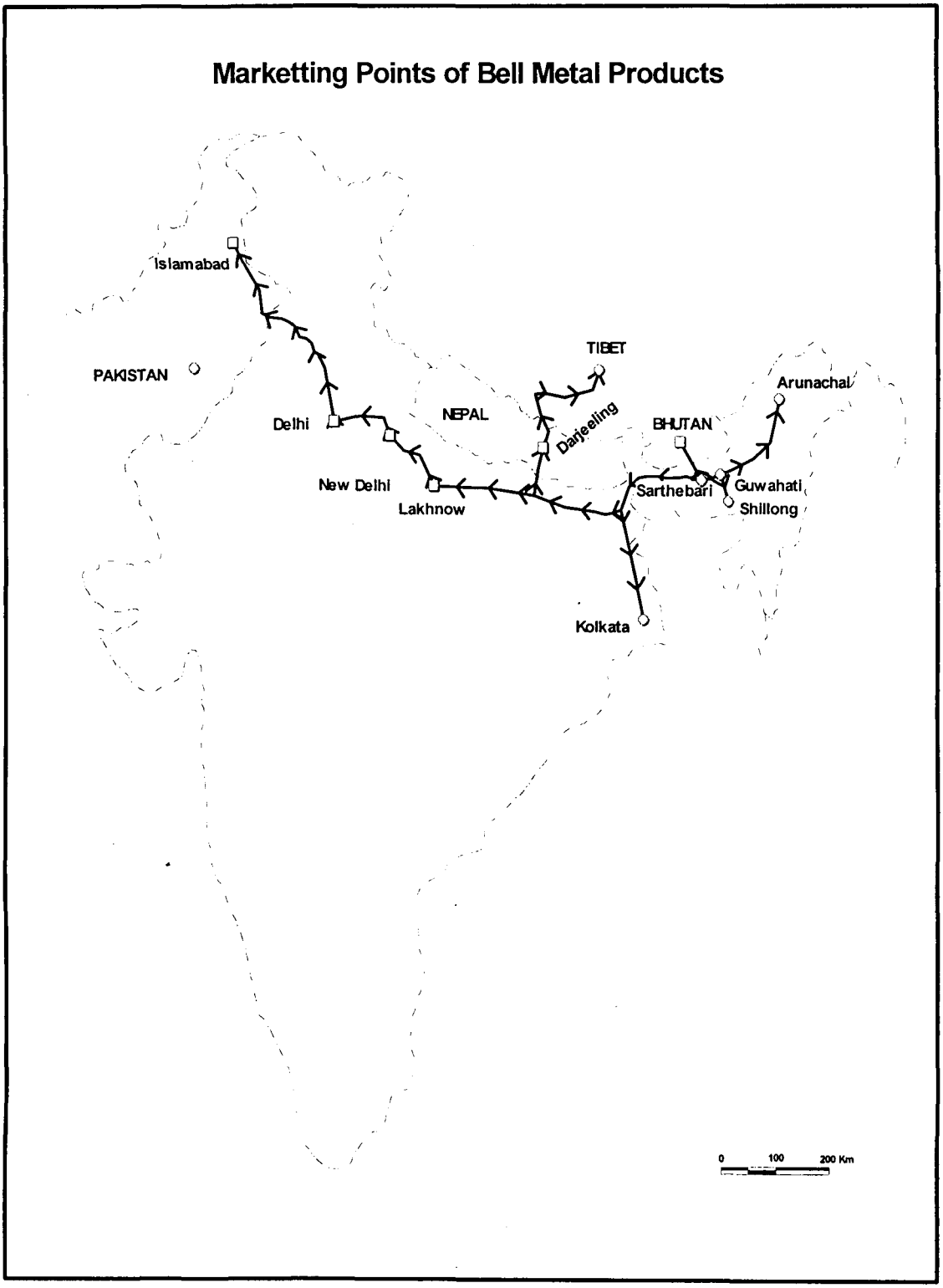
The other essential requirement of a good marketing organization is the existence of adequate marketing research facilities within the enterprise. In these days of cut-throat competition, greater sophistication in the taste and habits of consumers, consequent clamoring for variety and frequent changes in their demands, no industry can survive unless it is constantly engaged in developing better and more sophisticated marketing systems.[4]

Marketing continues to be one of the major problem of cottage and small scale entrepreneurs because of stiff competition not only from large scale operations but also within the small scale sector: In Assam, geographical isolation of the state from other region makes the marketing more problematic. The small scale entrepreneur can hardly compete with outside products in markets outside the state. This is due part to the fact that goods must be shipped through the narrow link known as the Siliguri Neck. On the other hand, there is lack of coordinated approach for marketing of products of small scale industrial units. The home market is inadequate and thinly spread over a large area without proper communication link.[5] They are also unable to expand their market thought publicity and advertisement, which involves a huge amount of money. Due to the absence of quality control facilities Assam has kept most of the products outside the preview of the purchase network of the Government

agencies. So, in many cases the Small Scale of Industry (SSI) entrepreneurs have to depend upon the dealer or other middle man for this evaluation.

In all industrial co-operative societies, cottage industrial works suffer much from lack of facilities to market their goods at reasonable rates. The difficulty in the ready disposal of the products has been indirectly responsible for their exploitation by middle man. Cottage industrial societies are expected to eliminate these middlemen and secure for workers fair profits for their industry. Till recently next to gold and silver ornaments, Bell-metal articles were considered as one of the most valuable properties by the Assamese society. To maintain their social status a substantial amount was spent on Bell-metal items. But gradually the demand for such metallic utensils had been decreasing in the face of demand for the Chinese crockery, stainless steel products and other cheaper varieties of aluminum good. Even though the standard of living in the region has increased the demand for Bell-metal items has decreased Apart from the domestic market of India there is still a small demand for bell metal items in foreign countries like Nepal, Tibet, Bhutan and Bangladesh. Normally, the finished products are sold to the same parties supplying the scrap metal. The Assam Co-operative Bell-Metal Utensil Manufacturing Society Ltd, of Sarthebari and the middlemen are the only major parties responsible for supply of scrap, and the buying of finished products. (Fig-5.1)

Fig - 5.1


Marketting Points of Bell Metal Products
Islamabad
PAKISTAN
Delhi
New Delhi
Lakhnow
NEPAL
TIBET
Darjeeling
BHUTAN
Sarthebari
Guwahati
Shillong
Arunachal
Kolkata
0
100
200 Km

The bell-metal producers do not normally make direct sales to consumers. For effective marketing producers channel their sales through wholesalers, local dealers and retailers.

5.1 Principal channels of Marketing:

Following are the principal channels of marketing prevalent in the bell-metal industry of Sarthebari in Barpeta District. (Fig 5.1)

(a) Bell-metal whole sellers.

(b) Local bell-metal dealers.

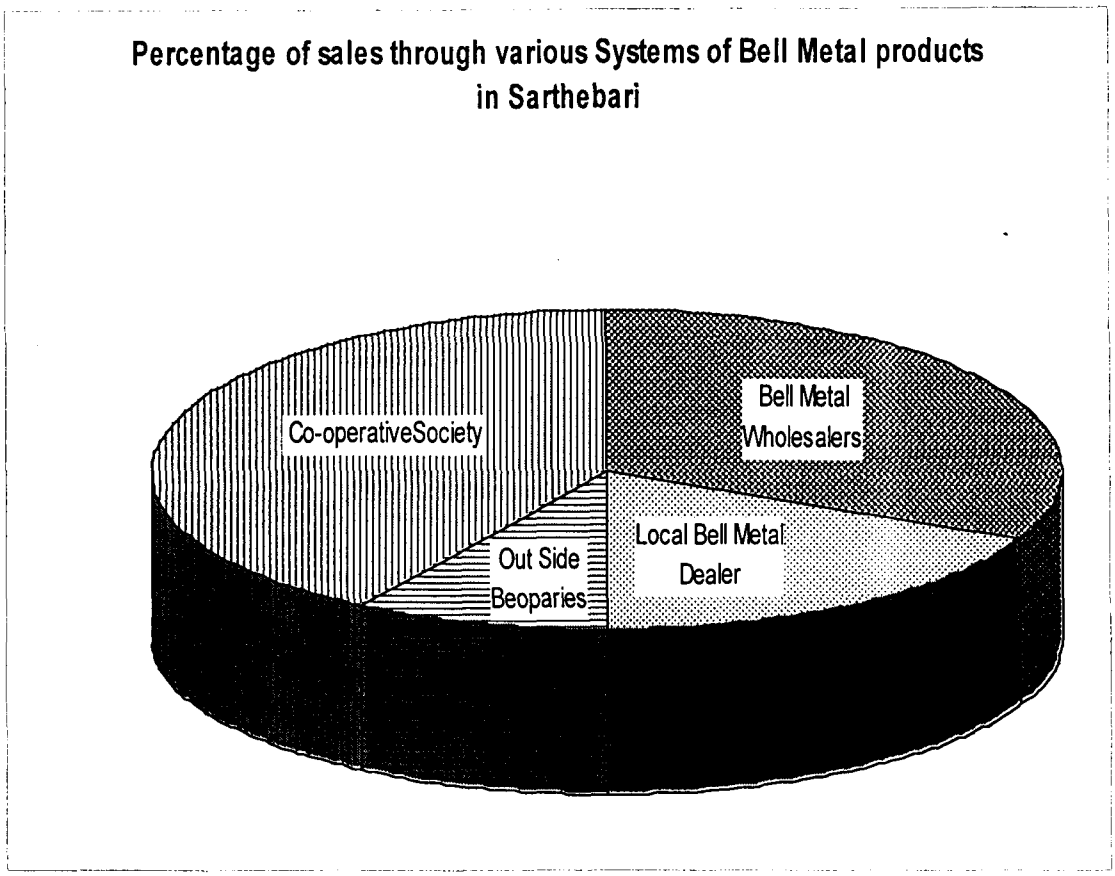
(c) Outside beoparies (traders) includes Bhutan and Tibet.

(d) The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari.

a) Bell-metal whole seller:

The wholesalers are persons with strong financial resources. They have better market contacts with local and outside bell-metal retailers. The wholesalers also provide advance payments and raw materials to the bell-metal artisans as and when when needed. Due to the weak financial position of the small producers, the credit given by the wholesalers are necessary for their survival. There are few bell-metal wholesalers located Sarthebari. More are located in Guwahati where the principal link in the chain system of bell metal dealers emerges.

Fig-5.2



(b) Local Bell-metal dealers:

In almost all principal bell metal centers in the state, a large quantity of bell-metal utensils are marketed through local dealers. They maintain their own shops, stalls and market Bell- metal products to local and outside consumers mostly on retail basis. They purchase their requirements either directly from the bell-metal units of Sarthebari and or the local bell-metal wholesalers. Normally major supplies are procured from the bell-metal wholesalers since they can afford to sell on credit. There are other types of

dealers which operate in cities and towns other than Sarthebari. They obtain their requirements of bell-metal products through direct purchase from the artisans or through orders from wholesalers. This system is important in the sale of bell-metal utensils in the state. Bell-metal dealers are located in all the larger towns of the state.

