A BELL METAL CLUSTER REPORT

By: Anjani Kumar

CRAFTED UTENSILS FOR US!
Design Clinic Scheme for Design Expertise to MSMEs, a unique and ambitious design intervention scheme for the country’s large micro, small and medium scale enterprises, is an initiative of Ministry of MSME, Government of India has been launched under National Manufacturing Competitiveness programme. The main objective of the Design Clinic Scheme is to bring MS&ME sector and design expertise into a common platform and to provide expert advice and solutions on real time design problems, resulting in continuous improvement and value addition for existing products.

This model brings design exposure to the door step of industry clusters for design awareness, improvement, evaluation, analysis and design related intervention. Design clinic scheme will assist industrial clusters to open a channel for design information inflow for creative, innovative and futuristic approach towards the product, process, operations, manufacturing and business design. The scheme will help generate insight for opportunity identification and design intervention for competitive and breakthrough solutions for MSMEs.

The National Institute of Design, Ahmedabad, has been setup as the nodal agency for the scheme. With its rich experience in design training and consultancy, NID will act as matchmaker to the MSMEs and design professionals. It shall also administer effective implementation of the plan.

The objective of Design Clinic scheme is to enhance industry competitiveness and productivity with the help of design intervention at various functional levels. Design Clinic Scheme will help MSMEs to develop product/process/business expertise through design intervention at multiple level interactions. Design awareness seminar, design awareness programme and design projects will help MSMEs in various stages to develop competitiveness. The goal is to help MSME manufacturing industries move up the value chain by switching the production mode from original equipment manufacturing to original design manufacturing and hence original brand manufacturing.

Design Clinic Scheme will help MSMEs to develop product/process expertise through design intervention through multiple level interactions. Design sensitisation seminar, design awareness programme and design projects will help MSMEs in various stages to develop competitiveness.

As part of the National Manufacturing Competitiveness Programme (NMCP), the office of Development Commissioner, Ministry of Micro, Small and Medium Enterprises, Government of India, will implement the Design Clinic Scheme for Design Expertise to Micro, Small and Medium Enterprises (MSMEs) Sector (hereinafter referred to as the Design Clinic Scheme) during the 11th Plan Period.

The over arching approach in implementing the scheme will be to bring Indian MSMEs and design experts on a common platform. This will enable the MSMEs to access expert advice and cost-effective solutions for their real-time design problems, with some financial support from the Government. The expected outcome of such interventions is new product development or discernible design improvement and value addition for existing products.
Acknowledgment

Special thanks to “North East Development Consortium” Mr. A. Dutta (Director), Mr. Jayanta Baruah (CEO), Ms. Runima Pathak (Secretary) and his entire team to organize the ‘Design Clinic Scheme Programme’ and shown their trust over me to take up the program, taking me as a consulting design resource.

Also thanks to NEDC’s project assistant- Mr. Palash Nath & Mr. Lila Gogoi and entire Serthebari Bell Metal cluster’s every individuals with ‘The Assam CO-Operative Bell Metal Utensils Manufacturing Society Limited’ who has given me their kind support, assistance and share useful information and their experiences during the design audit field work.

I would also like to give my soulful thanks to “Design Clinic Scheme (MSME), National Institute of Design” entire team who has given me once again an opportunities to become a part of the program where the msme’s sector is going to have design development financial assistance for design intervention.
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1. Introduction...
1.1 About “Design Clinic Scheme” for MSMEs

Understanding the Design Clinic Scheme:

**Purpose:**
To increase awareness about the value of design and establish design learning in MSMEs.
To increase competitiveness of MSME products and services through design.

**Objectives:**
To create a sustainable design ecosystem for the MSME sector through continuous learning and skill development.
To promote use of design by MSMEs for developing products and services that are market led.
To focus on building the design capability of MSMEs to enable them to improve business performance as well as compete in the global market.

**Key principles:**
Adopting a rigorous, yet applicant friendly, process.
Promoting and disseminating design concepts in regional or local languages understood by the MSMEs.
Establishing benefits without overwhelming the MSMEs.
Learning from other successful design-support programmes.
Establishing systematic processes for design and product development in MSMEs.

**Scheme description:**
For easy percolation of design thinking and philosophy and maximum benefit for MSME units the Design Clinic Scheme is divided at 3 broader levels. These activities are helpful in smooth transition in to several levels of design intervention in industrial and business activities of MSMEs.
Introduction...

**Design Awareness Seminar:**
The design sensitisation seminar is aimed to create a platform for MSME units to improve the manufacturing competitiveness. The seminar will help MSME participants to interact with design experts/speakers to understand design methodology and benefits of design to MSME in their business, product, process, service and operations. To take design to a higher level of manufacturing functions, it is very important to develop an understanding of the design scenario and environment at an early stage of conception.

**Design Awareness Programme:**
The design awareness programme is focused on exploring industrial functions and activities to develop a holistic map of MSME clusters and units. The design expert/s will generate design information about products, market scenario, technology, communication, research and development, and various industrial functions along with human factor study for ergonomics, safety, convenience, learning and skill upgradation through design research. The programme will also provide design remedies for identified opportunities through the design clinic workshop.

The design awareness programme is conducted in two stages:
- Need Assessment Survey
- Design Clinic Workshop

**Design Projects:**
Design projects are identified during the need assessment survey and discussed during the design clinic workshop. Project which require intensive design observation and interventions can be taken up as design projects with the help of design experts. The project can be related to design intervention in area of product/process / strategic areas where design can help in generating solutions and value for individual or group of MSMEs.
Role of Design in Improving Competitiveness:

Design is an approach, process and methodology. Design is indented, purposeful, contextual, which is aimed to create advantage, distinction and futuristic outcome as a result. Design is systemic and holistic in nature, therefore helps in generating more creative, impactful and sustainable solutions. In manufacturing, design is commonly associated with industrial product design – specifically the ‘aesthetics and appearance’ of a product at a surface level interaction. However, the application of design is much broader, for example designing for functional appeal, ease of manufacture, consumption and sustain-ability. Designing may also be done for reliability or quality or business processes. Service designs are primarily to cater to customers experience of the delivered product and service.

The larger purpose of design is to do things in a better manner, to improve a situation and to make a positive difference. The role of design in business is to create value. A company can use the design process to add value to products, services, and the organisation. A well-designed product, service, or organisation is always more valuable.