(c) Out side *''Beoparies''* (traders) includes Bhutan and Tibet:

The sale of bell-metal through "beoparies" (traders) are a peculiar feature of the bell-metal industry in the state. These *'beoparies'* are the retailers of bell-metal utensils at their respective places. They often come to Sarthebari from other parts of the state, from neighboring states and from adjacent countries to purchase bell-metal utensils. The terms, conditions of sale and mode of payments are settled by mutual bargaining with wholesalers. In case of established parties, payment can be deferred and the wholesalers will arrange for the packing and transportation of goods. This system is the major marketing system of bell-metal utensils. Retailers are mainly from upper Assam, and foreign countries such as Bhutan and Tibet. For non-availability of adequate statistics in this regard, it is very difficult to give the extent of actual sales of bell-metal utensils made through the above stated system of marketing.Only a rough estimate can be evolved on the basis of personal inquiries and observations. Table shows the percentage of estimated sales through various systems.

Table No: 5.1

Percentage of sales through various systems of Bell-metal products in Sarthebari

Sl. No	Name of system	Percentage of Total sales
1	Bell-Metal wholesalers	35%
2	Local Bell-metal Dealers	20%
3	Out side *beparies* (traders)	10%
4	The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari	45%
Total		100%

Source: Personal enquiries and observation, 2005

(d) The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd:

The Assam Co-operative Bell-Metal Utensil Manufacturing Society is an important landmark in the history of the bell-metal industry of Sarthebari, and Assam. The society was formed in 1933 and was registered in 1939.[6] 'The Assam Co-operative The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd 'commonly known as '*Asom Somobai Kahar Sangha*' has its own history in Sarthebari. The bell-metal industry in the area was under the control of Marowari *mahajans* (money lenders) till the end of the thirtieth century. *Mahajans* (mony lenders) exploit artisans through ill treatment, meager wages, and wage cuts. The artisan community was at the mercy of the '*mahajans*' (money lenders) during that period until the co-operative society was formed.

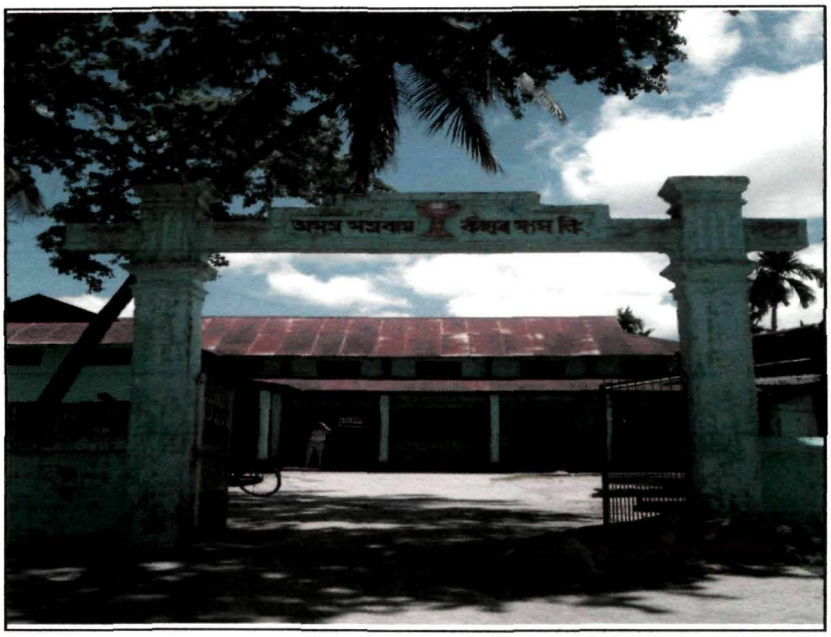


Plate 13 - Office of the Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd.

Plate 14 - Non Ferrous Rolling Machine of the Co-operative Society

Artisans use to get their payments in installments or parts and the arrears dues were kept under their custody as capital growth for their own benefit. Every artisan used to pay one rupee per 40 kg as business tax of bell-metal to the *mahajans* (mony lenders).

In the beginning the artisans of Sarthebari were doing smithy work and marketing of bell-metal products in Guwahati. The *mahajans* (money lenders) used to supply broken bell metals for reworking in the smithy. These utensils once repaired were returned to the *mahajans* (money lenders). Later on one such smithy was installed permanently at Sarthebari in the years 1939 after the formation of *'Assam Co-operative Kahar Sangha'*.[7] In the year 1933, the *kahars* (artisans) of Sarthebari were on the verge of closing down. This was due to the fact that all the *kahars* (artisans) from Guwahati went back home and started smithies at Guwahati to be run by the *mahajans*(money lenders).[8]

In this situation a freedom fighter and scholar named Kohiram Das met with artisans of Sarthebari, Karakuchi, Gomurah, Namsala and Baniakuchi. He organized them with a view to free them from the clutches of the '*mahajans'* (money lenders) and formed the '*kahar sangha*' in 1933. This was subsequently registered as a co-operative society in 1938.

The British rulers in India headed the co-operative departments in the state. In a colonial administration, the initiative for the co-operative movement started from the state. The co-operative society was formed with the following broad objectives;

a) broad-based membership in the village;

b) linking of credit, supplies and services with concrete production plans;

c) development of marketing and processing services;

d) spontaneous spread of the movement in the direction of the other sectors of the economy, more particularly industries catering to consumer needs, in the emergency through which the world as a whole is passing;

e) pooling of saving by the community in their own co-operative institution;

f) evolution of the federal organization of co-operatives to take up responsibilities increasingly to guide and regulate institutions below;

g) help offered by the strong in the co-operative sector to the weaker members rather than to their own betterment and to the detriment of the latter;

h) inter relationship and cross fertilization between different sectors in the co-operative movement;

i) progressive growth of competence, technical and administrative, in non official leadership in the movement;

j) cohesion, mutual aid and co-operative self –help and self-reliance in the community and active participation by members in the formulation of policies and the review of actions.[9]

In Assam co-operative movements started as credit societies in 1904-05. It was during the second five year plan that the movement received favorable growth impetus .This period also coincided with diversification and spatial spread of the co-operatives in the state. With such a view the Assam Co-operative Apex Marketing Societies were formed during the second five year plan. The state trading in paddy through co-operative was introduced in 1959. However these efforts could not prevent a decline in the quality and financial strength of the societies. This was subsequently attributed to the implementation of the consideration efforts directed to revitalize the co-operative movement. In fact the formation of rural co-operative societies towards the end of the fourth plan saw revival of the co-operative movement in the state, Just like Assam Co-operative Bell-Metal Utensils Manufacturing Society of Sarthebari.[10]

The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari was started with a view to promote the economic and cultural interest of its member and to supply the artisans with raw materials, equipment and other facilities connected with the industry. This effort of the people saved the industry from collapse. The artisans still feel a sense of

gratitude to the society for the development of the industry. Currently over 95 percent of the total units in Sarthebari area are members of this society. The society has now 5200 shares distributed among 1853 members.[11]

In the beginning the societies share money was Rs 10 for each share. In the year of 1977 it went up to Rs.250 per share. At present the share money is Rs. 1011.00 for each member.

Table No: 5.2

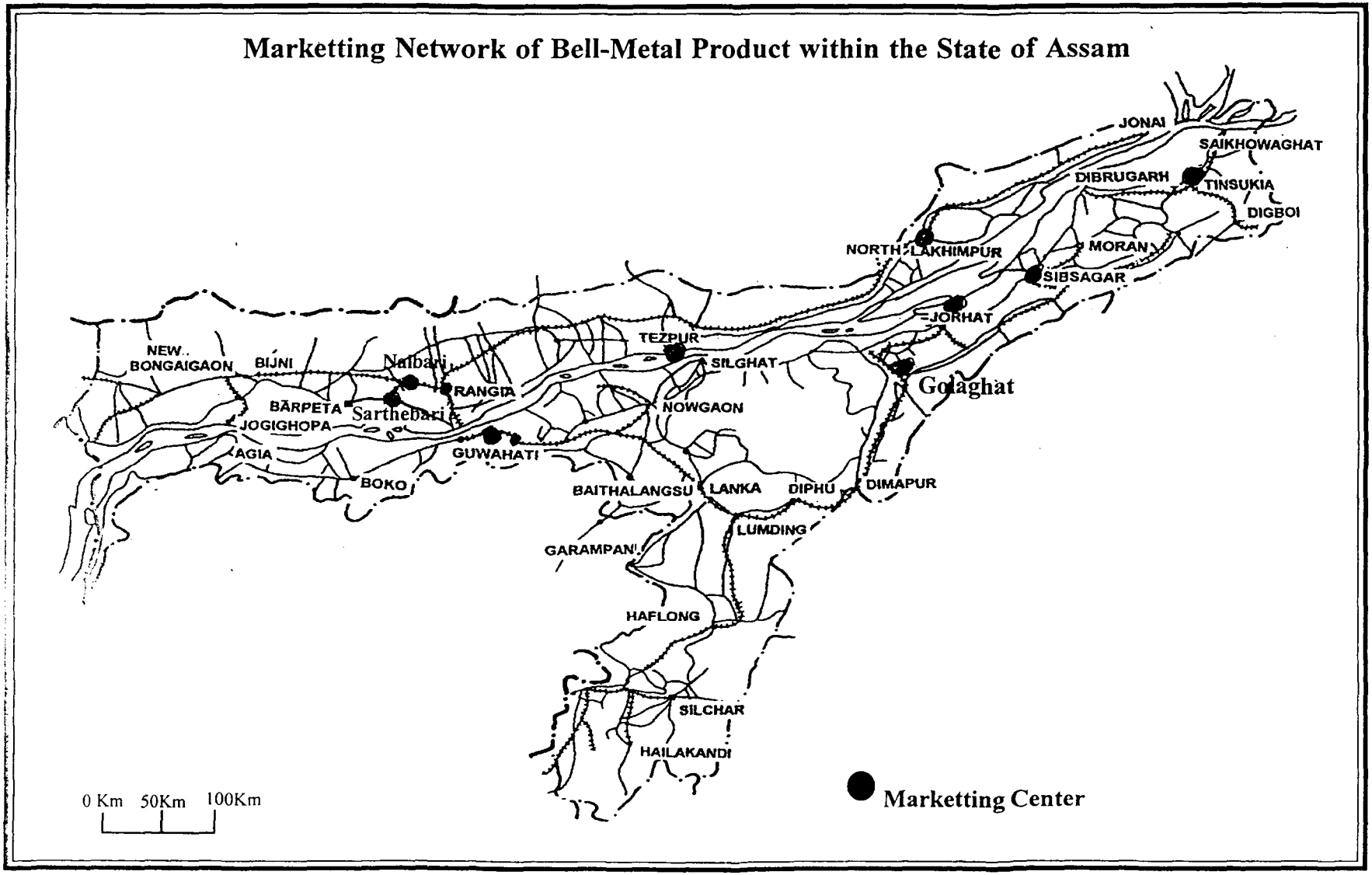
Share Capital, Working Capital, purchase of Scrap Metal and Wage of the Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari

Year	Memberships	Share capital in Rs	Working capital in Rs	Scrap Metal Purchased in Rs	Wage paid in Rs
2001-02	1790	42,835	2,19,20,661	94,25068	37,39325
2002-03	1812	42,835	2,86,03,866	1,05,43,492	37,82,916
2003-04	1841	43,135	2,96,41,495	1,08,28,608	41,15,360
2004-05	1853	45,725	4,30,16,676	1,35,06,030	37,00,216

Source: The Assam Co-operative Bell Metal Utensils, Manufacturing Society Ltd. Sarthebari,

5.2 Co-operative marketing of the bell metal:

The manufacturing units usually receive a small quantity of scrap metals from the co-operative society of Sarthebari since 1933. The head office of the society is at Sarthebari and its branch offices are at Guwahati, Fancy Bazar, Ganeshguri Chariali, Dispur, Paltan Bazar. There are more branch offices at Jorhat, North Lakhimpur, Sibasagar, Golaghat, Tezpur.and Sarthebari Natun bazaar.