Design, innovation and growth are linked. Innovation and design are not simply about new products or technology. They are also about how to improve products for everyday use, leading to reduced costs, increased usability and new business opportunities. Design is recognised as an innovative discipline that can help MSMEs to sustain and grow in an increasingly competitive market.
1.2 About National Institute of Design

The National Institute of Design (NID) is internationally acclaimed as one of the foremost multi-disciplinary institutions in the field of design education and research. The Business Week, USA has listed NID as one of the top 25 European & Asian programmes in the world. The institute functions as an autonomous body under the department of Industrial Policy & Promotion, Ministry of Commerce & Industry, Government of India. NID is recognized by the Dept. of Scientific & Industrial Research (DSIR) under Ministry of Science & Technology, Government of India, as a scientific and industrial design research organization.

NID has been a pioneer in industrial design education after Bauhaus and Ulm in Germany and is known for its pursuit of design excellence to make Designed in India, Made for the World a reality. NID's graduates have made a mark in key sectors of commerce, industry and social development by taking role of catalysts and through thought leadership.
1.3 About North East Development Consortium

The NEDC in an organization which offering consultancy services in different fields and expertise in different areas. It was started in 2000 at Guwahati aiming to serve the people of North- East. The organization is managed by a set of dedicated persons having expertise in different areas. It is not a profit organization dedicated to formulate and implements plans and projects that improve the social and economic condition of North-East people. Through this NEDC want to assist to improve house held condition of North-East with a sense of community & sense of personnel empowerment. It also offering services that assist women & children who are experiencing violence, homelessness & chronic poverty & to create an environment that strengthens a women belief in her ability to influence the direction of her life. In other words it want to serve as a regional voice for the land of eight sisters.

Organization Profile:
NEDC is registered under the Societies Registered under the Societies Registration Act, XXI of 1860 with registration no. RS/KAM/240/A-18/199.

Aims:
NEDC aims to be a dynamic & responsive organization catalyzing the economic development of the North-East. Keeping in view the socio-economic scenario of the NE regionsof India, NEDC is mandated to address as a dynamic & responsive organization catalyzing the economic development of North-East. NEDC should make “Sustainable Socio-Economic Development” of its region as its main goal. In line with goal, the organization should have its own vision & mission & that would provide proper direction to the activities of
Introduction...

the organization & the results it can achieve. As a result, the vision & mission of NEDC should be as follows.

Vision:
2. To improve the quality of life of the rural people of North-East.
3. To create an environment that strengthens a women’s belief in her ability to influence the direction of her life.

Mission:
1. To serve the people by offering quality services for their progress & economic up-liftment.
2. Help North-East people to restructure their rural societies & to reconstruct the economy of the rural people.
3. To develop a range of long term, safe, affordable housing options for & with low income women.

Function:
1. To collaborate with national & state level organizations, the national & state level bodies, governmental & non governmental for purpose of taking action to accelerate Socio-Economic development in the region.
2. To held national & regional conferences, seminars, workshops & meetings to identify new areas of development.
3. To organize & facilitate the conduct of national, regional, state level & district level training programmes to strengthen the capacity of local people by sharing views, experience & good practices.
4. To initiate research & action research studies of specific or common
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interest & disseminate disaggregate data/statistics & information to the region.
5. To serve as a clearing house & data bank for communication & information on Socio-Economy development, etc.

Offering Consulting Services in the Field of:

a) Agriculture
b) Rural Development
c) Handloom & Sericulture
d) Marketing Linkages
e) Handicraft
f) Skill Development
g) Education
h) Health & Sanitation

Experience:
NEDC has been conducting Training programme throughout the state of Assam for the last ten years. The training programmes were related to Awareness, Motivation, Entrepreneurship Development, Skill Development, Group Formation, Credit Linkages, etc. The training programmes were conducted under different Govt. Schemes and were organized with the related Departments and Organizations like National Institute of Design (N.I.D), Ahmedabad, Indian Institute of Entrepreneurs (IIE), Guwahati, NI-MSME, SIRD, Guwahati.
NEDC has not only confined itself to trainings of unemployed educated people but ensured that they after fulfilling the norms are credit linked & enable them to set up their own enterprises. Many such clusters have been developed throughout the state of Assam by NEDC under different Govt. Schemes and with assistance from the local banks. NEDC has also helped the interested persons by creating Marketing opportunities for their produce and ensured
that the producers get the actual price for their products. NEDC has established linkages for the weavers with many reputed organizations doing business with Handlooms products. NEDC has been offering consultancy services to many organizations as per requirement and has excelled in this regard. Many events has been organized by NEDC for many departments successfully and already earned reputation in this field. NEDC also entered the field of Advertising & Publicity and has also provided consultancy in this field. For conducting sessions during training programmes & for guidance time to time Faculty support is taken from all leading Universities & Institutions like Indian Institute of Technology Guwahati, Indian Institute of Entrepreneurship, National Institute of Rural Development, TATA Institute of Social Science, Indian Institute of Crop Processing Technology, Indian Institute of Banking Management, Weavers Service Centre, Central Silk Board, Gauhati University, Assam Agriculture University, State Institute of Rural Development, Assam Institute of Management, Assam Textiles Institute, Assam Engineering College, North Eastern Regional Institute of Management, Girija Nanda Choudhury Institute of Management & Technology, Gauhati Commerce College, Sualkuchi Institute of Fashion Technology etc.
1.4 About Assam, Belpeta District & Serthebari

A state rich in mineral resources, Assam is industrially backward by Indian standards as it has a few agro-based and mineral-based industries. The 150 years old Tea industry occupies an integral place in the economy. Assam has maintained a rich tradition of various traditional crafts for more than two thousand years. Presently, Cane and bamboo craft, bell metal and brass craft, silk and cotton weaving, toy and mask making, pottery and terracotta work, wood craft, jewellery making, musical instruments making, etc are remained as major traditions. Historically, Assam also excelled in making boats, traditional guns and gunpowder, colours and paints, articles of lac, traditional building materials, utilities from iron, etc.
Historical Background of Barpeta:

Barpeta has been a place of great religious importance. Known by various names like Tatikuchi, Porabhita, Mathura, Vrindavan, Choukhutisthan, Nabaratna-Sabha, Icchakuchi, Pushpak Vimana, Kampur and Barpeta. It was Koch King Naranarayan who founded Barnagar (Sorbhog) The present District formed an integral part of the Koch-Hajo and the Ahom Kingdom till British Administration took over. From the ancient period Barpeta witnessed the rule of the Varmans (380-654) the Salasthamas (655-985) the Palas (985-1260) the Kamatas (1260-1509) & the Koches from 1509. During the Kamata & Koch rule major historical development took place. During this period large number of local feudatory-chiefs who are primarily land lords called ‘Bhuyans’ ruled the region. Number of villages constituted a ‘Chakla’ placed under a Bhuyan was patronised by the Kamatas. These Bhuyans arrived from eastern part of India like Kanauj, Gauda and Bengal who in passage of time became general Assamese caste and accepted the Vaishnava faith under influence of Shrimanta Sankardeva.

Koch King Naranarayan established his temporary capital at Barnagar. Here he met Shrimanta Sankardeva and his renowned disciple and subsequently accepted Vaishnavism when Sankardeva was invited by the monarch to Koch- Bihar. It was during king Naranarayan’s regime at Barnagar the great saint established Satra at Patbaushi to spread his Socio-religious faith. The Koch rule ended with annexation by the Mughals. The valiant Ahom fought a number of battles against the invading Mughals. Some of the well-known battles were fought at Jakhlikhana, Bhabanipur and Bhatekuchi. Ahoms were defeated and Mughals took over the Administration and systematised the entire revenue administration. Kamrupa became a Sarkar, which was divided into Parganas. Barpeta, Khetri, Bajali, Barnagar, Bahbari and Bijni became Parganas.
A Gomasta was appointed to run the ‘Tapa’ and a number of Tapas became a Pargana. For administrative convenience the Parganas were divided into Taluks, lats and villages. Parganas were placed under Barbaruas and Choudhuries. Taluks remained under Talukdar. They were assisted by Thakurias, Patwaries, Kakati, Gaon barika etc. who kept the revenue accounts. Judges in Parganas were called Shikdar, whereas Amin and Kanango were responsible for land-survey, assessment and collection of revenue.

With the advent of Shrimanta Sankardeva, this region turned into a religious place dotted with numerous satras and in fact Barpeta town came to be called ‘Boikumthapuri Dham’. As a part of providing patronage to various religious-places irrespective of religions, the Ahom rulers provided a large number of land-grants to the Satras. Dr. Maheswar Neog in his edited work “Prasya Sasanawali” has mentioned a large number of land-grants during the region of Shiva Singha, Rajeswar Singha, Lakshmi Singha, Gaurinath Singha and Chandra Kanta Singha. Grants were made to Muslim-Darghas of Shah Madar at Baushi, Shah Fakir at Barnagar, Panch Peer at Khetri, Syed Shahnur Dewan Fakir at Bhella, where Chandra Kanta Singha granted 100 bighas la khiraj land. Grants were made to Devalaya also. These grants were made in copper-plate inscriptions which are invaluable source of history.

Wide-spread destruction of life and property took place when the Maans invaded from Myanmar. Even the Barpeta Satra was razed to the ground during this invasion. To restore peace British army entered Barpeta to drive-off all the invaders. With the advent of British rule Mouzadari system came into effect. In 1841 Barpeta became a Civil Sub Division and John Batlor became the first administrator. As a part of policy of exploitation, land-revenue rates were suddenly enhanced which resulted in a number of peasant unrest in between 1893-94 particularly in Bajali and Sarukhetri area. Large number of
arrests were carried out to foil attempts of unrest. The Lachima uprising is one such shining example of peasant revolt against British rule. Rajor Sabha constituted during this period raised the banner of revolt.

During the struggle for independence large number of people participated and were jailed. Madan Chandra Barman and Rauta Koch were first martyrs to sacrifice their lives during Quit India Movement of 1942. Some of the important Congress leaders who lead the Freedom-struggle are Umesh Chandra Brahmachari, Dhaniram Talukdar, Ganesh Lal Choudhury, Debendra Nath Uzir, Akshay Kumar Das, Bongshidhar Choudhury, Nanamohan Mazumdar, Golak Pathak, Sonaram Choudhury, Dr. Jinaram Das, Biswanath Das, Praneswar Das, Ambikagiri Raichoudhury, Mahendra Mohan Choudhury, Madhusudan Das, Upendra Chandra Das, Debendra Sharma, Naranarayan Goswami, Kabiraj Ghanashyam Das, and Chandraprava Saikiani. Mahatma Gandhi visited Barpeta in 1934. So did Jawaharlal Nehru in 1937.
2. Bell Metal Utensils...
2.1 PROCESS

- Melting (Bell-Metal)
- Solidifying the Molten Metal
- Hammering to give Desired Shape
- To Smoothen Rough Edges
- Scraping off the Burnt Layer
- Carving Design Patterns (Imprints & ring making in traditional Spinning Tools)

Suppliers and Dealers
Packing & Transport
Final Products
2.2 Raw Material

The raw material is often imported from Kolkata and even countries like Pakistan and Bangladesh. The craftsmen still follow the indigenous process of melting the raw material. The raw material is often purchased in the form of old used bell metal items such as bowls, drinking glass or plates. After hammering the raw material into small pieces these are put inside an iron vessel and placed in the fire vent also known Kah Galuwa Apor in the local language. The fire vent is occasionally pumped with machines to ignite the flames.

The raw materials mainly used for bell-metal utensils is bell metal and wood-coal. The bell-metal is generally provided by local supplier & middle man who pay only labour charges to them. The other material required include- lacquer, Borax Powder, Bell Metal Powder, Zinc Powder etc.
Melting the raw material
Usually the old bell metal utensils is used as a raw material for making new utensils and for this firstly, all the broken bell metal pieces are kept into a iron vessel which has to be heat with the help of manual blower. It has to be heat till all the small pieces of old bell metal pieces got proper molten form.

Solidifying the molten metal
Once the raw metal gets a complete molten form, the iron vessel is taken out and the piping hot liquid metal is poured over the flat round surface of the earthen crucibles which is previously dabbed with mustard oil. The molten metal solidifies forming small round, bell metal ingots. These metal ingots are then again burnt in a fire vent, so as to soften them and are then hammered continuously to give them the required shape. After the rough shape is formed, the formed shape is beaten with several hammer & other tools to give it a final shape.
Filing of the rough edges

Once the bell metal utensils are formed, the rough edges of the utensils are filed off manually using a strong and flat iron filer, called the Reti or Ou.

Scraping off the burnt layer

To scrap off the darkened burnt layer from the bell metal utensils, a long iron rod is used which is with sharp edges called the Khonta by the local craftsmen. This is basically done to bring the smoothness, shine and glaze in the bell metal ware.

The process is very tedious and requires a lot of strength and pressure.
Carving imprints on the bell metal ware

Once the basic bell metal utensils are made, its base is heated in another fire vent called the Kunda Apor and then sealing wax is used to fix the base of the utensil to a rolling bamboo tool called the Kunda Saal.

The Kunda Saal is made to spin with the use of a pulley tugged at one side and on the other side a sharp edged instrument, twisted at the tip called the Luwal is used to carve rings into the spinning utensil.

Carving rings (Bhor mara) on the bowl

In order to give final touches’ to the bell metal utensils, a sharp tool made of iron is use. The craftsman uses a small instrument called the Dhonukar as it is shaped like the traditional bow.