Marketting Network of Bell-Metal Product within the State of Assam
JONAI
SAIKHOWAGHAT
DIBRUGARH
TINSUKIA
DIGBOI
NORTH LAKHIMPUR
MORAN
SIBSAGAR
JORHAT
Golaghat
TEZPUR
SILGHAT
NEW BONGAIGAON
BIJNI
Nalbari
RANGIA
BARPETA
Sarthebari
JOGIGHOPA
NOWGAON
AGIA
GUWAHATI
BOKO
BAITHALANGSU
LANKA
DIPHU
DIMAPUR
LUMDING
GARAMPANI
HAFLONG
SILCHAR
HAILAKANDI
0 Km 50Km 100Km
Marketting Center

The major activity of the Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd is to supply raw materials to the artisans for making finished goods in which they receive wages and products by the society. Then the society does the marketing of the products through its branch offices and from the sale depot at Sarthebari. The marketing charges of the products doesnot differ with the traders and co-operative societies. The society assures the making charges of the artisans irrespective of brisk or slack sale.

Thus the Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari has been playing an important role in marketing the bell-metal products. The society also renders marketing assistance to the units but due to lack of proper plan the society is unable to control the marketing division.

The guiding principles of the operation in the marketing are to overcome the following shortcomings:

a) Lack of standardization

b) Lack of trade name to assure quality

c) Lack of wide market.[12]

The society helps in overcoming of these problems and provides suitable remedies for the marketing of the products. The technical personnel of the society use to inspect the goods in various stages during manufacturing to determine the quality. The goods that are manufactured strictly under the prescribed specification of the trade mark to maintain the quality and

reliability. On the basis of the quality gradings are done before it goes to market.

5.3 Packaging System:

The bell-metal industry export utensils to neghbouring countries, but demand are not increasing. The artistically decorated products are exported to various countries. Some items like *tal* (cymbal), *bati* (cup), *kahi* (water plate) etc. are exported to the countries like Thailand, Sri Lanka, Malaysia, Bhutan and Tibet. In earlier day's mule and bullock carts were used as the effective means of transport. Items were mostly for local consumptions, therefore items werenot packed in a attractive packets. Currently, air, ship, railways and roads are used to transport the products, since there are demands from far off places. Therefore it is essential to pack them in a secure way. "Packaging regarded as an integral part of an any industrial activity which is a means of safe delivery of any manufactured or processed items.[13] In small scale industry packaging is an important aspect for attracting customers. For bell-metal articles the packaging system is not been done till date. Most products are openly showcased in the market as well as retailers counter; as a result the original glaze fades away at times. Therefore to improve marketing system packaging is necessary.

5.4 Advertisement & Marketing:

Advertisements of products are an essential part in modern day marketing. The big producers are always enjoying a good market

Plate 15 - Plate ready for moulding in to '*Taal*' (Cymbal)

Plate 16 - '*Taal*' (Cymbal) for export to Nepal, Tibet etc.

due to advertisement of their products in various mediums. It is one of the essential functions of a good marketing organization to make people know about the products and its merits and superiority over the other competing brands. In Sarthebari neither the wholesalers nor the society could afford to go for advertisement of their products.

The existing marketing system of the bell-metal industry in Sarthebari may not be able command a large market; but managing to fulfill the local requirements.

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Chapter-VI

SUSTAINABILITY OF THE INDUSTRY

The creation in handicraft requires much patience and hard work. They reveal the creative urge of the community and disclose its aesthetics. They are the embodiment of the accumulated experience handed down traditionally from father to son. This creative urge is expressed through handicrafts which endow them in significance and cultural importance.[1] The bell- metal wares of various sizes, shapes and designs are used as containers in temples, houses and decorative items. There are "no less than fifty various articles of brass, copper and mixed metals in Assam; some of them are coarse and clumsy.

The bell-metal handicraft is a traditional industry in Assam and its products are an essential part of a traditional function. The bell-metal industry in Sarthebari provides employment opportunity to about 1600 people in 280 units (Kahar sal). The establishment bell-metal industry in Sarthebari is not because of the availability of local infrastructure, raw material and market, but due to the availability of skilled artisans and their entrepreneurship. The

ırtisan's skills are purely hereditary. No formal trainings imparted for their :raftsmanship. The bell-metal industry in Sarthebari has taken the challenging ob to improve the metal crafts of the state and at the same time to ameliorate he artisans engaged in the craft. In the year 1956, the then Union Minister of Industries Sri Monubhai Saha, paid a visit to Sarthebari to assess the unctioning of this prestigious handicraft centre of Assam. Sri Shah was highly mpressed with the economic, social and cultural attachment to this handicraft.[2] vith his effort a rolling machine was installed and used for production. However, the machine could be used only for production of certain parts or ırticles. The entire production process is manual; therefore machine use is very imited. The persons practicing castings of metal are locally known as *Oja Kahar* (chief artisan).

5.1 Bell Metal as Valuable Property:

In Assam bell-metal articles are valued next to gold and silver ornaments. The prices of bell-metal articles are increasing day by day. The following table indicates the cost structure of some of the commonly used bell-metal products (January, 2006).

Plate 17 - Popular bowl with stand (*Ban-bati)*

Plate 18 - Popular plate (*Kahi*)

Table No. 6.1

Cost Structure of Domestic Bell-Metal Utensils:

Name of common Products	Standard weight (kg)	Scrap metal (gram)	Value of raw metal on Jan 2006 (Rs)		Total making charge (Rs)	Average man hour	Cost price (in Rs)
			Bell metal	Other metal			
Jail Ban Kahi (metallic plate with a foot)	900(gm)	927	316.00	88.00	136.00	7	540.00
	700(gm)	721	250.90	46.00	88.20	6	385.00
Sadha Jail Kahi (metallic plate)	500(gm)	515	179.00	13.00	48.00	4	240.00
	1300(gm)	1339	465.97	33.00	126.00	8	624.00
Pandhowa	900(gm)	930	316.20	31.00	85.00	7	432.00
	700(gm)	721	250.90	19.00	66.50	4	336.00
Nag Feti Bata (bell metal tray with a foot)	400(gm)	412)	140.00	14.00	38.40	4	192.00
	500(gm)	515	179.00	33.50	62.50	5	275.00
	700(gm)	721	250.90	46.60	87.50	6	385.00
Bhortal (a large of cymble)	1000(gm)	1030	354.44	93.56	152.00	12	600.00
	1500(gm)	1545	537.60	130.40	157.00	13	825.00

Source: Through field work by the scholar in 2006

Substantial amount of raw materials in the form of old and broken bell-metal collected by the dealers are sold outside the because of better price. A unit cost of raw material was Rs 348.00 per kg during the year 2006.

6.2 Bell-metal in social and cultural life:

Bell-metal utensils are an item integral to the social and cultural life of the Assamese society. Besides everyday use the bell-metal products are needed in traditional and religious ceremonies. In religious institutions like *Satras*, (monastery), *Namghars*, Temples use of bell-metal utensils are extremely important. The local names for the bell-metal products used in these institutions are *doba* (kettle), *ashan* (tiny seat), *ghanta* (bell), *bigrah* (the image

of God), *gasha* (native lamp), *dug-dugi* (vessel with neck), *sarai* (platter) etc. All these are manufactured in Sarthebari. Assamese marriages are incomplete without bell-metal items from Sarthebari. It is a must in all Assamese weddings to accompany the bride with fine pieces of bell metal items like *kahi*(plate), *bati*(cup), *lota* (vessel), *ghati*(pot), *kalash*(pitcher), *bata*(tray with foot), *panbata*(small tray with foot), *sarai(tray with foot)* as dowry. In Assam marriages and other ceremonies held during November to May. The demand for fine bell-metal products normally increases during this period of the year. A mirror on bell metal is called *Dapani*, espicially for bride. In Assam traditional cultural activities like *dhulia* (drummer), *khulia* (instrumentalist), *gayan* (singer), *bayan* (instrumentalist), *kaliya* (piper), *taliya (cymbalist)* and *ojapali* (choral singers). Bell-metal products from Sarthebari such as *bhortal* (cymbal), *khuti tal* (cymbal), *pati tal* (small cymbal) and *manjira* (a small cymbal) are widely used. Some of these items are exported to western countries. The concentrating singing bowl, used by the Buddhist monks has very high market value in places like Kulu, Manali, Darjeeling, Sikkim, Tibet, Nepal and Bhutan. Traditional cymbal has a good market in those countries.

The bell-metal products of Sarthebari has good market in Manipur, Shreehatta, Jalpaiguri, Rangpur, Koch Bihar and other adjoining areas. The *taal* (cymbal) instrument produced in Assam and Bhutan has quality different. The *Bhutiya Taal* (Bhutiya cymbal) contains *beta* which is small and surrounded by a bigger flake. On the basis of size and form, the *taal* (cymbal)

are divided into four parts *bheri or rumu, chiming, pochang and jumu.* Such instruments are normally used by the Nepalese and the Tibetans. The Bhutiyas import utensils like- *lota* (vessel), *charia* (wash bowl), *sarai* (tray with foot). The bell-metal products are used for various festivals, religious and ritual purposes; therefore they are indispensable and has a ready market in the society. The artistic products of the industry have always been in demand within and outside the state including foreign countries. Due to substitute products from Moradabad, Jaipur and Delhi demand for the traditional product have been decreasing. Due to high production cost the prices of bell-metal articles are higher than the substitute products. Only rich and upper middle section of the society can afford to buy bell metal products. The middle class prefers to have stainless steel utensils and poor sections are satisfied with cheaper aluminum utensils.

The rural industry provides supplementary source of income for part/full time employees of rural artisans, landless laborers, women and the educated unemployed.[3]

It is worth mentioning that the handicraft or cottage industries are in the hands of local people, but the raw material supply is in the hands of non-local businessmen. The practice of the raw material traders is to create artificial scarcity of raw materials in order to drive-up prices.

Further, there is no quality control of the raw material at the dealers' level or elsewhere, since the materials are mainly scrap. The high price of raw materials leads to increased prices for finished products.

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Chapter-VII

OCCUPATIONAL STRUCTURE AND QUALITY OF LIFE

The bell-metal industry of Sarthebari has a long history of development. Its products are used mainly for traditional and religious functions or festivals in Assamese society. There are utensils for domestic use which are considered to be very hygienic. During religious functions offerings are made to God and Goddesses on bell-metal utensils, *"bata"* (a tray with a foot on which betel-nuts are served) *and"sarai* (a platter or tray) are used since it is considered as a pure metal. In devotional songs the musical instruments used are made of bell-metal. The bell-metal utensils are considered to be prestigious items in traditional Assamese society. In marriages the metal items are gifted to the brides as a token of gratitude and affection.