One end of the sharp tool is put inside a small metallic cup placed in the palm of the craftsman for applying pressure while the other end is used to carve motifs and patterns on it.
2.3 Tools & Equipment

The main tools used for making bell metal utensils are:

- Hammer (small to Big one)
- Chaini
- Tong
- Traditional Spinning Tool (Kunda Saal)
- sharp edged instrument, twisted at the tip called the Luwaal.
- Dhonukar as it is shaped like the traditional bow.
2.4 Product Range

The existing cluster has a wide range of Bell-metal products from utilitarian household to artistic work. The utilitarian household products include Utensils like Varieties of Plates & Dishes (Kahi/Thal- Dofla/Saras/Aasli Saras etc.), Serving Bowls (Ban Bati/Bata), Cymbals (Taal), Toria/Gamala (Container), Different Varieties of Vases (Phooldani) etc. Apart from these items few of the artisans are also engaged in making decorative framed art work. And the subject of these art work is God, Goddess, Monument & rituals affiliation.
Bell Metal Utensils...

- Smoking Pipe
- Assamese Taal (Cymbal)
- Toria/Gamala (Container)
- Horu Taal (Cymbal for Worship)
- Range of Ban Bati
- Different kind of Bata (Soup Bowls)
- Phooldaani (Decorative Flower Vases)
Bell Metal Utensils...

- Container for Ritual Purpose
- Dangaar Kahi (Bigger Plates)
- Central Tables

Range of Art Work with Framing

Doa/Saras Bati, Ban Bati, Padum/Lotus Bati (Varieties of Bowls)
2.5 Insight- Understanding of the customer product producer market relation from design point of view

After an interactive research and studying ‘Serthebari Bell Metal Cluster’ to the point of customer-product-producer-market relation it is observed that, there as a big gap between their interdependency, marketing channels and linkages; which must need to be established with a proper business model and its regulatory bodies.

When we go more depth of the cluster’s business method & traders policy, we find a series of missing linkage from products level to consumer level. For example-The cluster is fully depends upon few fix dealers and their orders. Also they are fully engaged with those fluctuated orders which is given by the intermediates. Most of units have only 20 days work in a month because of dealers who plays a role of stack-holder, dealers are the only one who provides them raw materials in a small quantity and make huge profit out of them. Also there is no connection between producer and the end users which must be well known to be up to date what exactly market demands.

The client or market should need to be aware regarding customer demand, emerging life style and their need & usages. Thus, they need to motivate towards new design, multipurpose products & their development with proper costing. (purchasing rate & selling rate both)

So here is big scope for the cluster to expand their business in connecting with adding new products, redesign and its development to increase their earning and production growth gradually and look forward to new client and market for expending their order.
<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Health &amp; Safety</th>
<th>Sheet Making</th>
<th>Process</th>
<th>Ergonomics</th>
</tr>
</thead>
</table>
| • Local Community Store for better quality raw material and its availability.  
  • Our Training Center.       | • Better Hospital              | • Roller Machine            | • Skill Up-gradation & Training time to time.  
  • Awareness of Modern Trend. | • Right body postures         |
|                              | • Mask & Safety kits          | • Sheet Cutting Machine     | • Looking for other dealers      | • Awareness about Techniques   |
|                              |                               |                              | • Fixing base rate according to the raw material |

### 2.6 OPPORTUNITY MAPPING

<table>
<thead>
<tr>
<th>Stacking &amp; Packing</th>
<th>Transportation</th>
<th>Branding &amp; Marketing</th>
<th>Dealers</th>
<th>End Users</th>
</tr>
</thead>
</table>
| • Better Stacking & Space for Storage  
  • Better Display or Exhibition Room | • Better Connectivity with internal roads  
  • A Common Vehicle for the Cluster | • Establishment of a cluster brand  
  • Proper Branding & Marketing | • Looking for other dealers  
  • Fixing base rate according to the raw material | • Aesthetic Products  
  • Targeted Area |
3. Design Audit for the Cluster...

3.1 Description of individual units

There were 24 units covered during the field visit to understand the ‘Serthebari Bell Metal Cluster’ from the system level...
**Unit- 01**

**Business Background:**

Firm Name- 

Address: Village- Taulisupa, Post Office- Serthebari, District- Berpeta, Assam  

Artisan Name- Phulen Tamuli (secretary of bell metal association)  
Age- 38 years old  
Education- H.S. Pass (higher secondary pass)  
Contact Number- +91 9707045795  
Product Range- Assamese Taal & Taal for China, Bhutan & Nepal  
Work Duration- Started own business 2 years back  
Experience- He is engaged in this business since 1992  
Number of Workers- 5 (himself + 4 others)  
Monthly Income- 4,500 to 5,000 Rs/month approximate  
Problem Faces- Raw material (wood coal, lacquer & bell metal), order & raw materials gets from mahajan/ middle man & gets only low wage ranging 150Rs/kg to 2000Rs/kg (depends upon design) and financial problem due to dependency on per day income.

**Family Background:**

Family Member- 15 (joint family)  
Male- 6 (father+ himself+ 4 brothers)  
Female- 5 (mother+ sister+ wife+ 2 sister in-laws/ Bhabhi & younger brother wife)  
Children- 4 (2 boys + 2 girls)  
Member Involve in this Business- 1 (himself only from family)  
Education of the Member: wife-HSCL (high school leaving certificate), elder brother- M.A Pass & working in ‘Assam Tribute’ News Paper, middle brother- 35 years old, went only Primary school & now working with other artisan, younger brother- 30 years old & went only Primary school and sister- B.A Pass.
Unit- 02

Business Background:
Firm Name- Hiren Kaha Shilpa
Address: Village- Kathiather Supa, Post Office- Serthebari, District-Berpeta, Assam
Artisan Name- Hiren Deka
Age- 45 years old
Education- Non Matriculation
Contact Number- +91 9954647588
Product Range- Various bowl like- Ban-Bati, Doa Bati/Saras Bati, Padum Bati/Lotus Bati and Soup Bowl (German Design)
Work Duration- Started own business from 1995
Experience- As its a heritage business for their family so he is engaged in it since his childhood.
Number of Workers- 5 (himself + 4 brothers)
Monthly Income- 30,000 Rs/month approximate
Problem Faces- Fluctuation of Order (Only 20 days of a month have work & order), Raw material availability (wood coal, lacquer & bell metal), Financial and Health (head ache, fever etc).

Family Background:
Family Member- 10 (joint family)
Male- 5 (himself+ 4 brothers)
Female- 3 (mother+ wife+ younger brother wife)
Children- 2 (1 boys- 6th Std. + 1 girls- 1st Std.)
Member Involve in this Business- 5 (all brothers)
Education of the Member: wife- Matriculation, all brother- non Matriculation and sister in law/ younger brother’s wife- Non Matriculation.
Unit- 03

Business Background:
Firm Name- Munindra Bell Metal Industry
Address: Village- Kathiather Supa, Post Office- Serthebari, District-
Berpeta, Assam
Artisan Name- Lalit Deka
Age- 67 years old
Education- 7th pass
Contact Number- +91 9508154797
Product Range- Taal (Assam, China & Bhutan style), Bowl (Bati),
Plate (Thal/Kahi), Bell, Dishes etc.
Work Duration- Family business engaged from his childhood.
Experience- He has 54 years of experience
Number of Workers- 6 (himself + 4 sons+ 1 other)
Monthly Income- 3,500Rs/month approximate (Have BPL card)
Problem Faces- doesn't gets enough order to work all 30 days of a
month, Raw material availability (wood coal, lacquer & bell metal),
Financial and Health (head ache, fever etc).

Family Background:
Family Member- 6 (nuclear family )
Male- 5 (himself+ 4 sons)
Female- 1 (wife only)
Children- Nil
Member Involve in this Business- 5 (himself+ all 4 sons)
Education of the Member: wife- nil, 3 sons- non Matriculation and
younger son- Student of H.S (higher secondary)
Unit- 04

**Business Background:**
Firm Name- Palashjyoti Shilpalaya  
Address: Village- Kathiather Supa, Post Office- Serthebari, District-Berpeta, Assam  
Artisan Name- Sadanand Deka  
Age- 47 years old  
Education- 6th pass  
Contact Number- +91 9085169723  
Product Range- Bowl (Bata), Plate (Thal/Kahi) and Various Dishes  
Work Duration- Family business engaged from teenage.  
Experience- He has 30 years of practical experience  
Number of Workers- 5 (himself + 4 others)  
Monthly Income- 6,000Rs/month approximate  
Problem Faces- doesn't gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Financial and Health (head ache, fever etc).

**Family Background:**
Family Member- 6 persons  
Male- 1 (himself only)  
Female- 2 (mother+ wife)  
Children- 3 (1 son- in 10 th Std.+ 2 daughters- elder one is in B.A 3rd year & another one is in 10th Std)  
Member Involve in this Business- 1 (himself only)  
Education of the Member: wife- 9th pass.
**Unit- 05**

**Business Background:**
Firm Name- Seemashree Shilpalaya  
Address: Village- Serthebari, Post Office- Serthebari Town, District-Berpeta, Assam  
Artisan Name- Shree Kanak Talukdar  
Age- 45 years old  
Education- Nil  
Contact Number- +91 9954836366  
Product Range- Various Plates (Thal/Kahi) and Range of Dishes  
Work Duration- Started own business 13 year back  
Experience- He has 30 years of practical experience  
Number of Workers- 6 (himself + 5 others)  
Monthly Income- 3,500Rs/month approximate  
Problem Faces- doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Financial and Health (head ache, fever etc).

**Family Background:**
Family Member- 5 persons  
Male- 1 (himself only)  
Female- 1 (wife only)  
Children- 3 (3 daughters- elder one is in 8th Std., middle one is in 5th Std. & the younger one is in 2nd Std.)  
Member Involve in this Business- 1 (himself only)  
Education of the Member: wife- Nil.
Unit-06

Business Background:
Firm Name- Haripad Kah Udyog
Address: Village-Serthebari, Post Office-Serthebari Town, District-Berpeta, Assam
Artisan Name- Haripad Talukdar Supa
Age- 45 years old
Education- 4th pass
Contact Number- +91 9706920634
Product Range- Various Plates (Thal/Kahi), Range of Dishes and Dofla Taal for Arunachal Pradesh.
Work Duration- Started own business 16 year back
Experience- He has 25 years of practical experience
Number of Workers- 5 (himself + 4 others)
Monthly Income- 3,500 to 4,000 Rs/month approximate
Problem Faces- doesn't gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Financial and Health (head ache, fever etc).

Family Background:
Family Member- 4 persons
Male- 1 (himself only)
Female- 2 (mother+ wife)
Children- 2 (1 son- in 10th Std. and 1 daughter- in 4th Std.
Member Involve in this Business- 1 (himself only)
Education of the Member: wife- Nil.
Unit- 07

Business Background:
Firm Name- Pratima Bell Metal Industry
Address: Village- Tamulisupa, Post Office- Serthebari, District- Berpeta, Assam
Artisan Name- Ramani Deka
Age- 46 years old
Education- 4th pass
Contact Number- +91 9864512618
Product Range- Various Plates (Thal/Kahi), Bowls (Bati), Taal and Toriya/Gamala (bigger bowl).
Work Duration- Its a heritage business in his family so engaged in it since childhood.
Experience- He has 35 years experience in bell metal.
Number of Workers- 6 (himself + 5 others)
Monthly Income- 4,000 Rs/month approximate (BPL card holder)
Problem Faces- doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 6 persons
Male- 1 (himself only)
Female- 1 (wife)
Children- 2 (2 son- one is H.S pass & another one is in 9th Std. and 2 daughters- one is in 12 Std. where another one is in 8th Std.)
Member Involve in this Business- 1 (himself only)
Education of the Member: wife- Nil.
Unit- 08

**Business Background:**

Firm Name - Bipul Deka  
Address: Village- Tamulisupa, Post Office- Serthebari, District-Berpeta, Assam  
Artisan Name - Ramani Deka  
Age - 31 years old  
Education - H.S pass (Higher Secondary)  
Contact Number - +91 9707888699  
Product Range - Various Plates (Thal/Kahi), Bowls (Bati), and Assamese Taal.  
Work Duration - Its a heritage business in his family so engaged in it since his teenage.  
Experience - He has 15 years experience in bell metal.  
Number of Workers - 6 (himself + 1 brother+ 4 others)  
Monthly Income - 10,000 Rs/month approximate  
Problem Faces - doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

**Family Background:**

Family Member - 10 persons (joint family)  
Male - 4 (himself+ 3 brothers)  
Female - 4 (mother+ sister in law/ bhabhi+ 2 sister)  
Children - 2 (2 boys- one is in 9th Std. & another one is in 5th Std.)  
Member Involve in this Business - 2 (himself+ 1 brother)  
Education of the Member: elder brother- 9th Std., younger brother- also 9th pass, sister in law/bhabhi- 5th Std., sister 1- H.S pass, sister 2- under matriculation.
Unit- 09