The use of bell-metal vessel is a very old tradition in Assamese society. In the *"Arthasastra"* a chapter deals with the method of production of bell metal utensils.[1] The production method of bell-metal handicraft has a traditional base. The artisans inherit their artistic skills from their father and forefathers. In earlier days no machines were used in its production. Moreover machine use was limited to certain parts of selected items only. It also required

an artisan's skill to use such equipment. Good eyesight is an essential requirement for this craft. The artisans develop their artistic skills through practice then skills are transferred to the next generation. Bell-metal industry has a cultural link with the Assamese society. It basically caters to the needs of marriages and religious festivals. Most products are used in rituals, as gifts and in different ceremonies. It is also used as household utensils in day to day use. People also store it as an asset, since the bell metal value never fades away with time and can be reused.

7.1 Organizational pattern:

The organizational pattern of the industry is classified in to the following categories.[2]

(i) Pure artisans

(ii) Proprietary unit

(iii) Co-operative unit

(iv) Partnership

(v) Combination of the above categories

Normally minimum of five artisans constitute a single unit for production of bell-metal items and is known as *"godsal"*. The establishment that is located in a cottage is called *"gadsali"*. The firing place of the raw material is known as *"aphor"* where artisans carry out their daily work. The *mahajan's* (middlemen or money lenders) and co-operative societies supply

raw materials to the units and decide their wages according to their fineness of the products. Charcoals for the firing of the products are also supplied by the society and the *mahajans* (middlemen or money lenders). The production process is completely manual and it requires lot of hard and strenuous labour. Therefore, the artisans tend to lose their vigor and health at a very young age.[3] In the *kahar bhaiga* or *ojapali* (Partnership unit) system there are four to five artisans who combine and pool their resources to work under a common production programme. In this system the artisans mutually agree to work under a master worker known as *ojakahar* (chief artisans). The artisans working under the master are called *vaiga* (partnership) *or pallies*. The *oja kahar* (chief artisan) usually owns the tools and equipments that are shared by *pallies*. In this system workers are not given direct wages, but profits are shared according to the mutually agreed conditions. The main *kahar* (chief artisan) normally gets a higher share because he owns the tools and equipment. His wage is normally five times higher than that of a *bhaiga*.[4] The main feature of this industry is seasonality of work, manual operation, labour intensive and a low capital requirement. There are very few units of bell- metal industry that runs on a fulltime basis.

7.2 Production Range:

The products manufactured by the bell-metal artisans are divided into the following major categories on the basis of size, weight and design.

Table No. 7.1

Common items of Bell-metal produced in Sarthebari

Name of Item	Size/Weight
Sorus Bet Ban Bati (special cup with a foot)	150gm to 1300 gm
Bet Kanar Ban Bati (cup with a foot)	100 gm to 500 gm
Lata Kata Ban Bat (cup with a foot)	2oo gm to 900 gm
Selo Lota (vessel)	250 gm to 900 gm
Chanda Pahia Lota (vessel)	500 gm to 900 gm
DogDogi Lota (vessel with a long neck)	700 gm to 1800 gm
Kahar Kalah (pitcher)	1400 gm to 1800 gm
Gota Kanar Saria (wash bowl)	500 gm to 1800 gm
Jul Khunda Saria (wash bowl)	700 gm to 4000 gm
School Bell	1000gm to 4000 gm
Plate Ban Kahi (metallic Dish with a foot)	1000 gm to 2500gm
Plate Bata (tray with a foot)	150 gm to 700 gm
Saros Plate Bata (tray with a foot)	200 gm to 1100 gm
Jari Plate Bata (tray wiyh a foot)	300 gm to 1100 gm
Nag Feti Bata (tray with a foot)	400 gm to 1800 gm
Saros Nag Feti Bata (tray with a foot)	400 gm to 1800 gm
Asli Nag Feti Bata (quality tray with a foot)	400 gm to 6000 gm
Bhortal (large cymbal)	200 gm to 4500 gm
Oja Pali, Khuti And Juri Tall (cymbal)	200 gm to 500 gm
Bheri, chimet Pasang Tall (cymbal)	100 gm to 4000gm
Sadha Jail Kahi (plain dish)	200 gm to 3000gm
Saros Kahi (quality dish)	900 gm to 2500 gm
Asli Kahi (metallic dish)	500 gm to 2500 gm
Jail Ban Kahi (dish with a foot)	700 gm to 2500 gm
Saros Ban Kahi (quality dish with a foot)	900 gm to 2500 gm
Asli Ban Kahi (dish with a foot)	900 gm 2500 gm
Pandhowa (tray)	200 gm 1300 gm
Jul khanda Pandhowa (special type of tray)	400 gm to 1300 gm
Pirish Thal (flate dish)	200 gm to 500 gm
Hati Khujia Bati (a cup)	200 gm to 1800 gm
Bahir Kanar Bati (cup)	200 gm to 1100 gm
Soros Bahir Kan Bati (special type of cup)	200 gm to 1100 gm
Aslisoros Bahir Kan Bati (special type of cup)	200 gm to 1100 gm
Jail Bati (cup)	100 gm to 1500 gm
Saros Jail Bati (quality cup)	200 gn to 1100 gm
Bet Kanar Da Bati (big size cup)	100 gm to 599 gm
Sarosbet Kanar Da Bati (big size cup)	200 gm to 500 gm
Saros Ban Bati (quality cup with a foot)	150 gm to 1100 gm

Source: Price list, The Assam Somabay Kohar Sangha, 2005.

Table No.7.2

The price of items of the Bell-metal products:

Name of the Item	Size/Weight	Price per kg (Rs)
1.Plate Bata (tray with foot)	150 gm to 700 gm	580
2.Bhor Tal(large cymbal)	200 gm to 4500 gm	550- 600
3.SarosKahi (special dish)	900gm to 2500gm	550
4.Asli Kahi (plate)	500 gm to 2500 gm	624
5.Jail Ban Kahi(dish with a foot)	700 gm to 2500 gm	550
6.Saros Ban Kahi (dish with a foot)	900 gm to 2500 gm	600
7.Pandhowa (tray)	200 gm to 1300 gm	480
8.Asli Nag Feti Bata(tray with foot)	400 gm to 6000 gm	650
9.Nag Feti Bata (tray with a foot)	400 gm to 1800 gm	550
10.Jail Bati(cup)	100 gm to 1500 gm	480

Source: Field survey by the author with retailers at Sarthebari, 2005

7.3 Wage Structure:

Today Labours are not merely a working class but an important and active partner in the growth and development of an industry. It is an important factor of production and has assumed greater significance in modern economic and industrial complex system. Labour is a fundamental productive resource with any given store of national resources, capital and technological skill, the production limits are established on the size of the labor force.[5]

The term "Labour" in economics is used in a wide sense and cannotes any work, manual or mental, undertaken for certain pecuniary

consideration. Any exertion of mind or body undergone partly or wholly with a view to some good other than the pleasure derived directly from the work is called labour.[6] It is a very comprehensive term and includes workers both off hand and head who work for others against payment in cash or kind. In the bell- metal industry artisans are more important than the other factors of production. In all bell-metal units, 98% of the work is done manually. Mechanization in bell-metal units has its limitations and yet to gain popularity.

The classification of work in bell-metal industry in Sarthebari is based on two criterions- a) daily wages (hired workers), b) partnership system. The partnership system is still predominance in Sarthebari and this industry is continuing with this system and is locally known as *oja-pali or kahar-bhagia*. The chief artisans are known as *"Oja Kahar"*. In partnership system no worker gets direct wage. The income received is shared by the workers as per the conditions agreed upon. The *bhagias* gets equal share and the "*Oja* or the main "*Kahar*" gets higher shares (usually one and half times the share of *Bhaiga*). The main *kahar* gets higher share because of the tools and equipments that he provides for the production. When the *oja kahar* (chief artisan) is absent from work for few days may be due to illness or some other reasons, the unit will be closed temporarily during his absence. In the event of the death of the *oja kahar* (chief artisan), either the unit is closed permanently or the work continues with a new *kahar*. In such condition sometimes the artisans are forced to accept low wages due to shifting of owners or *kahars*.

The cash received by selling the products are divided among the partners after deducting the capital input and production cost. Master craftsmen are not hired by the units but they are partners of the production process. It is labour intensive but there is no yardstick for output measurement. To avoid unforseen loss of the product the master craftsmen and labourers prefer to have partnership system.

It is understood that the bell-metal artisans are wage workers, they work with their own tools but raw materials are supplied by either private dealers or co-operative societies. Annual accounts are not maintained by the artisans, the wages earned are calculated on the basis of prevailing wage rate of 2006. The wage rate varies according to type of utensils and with time. Such as Rs 100 to Rs 107 for *kahi* (dish) , Rs 93 to 100 for *jail bati* (cup), Rs 152 to 155 for *soraj ban kahi*(special bell-metal dish), Rs 122 to 125 for *nag feti bata*(try with a foot), Rs 155 to 156 for *soroj nag feti bata* (special tray with a foot for serving betel-nuts), Rs 228 to 299 for *asli nag feti bata* (tray with foot), Rs 150 to 230 for *vortal* (large cymbal) etc.* The wages paid by the traders to the labourers doesnot show the actual income of the artisans. The wages spent on buying charcoal, bell-metal and chemicals for smelting and soldering of the items. It is estimated that from a kg of metal about 50 grams are lost while smelting and soldering at Sarthebari. The raw materials that are lost while processing is deducted from the wages of the artisans in Sarthebari, however the organized artisans get a concession of 30 grams from the dealers.[7]

A bell-metal unit where 4 to 5 persons are working on a partnership basis requires nearly 220 kgs of raw metal per month (Rs 76,560/- Rs 384/- per kg in 2006). The gross wage of Rs 2,75,000/- is the regular income of a bell-metal unit in a month. An amount of Rs 50,400/- is paid from this amount for the purchase of charcoal and chemicals in the manufacturing process. The net income is Rs 2,24,600/- after deducting all other expenditures, while monthly per capita average income is Rs. 4083.63.

Table No. 7.3

Average Wages per Workers (per month)

No of Units	No of Workers	Quantity of metal (kg)	Wage Paid (Rs)	Cost of Manufact-uring (Rs)	Actual Wage	Average Wage per Workers (Rs)
10	55	2220	2,75,000	50,400	2,24,6000	4083.63

The above table reveals that every day 10 kgs of scrap metals are required by an unit. The most units work for 22 days in a month i.e. (10x22=220 kg). In the unit wage paid to the artisans are ranging from Rs 100/- to Rs 150/- per kg. In an average the artisans gets Rs 125/- (Rs 125x10=Rs 1250/- for 22 days). The manufacturing unts requires additional amount of Rs. 120/- which means a bag full of charcoal to process 10 kgs of scrap metals and chemical cost of Rs 24,000/, (total of Rs 50,400/-). Ultimately the actual wage an artisan gets is Rs 4083.63 per month.

Table No. 7.4

Average Working Hours of Artisans

Season of reference Period	Average number of days engaged per worker per month in the unit.	Average hours of work per day per work	Average number of co-operators engaged per unit.
Slack season	15	6	3
Busy season	18	7	3

Source: Field survey by the author at Sarthebari, January,2006.

An average hour of engagement by an artisan in a slack season is 5.4 hours per day, while in the busy season it is 6.1 hours per day. The busy season is during the month of December, January and February but now a day this is not due to non availability of scrap metals.