Business Background:
Firm Name- Tapan Bikash Silpalaya
Address: Village- Tamulisupa, Post Office- Serthebari, District- Berpeta, Assam
Artisan Name- Tapan Deka
Age- 39 years old
Education- Graduate
Contact Number- +91 9707698144, 9954654464
Product Range- All kind of handicraft and bell metal presentation goods.
Work Duration- Started own business since 1997.
Experience- He has more then 15 years of experience in bell metal also he has taken 6 month training at Muradabad (U.P) after passing H.S (higher secondary).
Number of Workers- 1 (himself only)
Monthly Income- 4,000 to 4,500 Rs/month approximate (have BPL card)
Problem Faces- doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 5 persons
Male- 1 (himself only)
Female- 2 (mother+ wife)
Children- 2 (2 sons- one is in 8th Std. & another one is in 3rd Std.)
Member Involve in this Business- 1 (himself only)
Education of the Member: wife- Graduate degree holder.
Unit- 10

**Business Background:**

*Firm Name*: Munindra Kaha Silpalaya  
*Address*: Village- Serthebari, Post Office- Serthebari Town, District-Berpeta, Assam  
*Artisan Name*: Bikshitra Talukdar  
*Age*: 45 years old  
*Education*: Under Matriculation  
*Contact Number*: +91 9613018820  
*Product Range*: Plates (Thal), Bowls (Ban-Bata), Bigger Plates (Dangaar Kahi) and other Bell Metal Utensils.  
*Work Duration*: Got this business as a heritage.  
*Experience*: He has more than 19 years of experience.  
*Number of Workers*: 5 (himself + 4 others)  
*Monthly Income*: 3,000 to 4,500 Rs/month approximate  
*Problem Faces*: doesn't get enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

**Family Background:**

*Family Member*: 4 persons  
*Male*: 1 (himself only)  
*Female*: 1 (wife only)  
*Children*: 2 (2 sons- one is in 1st Std. & another one is in L.K.G.)  
*Member Involve in this Business*: 1 (himself only)  
*Education of the Member*: wife- H.S.L.C (high school leaving certificate)
Unit- 11

**Business Background:**
Firm Name- Rangnath Bell Metal Industry  
Address: Village- Serthebari, Post Office- Serthebari Town, District-Berpeta, Assam  
Artisan Name- Chitranjan Bhuyan  
Age- 39 years old  
Education- Under Matriculation  
Contact Number- +91 8822015199  
Product Range- Different kind of Plates (Thal called- Dopla, Saras, Aasli Saras etc.)  
Work Duration- Got this business as a heritage.  
Experience- He has 16 years experience.  
Number of Workers- 6 (himself+ 2 brothers+ 3 others)  
Monthly Income- 6,000 Rs/month approximate  
Problem Faces- doesn't gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

**Family Background:**
Family Member- 12 persons (joint family)  
Male- 5 (himself+ 4 brothers)  
Female- 3 (mother+ sister in law/bhabhi+ wife)  
Children- 4 (1 boy- only 2 years old and 3 girls- one is in 3rd Std., second one is in 2nd Std. & 3rd one is in 1st Std.)  
Member Involve in this Business- 3 (himself+ 3 brothers)  
Education of the Member: elder brother is M.A pass & doing marketing of bell metal products, rest of 4 brother are H.S.L.C (high school leaving certificate), sister in law/bhabhi has done under matriculation and his wife deed H.S (higher secondary).
Unit- 12

**Business Background:**

**Firm Name:** Rupak Bell Metal Udyog  
**Address:** Village- Serthebari, Post Office- Serthebari Town 3rd number ward, District- Berpeta, Assam  
**Artisan Name:** Khanindra Deka  
**Age:** 50 years old  
**Education:** 7th Std.  
**Contact Number:** +91 9954954882  
**Product Range:** Beetle serving utensil/Bata, Ban & Plates/Kahi etc.  
**Work Duration:** He is engaged in this business since 1992.  
**Experience:** He started doing this work from 1989 so he has total 22 years practical experience.  
**Number of Workers:** 6 (himself+ 1 son+ 4 others)  
**Monthly Income:** 8,000Rs/month approximate (also have BPL card)  
**Problem Faces:** doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

**Family Background:**

**Family Member:** 5 persons (joint family)  
**Male:** 1 (himself only)  
**Female:** 1 (wife only)  
**Children:** 3 (3 sons- elder one {21 years old} is 9th pass, second one {19 years old} is in B.A final year and 3rd one {17 years old} is in B.A first year).  
**Member Involve in this Business:** 2 (himself+ 1 son)  
**Education of the Member:** wife- Nil.
Unit- 13

Business Background:
Firm Name- Bipul Bell Metal Industry
   Address: Village- Talukdar Supa, Post Office- Serthebari, District-Berpeta, Assam
Artisan Name- Bipul Talukdar
   Age- 30 years old
   Education- H.S.L.C (high school leaving certificate)
   Contact Number- +91 9707412792
Product Range- Taal, Plates & Dishes (thal/kahi) and other such items as per order.
Work Duration- Started own business 2 years back (in 2009).
   Experience- He has 10 years working experience.
Number of Workers- 6 (himself+ 5 others)
Monthly Income- 5,000Rs/month approximate (also have BPL card)
Problem Faces- doesn't gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 3 persons
   Male- 1 (himself only)
   Female- 2 (mother+ sister)
   Children- Nil
Member Involve in this Business- 1 (himself only)
Education of the Member: sister- H.S pass (higher secondary).
Unit-14

**Business Background:**
Firm Name- Bikash Kah Shilpa  
Address: Village- Jamather Supa, Post Office- Serthebari, District-Berpeta, Assam  
Artisan Name- Pankaj Deka  
Age- 45 years old  
Education- 9th pass  
Contact Number- +91 9577649192  
Product Range- Ban Kahi (beetle serving plate), Bata, Dangaar Kahi (bigger plates), Thal (plates) etc.  
Work Duration- This is his family business and sifting to generation, so he got it as a heritage.  
Experience- He has 28 years working experience because he started doing this work at the age of 17.  
Number of Workers- 6 (himself+ 5 others)  
Monthly Income- 8,000Rs/month approximate (also has own land & they use to do farming)  
Problem Faces- doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

**Family Background:**
Family Member- 6 persons  
Male- 1 (himself only)  
Female- 1 (wife only)  
Children- 4 (2 sons- one is H.S pass & another one is in 8th Std. + 2 daughters- one is M.A pass and another one has graduate degree.)  
Member Involve in this Business- 1 (himself only)  
Education of the Member: wife- 8th pass.
Unit- 15

Business Background:
Firm Name- ----------
Address: Village-Gomuda, Post Office- Serthebari, District-Berpeta, Assam
Artisan Name- Shree Haladhar Deka
   Age- 52 years old
   Education- Nil
   Contact Number- +91 9085701594
Product Range- Specialist in making Bata (beetle serving plate) and other bell metal utensils.
Work Duration- Traditionally engaged in this business.
   Experience- Involve in bell metal practical work at the age of 20 and now he has more than 30 years of experience.
Number of Workers- 3 (himself + 2 sons)
Monthly Income- 15,000Rs/month approximate (also, he is BPL card holder)
Problem Faces- doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 8 persons
   Male- 1 (himself only)
   Female- 1 (wife only)
   Children- 6 (2 sons- both are 8th pass + 4 daughters- first one is in 7th Std., second one is in 5th Std., third one is in 3rd Std. and fourth one is in 1st Std.)
Member Involve in this Business- 3 (himself + 2 sons)
Education of the Member: wife- 6th pass.
Unit- 16

Business Background:
Firm Name- ---------
Address: Village-Gomuda, Post Office-Serthebari, District-Berpeta, Assam
Artisan Name- Mukul Roy
   Age- 36 years old
   Education- H.S pass (higher secondary)
   Contact Number- +91 9859720657
Product Range- Specialist in making Bowls (different qualities)
Work Duration- Started own business 10 years back.
   Experience- He has 15 years practical experience in bell metal works.
Number of Workers- 5 (himself+ 4 others)
Monthly Income- 5,500 Rs/month approximate
Problem Faces- There is no base rate fix for bell metal works, Electricity (hardly available 6-7 hours), doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 4 persons
   Male- 1 (himself only)
   Female- 1 (wife only)
   Children- 2 (1 son- is in 4th Std. where the daughter- is in 1st Std.)
Member Involve in this Business- 1 (himself only)
Education of the Member: wife- Non Matriculation.
Business Background:
Firm Name- Gadadhar Kah Udyog
Address: Village- Salakathiyather Supa, Post Office- Serthebari, District- Berpeta, Assam
Artisan Name- Gopeshwar Deka
Age- 35 years old
Education- H.S.L.C (higher secondary leaving certificate)
Contact Number- +91 9085701321
Product Range- Bell Metal Utensils- Ban-Bati, Various Taal, Ojapali Taal (for religious ceremony)
Work Duration- Its his family business.
Experience- He has 26 years practical experience in bell metal works.
Number of Workers- 4 (himself+ 3 others)
Monthly Income- 3,000 Rs/month approximate (Have B.P.L card)
Problem Faces- doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 5 persons
Male- 1 (himself only)
Female- 3 (wife+ 2 sisters)
Children- 1 (1 nephew - is in H.S.)
Member Involve in this Business- 2 (himself+ nephew)
Education of the Member: wife- Nil, sisters- one is 8th pass where another one is 4th pass.
Unit- 18

**Business Background:**
Firm Name- A.D.Bell Metal Udyog  
Address: Village- Jamather Supa, Post Office- Serthebari (ward no-2), District- Berpeta, Assam  
Artisan Name- Akan Deka  
Age- 45 years old  
Education- B.A. pass  
Contact Number- +91 97066 73757  
Product Range- Specialist in Bell Metal plates making (400 gm. to 1.5 kg's a plate) and Ban-Bati.  
Experience- He has 19 years practical experience in bell metal works.  
Number of Workers- 6 (himself+ 1 brother+ 4 others)  
Monthly Income- 8,500 Rs/month approximate (excluding one brother who is in service).  
Problem Faces- doesn’t gets enough order to work all 30 days of a month, Raw material availability (wood coal/angaar, lacquer & bell metal), Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

**Family Background:**
Family Member- 5 persons  
Male- 3 (himself+ 2 brother)  
Female- 2 (mother+ wife)  
Children- Nil  
Member Involve in this Business- 3 (himself+ 2 brothers)  
Education of the Member: wife- H.S pass, brothers- one is H.S pass and another one is also H.S pass & doing service.
Unit- 19

Business Background:
Firm Name- Nirmal Bell Metal
Address: Village- Karakushi, Post Office- Serthebari, District- Berpeta, Assam
Artisan Name- Deepak Talukdar
Age- 37 years old
Education- H.S.L.C (high school leaving certificate)
Contact Number- +91 9854993831
Product Range- Bell Metal Utensils- Plates/Kahi, Bowls/Bati and Dofla Thal/ bigger plate
Work Duration- Family Business.
Experience- He has 20 years practical experience in bell metal works.
Number of Workers- 7 (himself+ 2 brother+ 4 uncle sons)
Monthly Income- 3,000 Rs/month approximate (have B.P.L card).
Problem Faces- Frequent availability of raw materials, (wood coal/ angaar, lacquer & bell metal), doesn’t gets enough order to work all 30 days of a month, Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 7 persons (joint family)
  Male- 4 (himself+ 2 brothers+ 1 uncle)
  Female- 3 (mother+ 2 sister)
  Children- Nil
Member Involve in this Business- 3 (himself+ 2 brothers)
Education of the Member: brothers- both are non matriculation, sisters- one is B.A pass and another one is non matriculation.
Unit- 20

Business Background:
Firm Name- Harendra Bell Metal Industry
Address: Village- Karakushi, Post Office- Serthebari, District-Berpeta, Assam
Artifact Name- Shri Kusumber Talukdar
Age- 50 years old
Education- 7th pass
Contact Number- +91 7399859641
Product Range- Bell Metal Utensils- Plates/Kahi, Bowls/Bati and Dofla "Kahi" bigger plate
Work Duration- Family Business.
Experience- He has 20 years practical experience in bell metal works.
Number of Workers- 7 (himself+ 2 brother+ 4 uncle sons)
Monthly Income- 6,000 to 7,000 Rs/month approximate (have B.P.L card).
Problem Faces- Fully dependency over mahajans (dealers) to get the order also they only gets labour charge, doesn't gets enough order to work all 30 days of a month, Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

Family Background:
Family Member- 4 persons (joint family)
Male- 1 (himself only)
Female- 1 (wife only)
Children- 2 (2 daughters only- one is in 5th Std. & another one is in L.K.G)
Member Involve in this Business- 1 (himself only)
Education of the Member: wife- H.S pass (higher secondary)
Unit- 21

**Business Background:**
Firm Name- Manjit Bell Metal  
Address: Village- Karakushi, Post Office- Serthebari, District-Berpeta, Assam  
Artisan Name- Khagen Medhi  
Age- 50 years old  
Education- 4th pass  
Contact Number- +91 9954954948  
Product Range- Bell Metal Utensils- Plates/Kahi (varities of design), Arunachal Taal, Dofla Plate/Thal (thick border),  
Work Duration- He is traditionally engaged in this work.  
Experience- He has 34 years of experience in bell metal works.  
Number of Workers- 6 (himself+ 1 son+ 4 others)  
Monthly Income- 4,000 Rs/month approximate (individual family).  
Problem Faces- dependency over mahajans (dealers) to get the order also they only gets labour charge, doesn’t gets enough order to work all 30 days of a month, Price Fluctuation of Bell Metal continuously, Financial and Health (head ache, fever etc).