The profit accrued from the sale of products normally benefits the traders. Such exploitation of the traders were challenged by the artisans of Sarthebari in the month of March 2006 and decided to stop working under the traders. The co-operative societies of the area helped the artisans with their decision of boycotting traders by supplying required raw materials to the units. But the society could supply raw materials up to 20% of their current requirement. In the earlier years artisan could earn a modest living from the bell-metal work. But with the increase in cost of living it became difficult for the artisans to live a modest living from the wages they earn through smithy work.

The artisan of bell-metal industry is a full time occupation in Sarthebari. But income from this vocation is not perennial, neither the co-operative nor the private dealers could provide raw materials throughout the year due to slackening of demand for the products. During the months of May to August the artisans are compelled to do other works since they remain unemployed in this period of the year.

The artisans of bell-metal industry also do agricultural activities during slack period. The artisans do not own land therefore they work as daily wage labourer, but few could afford to invest in agricultural activities to supplement their income. About 10 years back most artisans are fully dependent on bell metal industry but today their livelihood pattern is shifting from industry to agricultural activity due to lack of raw materials. It is also true that out of 280 units only 81 units (30%) have operational land holding ranging from less than 1 hectare to more than 2 hectares. (Fig-7.1)

The following table shows the number artisans having land holdings.

Table No. 7.5

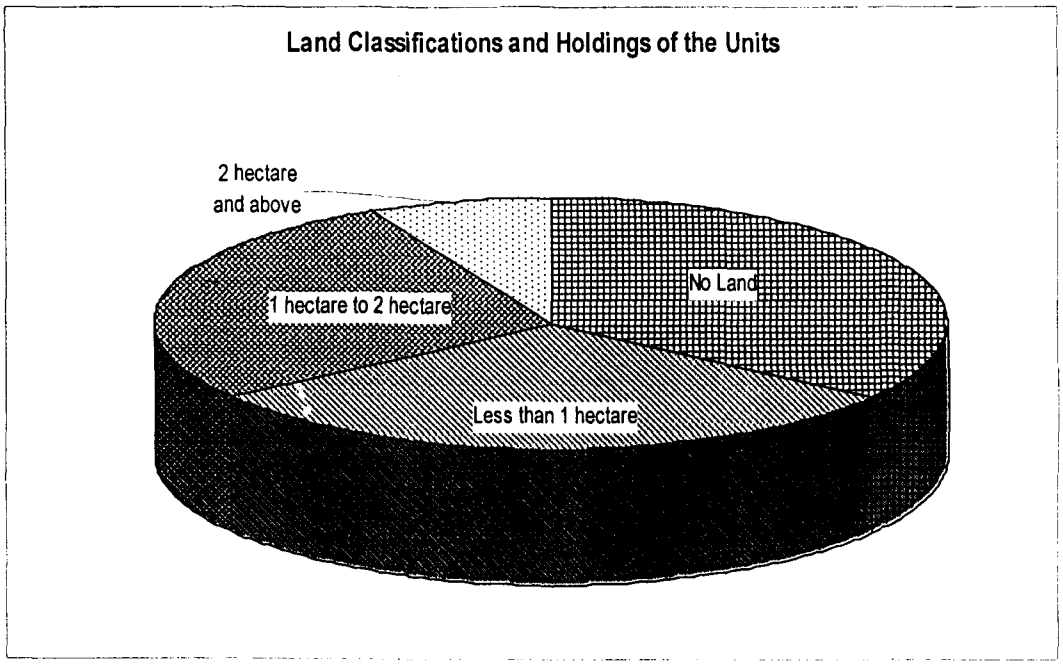
Land classifications and holdings of the units

Holding	No of units	Percentage
No Land	98	35
Less than 1 hectare	85	30
1 hectare to 2 hectare	77	27.5
2 hectare and above	20	7.5
Total	280	100.0

Source: Field survey by the author at Sarthebari, January, 2005

Bell-metal industry is male dominated since it requires hard physical labour and some skill. Therefore, children and female members are never part of the production unit, except for small helps such as cleaning, fetching materials, charcoal and making solutions.

Fig-7.1



7.4 Living Standard of Artisans:

Standard of living is an elastic phrase. It is extremely difficult to state as to what is meant by standard of living. It varies from individual to individual, from class to class and from place to place. The standards of living of a person consist of the articles of a living person such as necessities, comforts and luxuries to which he is accustomed. However, these are again relative terms.[8]

Here an attempt has been made to examine the standard of living on the basis of their wages, size of family, general price level and social and religious institutions. The personal traits of a man, his habits, education and outlook and the way he spends money have also been taken in to account.

Sarthebari is well connected to Dispur and Guwahati the capital and the commercial hub by roads. The nearest railway station Tihu is 14 km distance from Sarthebari. The urban literacy rate is 59.23% in Sarthebari. In Sarthebari there are eight primary schools, two high schools, one higher secondary school, and one College for general education. It has a circle office of the sub-deputy collector, a police out post and a dispensary at Sarthebari. A nationalized bank and a local bank at Baniakuchi are also within the reach.

The common facility and service centres are:

a) One tilting furnace for melting metals

b) One drilling machine

c) Three polishing machines

d) One weighing machine

The artisans never get allowances in Sarthebari. There is no system of grades and scales of pay in this industry. The majority of the bell-metal artisans of Sarthebari is belongs to joint family system. Out of 1000 households that are studied, 520 (52%) are from joint family system and the rest 480 (48%) are nuclear family system. The majority of the bell-metal artisans of Sarthebari maintain a large family. The field study reveals that the

average numbers of family members are about five. Most of the artisans are from low income groups of the society and they live below the poverty line. There are 11 percent skilled artisans in the bell-metal industry of Sarthebari.

Table No. 7.6

Expenditure incurred in the family (in %)

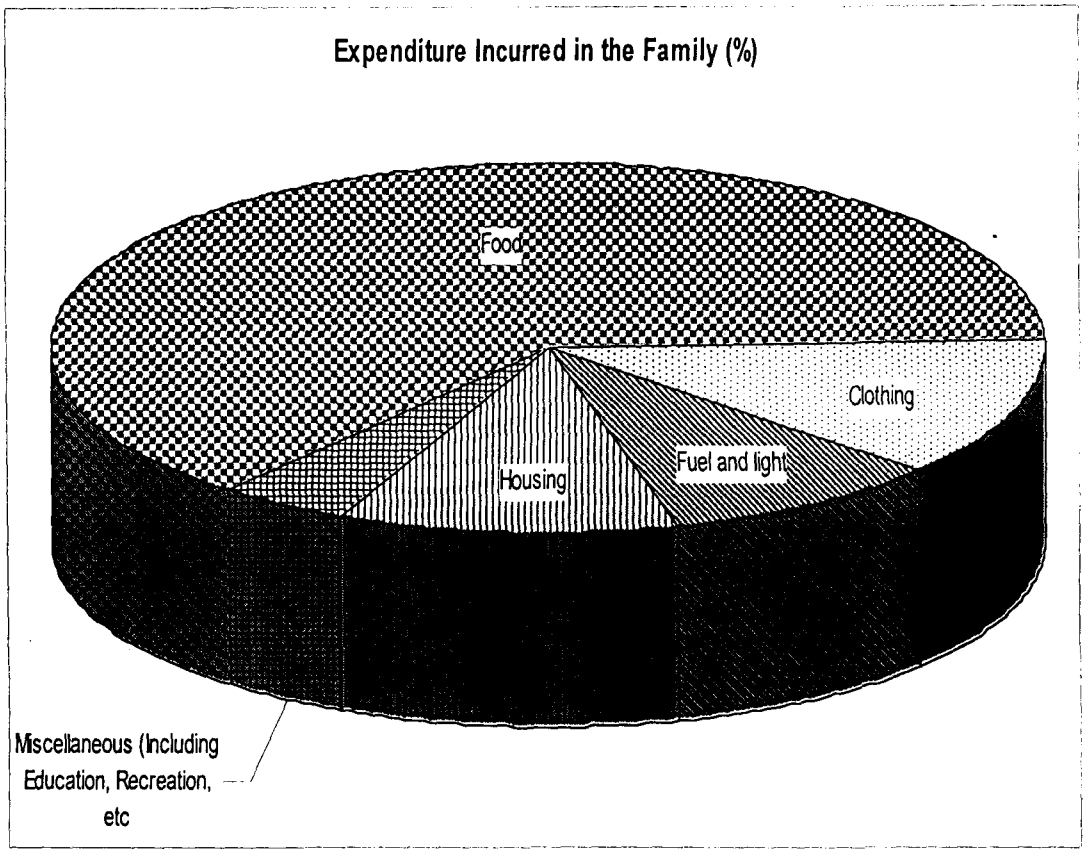
Items	Percentage Expenditure
Food	63.2
Clothing	12.4
Fuel and light	9.1
Housing	11.2
Miscellaneous (education, recreation etc.)	4.1
Total	**100.0**

Source: Field survey by the author at Sarthebari, 2005

The above table No.7.6 reveals that more than half of the wage earned is spent on food items alone. "According to the well known Engel's Law of Consumption, this high percentage on food items indicate a very low level of living."[9]

Low income coupled with high expenditure on food items does not leave enough money for clothing, fuel, education, housing and recreation etc. Children in most cases do not receive higher education and very little is spent on recreation or entertainment and festivities. The common expenditure of the artisans are on *Pan-Tamol* (betel-nuts), smoking and tobacco chewing etc. (Fig-7.2)

Fig-7.2



7.5 Indebtedness of the Artisans:

A noticeable feature of economic life of the industrial workers of India is that they are generally indebted and live in debt and die in debt.[10] Like other industrial workers, bell- metal artisans of Sarthebari are no exception to this vice of indebtedness. There are no statistics available to gauge the actual extent of indebtedness prevailing among the bell metal artisans of Sarthebari. However, the study reveals that nearly two third of the artisans i.e. 940 out of 1465 artisans (64.16%) engaged in the industry are indebted. This information

can not be regarded as exact numbers since most artisans hesitate to disclose their exact economic position. Moreover, the artisans themselves have no precise idea of the extent of their debts.

The professional money lenders are found to be the main source of borrowing. Most of them borrow money for medical care, domestic needs, (marriages, social ceremonies) maintenance of life, construction of houses etc. While borrowing the artisans mortgage their land, houses and ornaments as securities for loan amount and pay high rate of interest. About 65% of the people borrow money from the professional money lenders, about 25% borrows from relatives and friends and only 10% is from co-operatives and banks. The rate of interest ranges from 15 to 45 percent on most of the loans taken from the money lenders, which is 10 to 15 percent in co-operative and banks. Thus most of them get exploited by the hands of money lenders.

Low income in comparison to expenditure is the major cause of indebtedness amongst the bell-metal artisans of Sarthebari. Most of the artisans borrow unscrupulously for unproductive expenses on marriages, funerals, festivals and anniversaries etc. The repayment of ancestral debt is also an important cause in the case of few artisans. The artisans get easy loans on personal security from the money-lenders or *mahajans*. To meet the extra expenses they borrow money. Their indebtedness continues from one generation to another generation.

7.6 Working Conditions of Bell-metal Industry:

Working conditions defines cleanliness, brightness of day, and irregularity of hours such as night shifts or rotation of shifts, physical hazards and exposure to possible industrial disasters. Similar conditions apply to those social groups and managerial setup that directly or indirectly influence the worker's happiness, satisfactions or dissatisfactions at work. [11]

The working conditions will have tremendous influence on the artisan's health, efficiency, psychology and the quality of work. Healthy, bright and pleasant atmosphere leads to efficiency and productivity than dirty, sullen and unhealthy atmosphere. Good working conditions not only lead to efficiency of the workers but also strengthen the relations between the employers and employees to maintain industrial peace.[12] The study shows that the sheds where bell-metal units in Sarthebari are setup do not have a pattern. The bell-metal units consist of the following main sections:

a) Machine room

b) Working place

c) Decorating place

d) Storage of raw materials

e) Storage of charcoal

f) Storage of finished products

Plate 19 - Non ferrous rolling machine in private sector

Plate 20 – Metal is lifted from flame

Plate 21 - Metals are being pressed in machine

Plate 22 - Machine Pressed pieces of metal

Out of 280 units, 109 units (39%) have satisfactory working space for the workers and other facilities as mentioned. Nearly 61% of the units are closed during rainy season and works carries out from their home.

7.7 Power Supply:

The factories act provides that "every part of the factory, where workers are working, shall be provided and maintained with sufficient and suitable lighting, natural and artificial or both.[13] The arrangements of lighting in the bell-metal unit of Sarthebari in general, are not satisfactory. In many of the units, a temporary light points are made and no others lighting arrangements are made.

7.8 Sanitation and cleanliness of units:

Sanitation and cleanliness is another important aspect of good working conditions. The sanitation here means the degree of cleanliness inside the factory and it includes neat and clean machines, tools and equipment, toilets, urinals, outlets for waste water, drainage, waste material baskets or tins etc. The Sarthebari bell-metal units do not have proper sanitation and clean ambience. Only 45 units have proper sanitary toilets and other facilities cleaniness.

7.9 Drinking water facility:

The provisions of hygienic water for drinking and washing are essential amenities of the artisans. Arrangements of drinking water for artisans within the premise of the units at convenient places are essential conditions.

The arrangements are mostly in the form of taps, hand-pumps and earthen pitchers. No units are provided coolers for drinking water. Taps, hand-pumps and tube-well water is used for drinking as well as bathing and washing purposes. Separate washing and bathing facilities are not available in most units.

7.10 Canteen facility:

Canteens are an essential part of an industry, where lunch and tea-snacks are served with subsidized rate. Except some small private tea stalls there is no other canteen facility in Sarthebari.

7.11 Housing facility:

Housing conditions of the bell-metal artisans in Sarthebari is unsatisfactory and inadequate. In Sarthebari there is no substantial improvement inspite of the efforts made by private, individuals and the state Government in this direction. In Sarthebari 95 percent of the artisans of the industry are local residents. The other 5% workers commute daily from nearby villages. Out of 1400 artisans, 560 (40%) are live in RCC houses and 658 (47%) of them live in thatch houses and remaining 182 (13%) in small huts. Nearly 91% of the houses are electrified.

The industry employs few technical persons from outside the area and they are provided with housing facility within the units, the rest live in their own houses.

7.12 Medical Facility:

The industry in Sarthebari is unable to provide medical facility, dispensary and medical aid. All medical expenses are usually borne by themselves. The Government hospital is the only source where artisans get medical aid. Ocassionaly the local clubs provide free health checkup facility to artisans. For major health problem artisans visits Civil Hospitals located at Nalbari town.

Dr. Pranab Baruah an E.N.T. Specialist of Nalbari in his study reveals that the incidence of sensory neural hearing loss in bell-metal artisans of Sarthebari are due to exposure of heavy noise pollution and heat during working hours.**

They also suffer from eye problem due to strainous craftmenship and constant exposure to heat, dust and fume. There is a report on the eye sight of the people working in the industry conducted by an eye specialist.

Table No. 7.7

Report on the Eye sight of the Artisans

Diseases	No. of Patient	Percentage	Placebo	Percentage
Allergic Keratoconjuntivitis	43	43%	12	12%
Corneal Problems	12	12%	5	5%
Cataract	18	18%	3	3%
Ant. Uveitis	16	16%	3	3%
Postsegment/ Retinal prbl	5	5%	2	2%
Trauma	6	6%	Nil	0%
Others	-----	----	3	3%
Total	100	100%	35	35%

Source: Field Study, by Dr S.K. Goswami, 2004-2005

The study reveals that, the majority of the ailments are Allergic Keratoconjunctivitis (43%) in contrast to placebo group (12%). About 12% artisans suffer from corneal problems. This includes corneal ulcers, degenerative changes, injury from small foreign bodies etc. Only 5% of Placebo group suffers from corneal ulcers mainly due to vegetative injury during cultivation. A major portion (18%) has cataract in compared to 10% in placebo group. Cataract formation is mainly due to constant exposure to heat (thermal assault to the normal human crystalline lens). Another substantial amount is Anterior Uveitis (16%), which is due to thermal exposure. Artisans suffer from trauma due to high degree of physical labours during crafting. The study shows that, in placebo group only 35% cases suffers from some ocular ailments, whereas in bell-metal artisans (100%) suffers from some sort of ailments. Proper industrial safety measures are utmost important to avoid the industry related accidents.***

7.13 Education Facility:

Education facility for workers and their children are an essential service for labour welfare. Education widens the out look of the workers and opens up prospects for their economic and social upliftment. In Sarthebari there is no dedicated school for the artisan's children. It has also been noticed that artisans are reluctant to send their children to school because expenses are beyond their capacity. In Sarthebari there are eight primary schools, two high

schools, one higher secondary school, and one college for general education. A course on 'bell-metal production and technique' has been offered in the college, but hardly any takers.

7.14 Recreational Facility:

The value and importance of recreational facilities as means to relieve the monotony and drudgery of work for long hours and to introduce an element of joy and relief in worker's lives, cannot be overemphasized.[14] The recreation facility in bell-metal units of Sarthebari is scanty. Occasionally, a film show and mobile theatre groups are hired to entertain the people. Sarthebari *sabha* (an association and assembly) organizes many religious festivals such as *ek-paisarnam, parasuwari festivals, bihu festivals, ganmasthami, pachati festivals, mahoho, doljatra or fakua, basanti puja, devi puja* etc. These are some of the typical cultural festivals of Sarthebari area in which people take part and enjoy themselves.

7.15 Social Insurance Scheme:

Social insurance is a collective or co-operative activity where members of the community pool their resources for their social security. This insurance is mainly for emergency needs such as maternity, sickness, injury, disability involving loss of total or partial earning, old age and death of the bread earner. The maintenance of this insurance fund is through contributions of the artisans of Sarthebari.

The employee's state insurance act 1948 applies to all perennial factories run:

- with electric power and employing 10 or more persons and
- without electric power but employing 20 or more persons.

The policy applies to manual workers, supervisory and technical persons whose total remuneration is about Rs 10000.00 per month. The act provides insurance for sickness, maternity, disability, dependent and medical benefits. The scheme was first started in Uttar Pradesh in 1952 and all establishments are covered under the scheme and are given benefits to their employee's regularly.[15]

But such scheme is not operative in the bell-metal industry of Sarthebari. Therefore the artisans of Sarthebari do not get facility from state's insurance scheme. This scheme provides maternity and medical facilities. But serious cases are referred to Guwahati Medical College or Nalbari Civil Hospital with their own expenses.

7.16 Industrial Relations:

During post-war period particularly after independence, considerable thought and action have been devoted in matters pertaining to the improvement of labour management and relations in India. Various legislative measures, notably the industrial dispute act, 1947, which have gone a long way in improving industrial relations.[16] Industrial relations are confined to the

development and growth of good and healthy labour management relations, with a view to ensuring peace in the industry on a long term basis. Strikes, lock-outs, go-slow tactics, are some of the important manifestations of absence of healthy industrial relations. The relations between artisans and management in the bell- metal industry of Sarthebari has been generally cordial except a few stray cases here and there.

The bell-metal industry in Sarthebari is under the control of Marwari mahajan till date. In the year of 1933 a freedom fighter late Kohiram Das and the bell-metal artisans of Sarthebari organized a protest against the Marwaris to get free from their control. Later this movement turned into a registered society viz. The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd., in 1938. At present under this society all bell-metal units are registered and work under their control.

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13. Ibid, p-187

14. Ibid, p-198.

15. Ibid, p-201

16. Ibid, p-202

* The Assam Somabay Kohar Sangha's published rate of wage for various metal utensils.

** Incidence of Sensory Neural Hearing Loss in Bell-Metal Artisans of Sarthebari, a Research paper submitted by Dr. P.M.Baruah Chief consultant of N.M.B. Nursing Home, Nalbari, Assam, 2004-2005.

*** A Clinical study of Eye problems of Bell-Metal artisans in Sarthebari area, a research paper submitted by Dr. S.K. Goswami Chief consultant of Nalbari Eye Hospital, All Assam Ophthalmological society conference held on Guwahati on 14.11.05

Chapter - VIII

SUMMARY AND CONCLUSION

The primary as well as secondary data analysis shows that the bell metal industry of Sarthebari is getting stagnated. The data shows that the income generated among the artisans are not sufficient even for two square meals a day for the employees themselves. The young generation is not interested and attracted to this industry, since it involves drudgery and fatigue.

The bell-metal industry in Sarthebari is under the control of the Assam Co-operative Bell-Metal Utensil Manufacturing Society Ltd. Sarthebari as the Head office and branches all over the Assam. The branches are located in Guwahati, North Lakhimpur, Jorhat, Sarthebari Natun Bazar, Dibrugarh, Tezpur, Dispur, Nalbari and Sibsagar. The capital requirements of bell-metal units vary according to their size, type of furnace use, the wares they manufacture and the manufacturing processes undertaken. The field study reveals that the artisan of the industry at Sarthebari receives no financial assistances from the banks. It is a fact that the I.D.B.T. has got several schemes

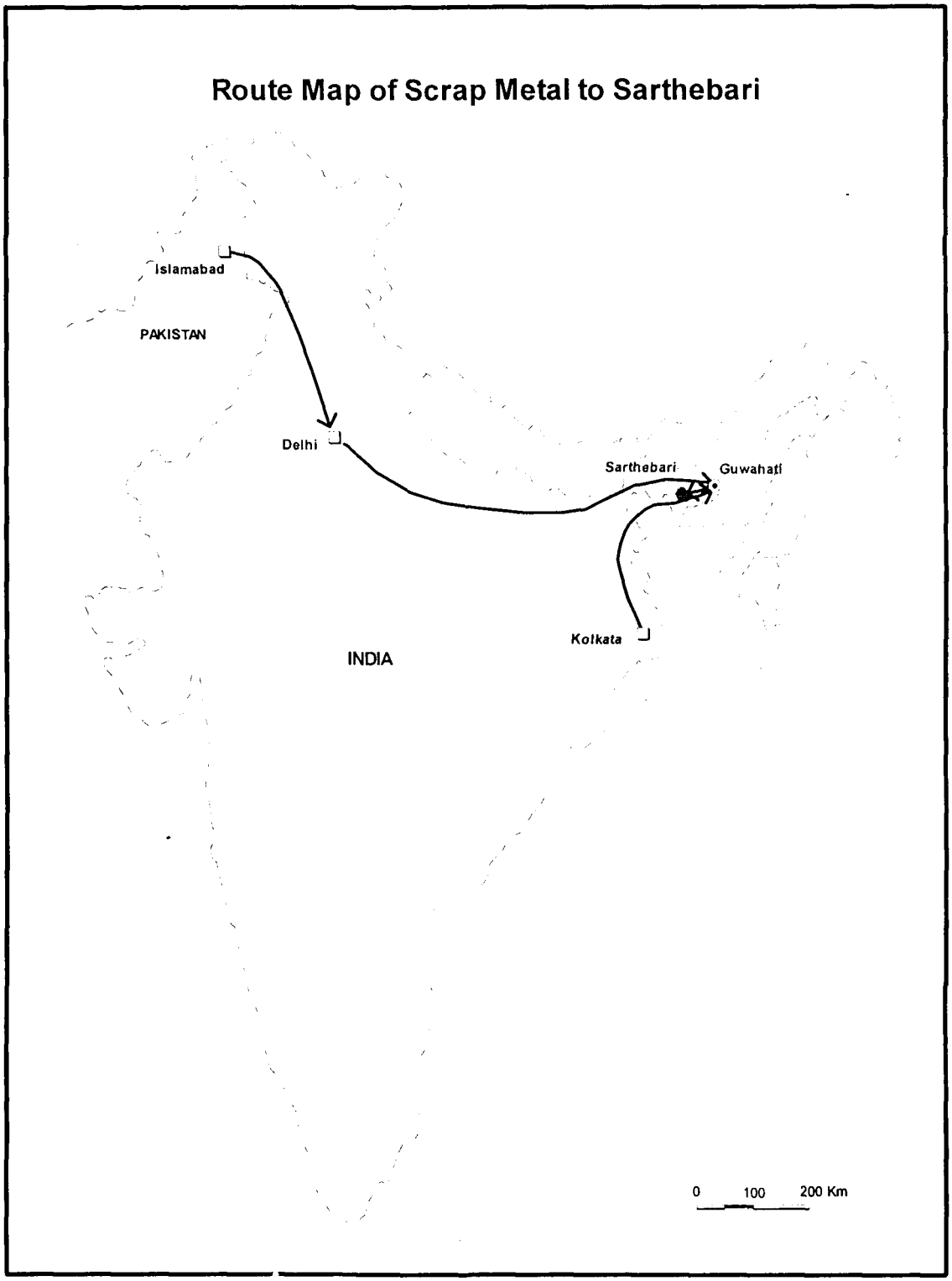
of financial assistance like composite loan scheme to assist the artisans of such units. Similarly the NABARD has got a number of schemes to assist the artisans. These two apex institutions offer financial assistance but a paradox is that the artisans are never given direct financial assistance. It is apparent that a section of the society's management is not always in favour of bank loans to its units due to some selfish interest. Therefore, they are always debarred of getting bank loans.

Sarthebari was declared as township in 1955, but even today it has retained all the characteristics of a village. By becoming a town it has lost the benefits of government rural schemes like- DRDA, IRDP etc. On the other hand, the schemes like "scheme for self employment to educated unemployed youth have also not been given to the artisan class. The urban poor of Sarthebari do not satisfy the population limit to the local UCO bank branch to qualify and avail the schemes. Hence, Sarthebari artisans are not in a position to avail any assistance under any schemes meant for them. The only bank provides credit facility to bell-metal industry is the Assam Co-operative Apex Bank, Barpeta from which the co-operatives are getting loan. The principal raw materials required for the industry are copper and tin. The mix proportions of these two raw materials are copper: tin 80:20; 78:22; 75: 25 ; 77:23 etc. The bell-metal scraps from Jalpaiguri, Cooch Behar, Calcutta and also from Rangpore in erstwhile East Pakistan are often used by the artisans since virgin metals like copper and tin are imported materials needs lengthy official

formalities to procure.(Fig-8.1) The units do not get regular and adequate supply of the scrap to operate to its full capacity. This keeps them under employed for a considerable period. Normally the finished products are sold back to the parties those who supplied scrap metals to the units. Other raw materials required for the industry is wood charcoal, lac, borax, clay (hira-mati) jute fiber, rice barn etc. The artisan collect scraps from Guwahati market and returns them the semi-finished materials for rolling the melted materials and then back to Sarthebari for final conversion. In this process the poor artisan spends more money and time. The artisans or the Assam Co- operative Bell-Metal Utensil Manufacturing Society Ltd. has no control over the raw material trade. Further, there is no quality control of the raw material at the dealer level or elsewhere, since materials are mainly scrap. According to market information only one sixth of the raw material trade is in the hands of Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd.

The existing marketing system those operational are bell-metal whole-sellers, local bell-metal dealers, sale through *'beoparies* (traders) etc. are very inefficient and defective. The bell-metal artisans make no proper grading of their products. They have no organization of their own to enable them to have adequate and up to date knowledge about the market and demand of their products.

Fig - 8.1


Route Map of Scrap Metal to Sarthebari
Islamabad
PAKISTAN
Delhi
Sarthebari
Guwahati
Kolkata
INDIA
0
100
200 Km

The bell-metal industry of Assam exports their products to countries like Nepal, Tibet, Bhutan and Bangladesh besides meeting the domestic market. Most of them are landless and marginal farmers. Their income is only from bell metal products. When there is a regular supply of raw materials are available artisan works for 12 hours a day.

When population was less in Sarthebari, Gomura, Karakuchi, Namsala and Lachima villages the industry use to provide employment to 90% of people. But at present about 10,000 people are employed in the bell metal industry of Sarthebari. Among these about 1325 persons are local artisans engaged in 280 units. In this 395 are shop keepers and 700 traders, the rest are engaged indirectly.

The production process involves drudgery without adequate return. Thus prevents the new generation from seeking their livelihood in the industry. Dearth of working capital combined with lack of marketing channels for the products compels the cottage artisans to work under the intermediaries of raw material suppliers or sell their products below normal price.

The problems of the bell-metal industry at present are partly economic and partly technical.

8.1 Lack of Raw Materials within the State:

It has already been discussed that the raw materials used in bell-metal industry are brought from out side the state. There are 280 bell-metal units in Sarthebari area. Each unit has a minimum requirement of 10 kgs of raw

material per day for 21 days a month. Hence the total quantity of raw materials required for the 280 units are 280 x 21 x 10 =58,800 kgs per month. The other raw material required most is the charcoal. The monthly requirement of charcoal is about 120 bags to 250 bags. All bell-metal artisans are facing acute shortage of all the raw materials viz. virgin metals like copper, zinc, tin, lead and alloy scraps. There are no regular sources of supply of these raw materials. In fact, procurement of these raw materials is the most difficult task of the artisans.

Regular supply of these critical materials will not only free the artisans from the clutches of the middlemen but also from exploitation of money lenders and traders. It is estimated that for bell-metal industry of Sarthebari area minimum monthly requirement of raw material is 92 metric tons. The wood charcoal required for Sarthebari bell-metal artisans are also not readily available. Unless all these basic materials are made available to the artisans at their place and at the time of requirement improvement and development of these craft would be difficult.

All these non-ferrous materials are being imported distributed by the Metal and Minerals Trading Corporation (MMTC) a Govt. of India undertaking, to the artisans directly or through the state Development Corporation. At present this distribution system has been discontinued for Sarthebari. It was the responsibility of the co-perative society to take delivery of the materials and then distribute to the artisans but due to lack of fund

society could not do it. In Assam there is no office of the MMTC or its godown facility. The Directorate of Industries Assam is approaching the MMTC authority to open an office with warehousing facility of all these materials, but no out come.

Till now the option is traders are collecting bell-metal scraps from throughout the state either directly or by engaging hawkers with the exchange of the finished products to maintain their units. The Industries Department has a raw materials depot at Sarthebari as the common service facility of the units.

8.2 Common Facilities:

For uplifting the level of workmanship of the rural artisans, a common facility centre is an essential part of the area. So far any organized sector or public under takings are not initiated such proposals. To improve the quality of the products with new tools the government required to setup:

a) A polishing plant

b) Silver plating plant

c) Lacquering plant

d) Metal casting centre

The common facilities required for the units are:

a) Tool room facility

b) Research and development centre.

c) Raw materials depot

d) Heat treatment plant

e) Quality control of the product

f) Testing laboratory facility

g) Working and residential shed

h) Showroom cum marketing centre

i) Bank

j) Post office

k) Police outpost

l) Hospital cum primary health centre

m) Community Hall

n) Canteen

o) School

p) Shopping facility

At Sarthebari a common facility service centre (CFSC) was established in 1978 by the industries department, which is now non functional.

8.3 Out-modeled Production Techniques:

Use of out-modeled production technique is another problem faced by the bell-metal industry in Sarthebari. The industry is requires a handful of machines, tools and techniques. Even these were not improved. There is no proper system to control the temperature in the kilns, except by examining the samples during firing. Therefore, perfect heating may not take

place every time. In respect to adopting new technique in Sarthebari is very slow as compared with other bell-metal industry in the country.

8.4 Lack of Technical Education and Training:

Most artisans and workers engaged in the industry are uneducated and therefre they lack technical education and training. There are RAP scheme of DIC (Director of Industries) for the artisans and their family members where they provide training with stipends and after completion of the training they given some tools. But this scheme is not widely implemented by the traders.

8.5 Irregular and Inadequate Power Supply:

Electricity is the main source of power in the industry but it is irregular and inadequate. Electric power is used for operating machines and equipment used for the coarse raw materials. The periodic power cuts and failures have prevented the bell-metal units from producing maximum capacity and efficiently.

The industries department has installed a metal melting furnace for the artisans. Due to frequent power failure they incur heavy operational loss.

8.6 Paucity of Fund:

The availability of adequate, cheap and timely finance is an essential pre-requisite for the development of an industry. Most of the bell-metal manufacturers require finance for development of their industry. Money lenders, provide loans to the bell-metal manufacturers without any material

security but with high rate of interest. The dealers provide loans to the artisans only on conditional understanding that in return they must supply their finished goods at pre-stipulated prices. This deprives the artisans from better profits of the market. The only bank which provides credit to the bell-metal industry is the Assam Co-operative Apex Bank, Barpeta and State Bank of India, Nalbari Branch for some extent. So far the extension of bank credit to the bell-metal industry has been very insignificant.

8.7 Inefficient Marketing:

In all industrial Co-operative society cottage industrial workers suffer much from lack of facilities to market their goods at reasonable price. The difficulty in marketing the products are due to exploitation of the middleman. The co-operative society tries to eliminate these middlemen for the benefit of the workers and industry. The existing marketing system i.e. sale through *'beoparies'* (traders) middlemen and wholesalers etc. are very corrupted and defective. The Assam Co-operative Bell-Metal Utensils Manufacturing Society and the *'Mahajans'* (money lender) are the only two parties responsible for the supply of scrap and as such they are also the major buyers of the finished goods. The Assam Co-operative Bell-Metal Utensils Manufacturing Society of Sarthebari is having branches all over Assam. The bell-metal industry still can command a good market provided they are diversified and modernized.

The existing marketing organizations like Assam Government Marketing Corporation (AGMC), North Eastern Handicraft and Handloom Development Corporation (NEHHDC) can take up the marketing of the products of these industries to boost the export.

8.8 Heavy Tax:

The bell-metal industry in the state is subject to high taxation by way of sales tax and local taxes. All the articles of bell- metal attract sales tax which is a impediment to the growth. The Assam Co-operative Bell-Metal Utensil Manufacturing Society, Sarthebari has huge outstanding dues as sales tax to the State Govt. of Assam. The products of khadi and village industries are exempted from sales tax, similar cottage industry the bell-metal is not exempted from sales tax.

8.9 High Production Cost:

The cost of production in the industry is high either inferior or quality articles. The costs of raw materials are high because large numbers of units are dependent on middlemen.

8.10 Findings:

The main findings of the study can be summed up as follows-

- The study reveals that about 87.3 percent of the workers are wholly engaged, while 12.7 percent workers are engaged partially in the bell-metal industry in Sarthebari area.

- Most artisans do agricultural activities besides their engagement in the industry. A family member helps in this respect.
- Most of the units do not provide proper sheds to the artisans where they use to work.
- The bell-metal industry is not growing but it is declining slowly mainly due to scanty supply of raw materials, non availability of credit facility and competition from substitute products.
- All the 280 units in Sarthebari area are unable to procure scrap bell-metal from their own resources. The units are dependant on the wholesale suppliers and partly on co-operative societies.
- The Assam Co-operative Bell-Metal Utensils Manufacturing Society Ltd, Sarthebari was started in 1939-40 with a view to promote the economic and craftsmanship of the artisans of the state. Also to facilitate with raw materials, equipment and other facilities required for the industry. But the society could supply only 20 percent of the raw materials to the units. Thus society could not achieve its objectives

and goals. Ultimately most artisans depend on the *'mahajans'* (money lender) to run their units.

- The bell-metal units of Sarthebari have so far utilized only 39.7 percent of their normal production capacity due to lack of scrap bell metal. The artisan's average working days in the industry are not more than 15-17 days in a month.
- There is no improvement of tools that are being used in the units. The artisans fail to adopt new designs to suit the tastes of modern customers.
- Most of the artisans never maintain expenditure account. Artisans are poor and there is no surplus amount to invest in the industry.
- The major share of the profit of the bell-metal industry goes to the traders and middlemen.
- The study reveals that about 72.5 percent of the units have taken loan from the village money lenders. The rate of interest charged ranges from 5 percent to 15 percent per month.
- Cottage industry in Barpeta district is providing employment to more than five thousand indigenous people.

- Assam Government Marketing Corporation and its branches in Assam are not making any arrangement to purchase scrap bell-metal and sale the stock to S.O.I.D.C. to meet the requirement of the artisans of the state.
- There is substantial increase in wages with the current rate of inflation; therefore artisans are not getting their proper wage.

8.11 CONCLUSION:

The history of the bell-metal craft of Sarthebari could be traced from 7th century A.D. It is an alloy of copper and tin. The technology used in this industry is also traditional and simple. The tools and equipment used are unsophisticated. However, tools like *Dulari, Gasha, Saria, Piri, Khamta, Pocker etc.* are also used. The bell-metal industry at Sarthebari has made considerable headway, the progress, owing to certain handicaps and the problems faced by the industry, has not been commensurate with the amount of investment made with the liberal assistance of the Government to the industry and the significant developments in production. With a view to reorganizing and revitalizing the industry from a long lost point of view and to put it back to a sound economy needs to take certain suitable measures.

8.12 Improvement in Manufacturing Techniques:

The technique of bell-metal production is very crude and obsolete. The whole production process is manual. Modernisation is a distant dream of the artisans.

The following techniques which need be improved and modernized.

8.13 Preparation of Bell-metal sheets:

The quality of the end product is greatly determined by the quality of the body used in making it. Unfortunately, to economise on capital investment, most units in the industry are not using proper and adequate equipment and machines needed. Especially non-ferrous rolling mill should have been setup at Sarthebari. The artisan who uses brass metal particularly from Hajo, Baniakuchi, Haldibari, requires brass sheets and circles of various thickness for manufacturing of various products. However bell-metal artisans generally do not require bell-metal sheets or circle of the thinner gauges. While the services of the rolling mill for making thinner brass sheets are a must, services of rolling mill for the bell- metal artisans are indispensable to reduce the consumption of charcoal and time as well as to avoid drudgery of physical labour. Hence it is suggested that a modern non-ferrous re-rolling mill should be installed in the premise of the existing common facility service centers where practically many of the infrastructure facilities are available. The capacity of the mill should be able to produce 200 M.T. of finished bell-metal

plates in a shift of a day for 25 days a month. It is therefore, suggested that the artisans of bell-metal should use machines to reduce the consumption of charcoal and time as well as to avoid drudgery of physical labour.

Industries department has setup a handicraft designing centre at Guwahati a few years back. But its impact on the design or research is yet to be felt. Research and development are to be conducted in production of items to reduce cost and improve products. It is suggested that design centre should develop a catalogue of designs for those items which can be diversified by blending between traditional and modern tastes.

8.14 Firing:

The kilns have to maintain the temperature distribution during firing, but sometimes due to improper judgment they incur heavy losses. In order to overcome this problem, Thermo-couples need to be used to record the temperature during the firing which is a simple method to ensure proper firing of the articles. Some articles especially artistic bell-metal needs very careful heating. Also luster and transfer of decorations require heating at a particular temperature. Such items can be baked suitably in a small muffle furnace. Therefore it is suggested that muffle furnaces are essential for the development.

4.15 Institutional Credit Facility:

The existing commercial banks should take up the cash credit expansion on a challenging basis and develop a sympathetic attitude towards the industry in general and the proprietary concerns in particular to provide

adequate, cheap and timely help. The procedure and formalities involved for the application stage to the actual handing over of the loan money need to be simplified. It has also been noticed in many cases that bell-metal artisans are ignorant about the loan facilities provided by these banks and are unaware of the rules and regulations or forms and conditions to be followed. The commercial banks can take-up the task of providing credit to the bell-metal artisans of Sarthebari. This can help in expansion of their business and general economic development.

The Government financial assistance to the bell- metal artisans are suggested the following-

a) The Government should grant cash subsidy to the bell-metal artisans for purchasing of improved tools and appliances or,

b) Instead of giving cash subsidy, should subsidise the construction of improved types of furnaces or provide state of the art machines and appliances.

The bell-metal items manufactured by the artisans are for traditional and domestic utensils. All these products need to compete with stainless steel, aluminum and plastic items. Aluminum and plastic utensils and such other products are cheap.

Artisans usually reside with their family in a cottage. The study shows that in some locality the artisans are working in a most hazardous

manner. Even the minimum civic amenities are not available them. Artisans sheds cum residence around the CFSC is a welcome proposition.

Trade Mark is not incorporated in bell-metal products of Sarthebari. This is essential to maintain quality of the products.

At the end it can be said that bell-metal industry as a traditional handicraft and cottage industry should be kept alive. For this purpose much research works are to be undertaken to findout its related problems and measeres for its development. Sophistication of the industry necessary to compete with the out-side products. This study is a stepping stone for further research.

Plate 23 - The particular type of Tumbler used by the Dafala of Arunachal.

Plate 24 - The biggest model of *Sarai*

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Appendix-A

Glossary:

Ashan	tiny bell-metal chair
Asli	original
Ahoo	paddy, cultivated in June-July
Bati	cup
Ban-bati	cup with a foot
Bari	kitchen garden
Barkah	gongs, a kind of bell metal drum
Bata	tray with a foot for betel-nut
Bayan	instrumentalist
Bao	paddy cultivated on flood land
Beels	lakes
Bhortall	large cymbal
Bhogjara	vessel with a spout
Bigrah	image of a God
Bigha	measuring unit of land
Bulanighar	corridor
Charia	wash bowl
Char	small river islsand
Doba	large metal drum
Dug-Dugi	vessel with a long neck
Dapani	mirror on bell metal
Dhulia	drummer
Endi	silkworm
Gasha	lamp stand
Gayan	accompanying singer
Ghanta	bell.
Ghati	metal pot.

Gud-Gudi	piped smoker
Gurial	advisor
Jat-Kahi	genuine plate
Kahi	metal plate
Kalah	pitcher
Kaliya	piper
Khel	fraternity, guild
Khulia	instrumentalist
Khuti tall	cymbal
Kirtanghar	prayer hall
Lota	vessel
Manjira	small cymbal.
Maihang-Kahi	metal plate of the Ahoms
Maihang-Bati	metal cup of the Ahoms
Muga	silk worm
Nam-ghar	prayer hall
Nao-khel	boating competition
Nagfeti bata	tray with foot
Oja-pali	chorus singer
Pan bata	small tray with foot
Pati-tall	small cymbal
Pikdani	spittoon
Raijmel	village council meeting
Salidhan	wet land rice
Satra	monastery
Sarai	tray with foot
Shava	association or village council
Talia	cymbal player
Temi-bata	lime container
Thagi	tray with leg

Appendix - B

Questionnaire :

Research Topic - A Geographical Analysis of Bell-metal Industry in Sarthebari, Assam

1. Schedule of Bell-metal Units
   (a) Name of the Proprietor Mr.....
   (b) Name of the Place .....
   (c) Name of the Industry .....
   (d)Year of Establishment .....
2. Family Structure of the Bell-metal artisans:
   (a) Name of the head .....
   (b) Other members of the family.....
      (i)
      (ii)
      (iii)
   (c) Annual income of the family.....
      (i) From Bell-metal industry .....
      (ii) Other Sources .....
3. Land holding of the family .....
4. Number of persons employed in the unit -
   (a) Skilled .....
   (b) Unskilled .....
   (c) Full time artisans .....
   (d) Casual .....
   (e) Working Days .....

5. Working Months -

(a) Normal working months

(b) Brisk working months

(c) Slack working months

6. Raw-materials -

(a)The Raw Materials are obtained from

(i) Co-operative Society .....

(ii) *Mahajan* (Money lender) .....

(iii) Direct from Market .....

(b) Cost of Raw Material per unit or quantity (in Rs.) .....

(c) Annual Raw Material Requirement

(in per unit and quantity) .....

7. Total Annual Production .....

8. Monthly Salary Paid to

(a) Chief artisans .....

(b) Other artisans .....

(c) Casual workers .....

9. Tools & Equipments

(a) Purchased from

(i) Own money .....

(ii) Loans .....

(iii) Government subsidy .....

(iv) Co-operative Society .....

(b) *State the difficulties if any in obtaining the preferred* type of equipment.....

(c) What other type of equipments you want in future

10. The Production Process is not carried on smoothly because of

(a) Irregular and insufficient power

(b) Lack of Capital

(c) Limited market

(d) Shortage of Raw materials

(e) Lack of training facilities

11. Financial aspects (source of capital)

(a) Own resources

(b) Loan Resources

(i) Government

(ii) Co-opertive Society

(iii) Bank

(iv) Money lender

12. Recovery of loan:

(a) Regular

(b) Irregular

(c) No recovery so far

13. Marketing System:

(a) Place of market

(b) Pattern of sale

(i) Own

(ii) Co-operative

(iii) *Mahajan* (money lender)

(iv) *Fair walla* (traders)

14. Product items:

15. Governments Assistance

(a) In cash loan/subsidy / grant-in aid

(b) Training facilities

16. Recreational facilities;

17. The Entrepreneurship from his own or industrial establishment

(a) Competition is very high

(b) People do not like the products

(c) The industry is not profitable

(d) The products do not attract buyers

(e) There is no good market

(f) The market is good

(g) Want to stop this trade

(h) Would like to continue

(i) Want to enlarge the unit

18. Any other comments

(a) about the industry

(b) about the research work

Date of Survey: .....