**Family Background:**
Family Member- 11 persons (joint family)  
Male- 2 (father+ himself)  
Female- 3 (mother+ 2 wife)  
Children- 6 (4 sons- 2 sons have done H.S pass, one is matriculation pass & another one is non matriculation+ daughters- one is H.S pass where another one is in 6th Std.)  
Member Involve in this Business- 2 (himself+ 1 son)  
Education of the Member: wife- Primary
Unit- 22

Business Background:
Firm Name- Bhuyan Kah Shilp
   Address: Village- Namsala, Post Office- Namsala, District- Berpeta, Assam
Artisan Name- Dweepul Bhuyan
   Age- 42 years old
   Education- H.S pass
   Contact Number- +91 9954954948
Product Range- specialist in Decorative Vase making and has various design.
Work Duration- He is traditionally engaged in this work.
   Experience- He has 25 years of experience in vase making.
Number of Workers- 4 (himself+ 3 others)
Monthly Income- 5,000 Rs/month approximate.
Problem Faces- dependency over mahajans (dealers) to get the order also they only gets labour charge, doesn’t gets enough order to work all 30 days of a month, Price Fluctuation of Bell Metal continuously, Financial and Health (Head Ache, fever, T.B, Cancer etc).

Family Background:
Family Member- 5 persons
   Male- 2 (himself+ brother)
   Female- 2 (wife+ sister)
   Children- 1 (1 sons- 7 year old, is in 1st Std.)
Member Involve in this Business- 2 (himself+ 1 brother)
Education of the Member: wife- H.S.L.C (high secondary leaving certificate) and brother is H.S pass (high secondary)
Unit- 23

**Business Background:**
Firm Name- Mauti Kah Udyog  
Address: Village- Namsala, Post Office- Namsala, District- Berpeta, Assam  
Artisan Name- Shree Achini Kakati  
Age- 49 years old  
Education- 9th pass  
Contact Number: +91 9085882145  
Product Range- Plates/Kahi, Bowls/Bati and Horu Taal.  
Work Duration- He is traditionally engaged in this work.  
Experience- He has 25 years of experience in vase making.  
Number of Workers- 6 (himself+ 1 brothers)  
Monthly Income- 3,500 Rs/month approximate.  
Problem Faces- dependency over mahajans (dealers) to get the order also they only gets labour charge, doesn't gets enough order to work all 30 days of a month, Price Fluctuation of Bell Metal continuously, Financial and Health (Head Ache, fever, T.B, Cancer etc).

**Family Background:**
Family Member- 6 persons  
Male- 1 (himself only)  
Female- 1 (wife only)  
Children- 1 (2sons- both are in 7th Std.+ 2 daughter- one is in B.A-2nd year and another one is in H.S- 2nd year)  
Member Involve in this Business- 2 (himself+ 1 brother)  
Education of the Member: wife- 3rd Std. pass and brother is 9th pass.
Unit- 24

**Business Background:**
*Firm Name*- Bikash Kah Udyog  
*Address*- Village- Singra, Post Office- Gorartari, District- Berpeta, Assam  
*Artisan Name*- Uttam Pathak  
*Age*- 33 years old  
*Education*- H.S.L.C pass (high school leaving certificate)  
*Contact Number*- +91 9954540120  
*Product Range*- Plates/Thal (Kahi) from 250 gm. to 2 kg. each plate & other utensils as per order.  
*Work Duration*- Started own business 9 year back.  
*Experience*- He has 13 years of experience.  
*Number of Workers*- 5 (himself+ 1 brothers+ 2 others)  
*Monthly Income*- 10,000 to 12,000 Rs/month approximate.  
*Problem Faces*- dependency over mahajans (dealers) to get the order also they only gets labour charge, doesn’t gets enough order to work all 30 days of a month, Price Fluctuation of Bell Metal continuously, Financial and Health (Head Ache, fever, T.B, Cancer etc).

**Family Background:**
*Family Member*- 10 persons (joint family)  
*Male*- 3 (himself+ brothers)  
*Female*- 3 (wife+ sister in laws)  
*Children*- 1 (boys- 1 Girls- 3)  
*Member Involve in this Business*- 2 (himself+ 1 brother)  
*Education of the Member*- wife- deed primary and brother (Pankaj Pathak) is 9th pass.
3.2 Existing Products, redesign, new product development and product diversification

Existing Products:
Plates & Dishes (Kahi/Thal- Dofla/Saras/Aasli Saras etc.), Serving Bowls (Ban Bati/Bata), Cymbals (Taal), Toria/Gamala (Container), Vases (Phooldani) etc.

Redesign:
Varieties of Plates & Dishes (Kahi/Thal- Dofla/Saras/Aasli Saras etc.), Range of Serving Bowls (Ban Bati/Bata), Cymbals (Taal), Toria/Gamala (Container), Different Varieties of Vases (Phooldani) etc.

New products development:
Few of the new products with new shape & sizes like- soup bowl has developed during the several training program within the cluster.

Product diversification:
Few of the artisan have taken training at places like- Muradabad and come up with new concept including- Framed Art Work & Pattern Design of utensils.
Design Audit for the Cluster...

New Products Development

Product Diversification
3.3 Scope for research and development direction for future initiatives

**Bell Metal**

- **Utensils**
  - Design Research & Development
    - Tradition
      - Craft Identity Benchmark
      - Need & Usage
      - Users
      - Existing Market
      - Emerging Lifestyle
      - Shape, Form & Pattern
    - Diverse Range of Products according to emerging lifestyle
  - Technical Research
    - Raw Material (Better Quality & Its Availability)
    - Better Production Process
    - Advanced Tools & Equipment
    - Suitable Method & Environment
  - Market Study & Segment
    - Suppliers & Dealers
    - Competitor Analysis
    - Existing Market Structure
    - Scope for New Segment with all proper channels
- **Artwork**

**Adaptation of New Techniques & Products**
3.4 Existing status and opportunity for visual identity, branding and communication design

Need for a common Visual Identity:
The Cluster has no such identity mark to be recognized. It is very difficult for users to identify a group of particular unit whether an utensil or an utility product.

The Cluster should have their own and must have niche informative product catalogue of having a common visual identity on them which can be identified by users at any time. Apart from the Product Catalogue, each cluster should have their own Business Card (a basic one) which would help them knowing by clients or users, and this would really help them in better product recognition.

After holding a business card and product catalogue, the cluster should make their small group community which should be according to their existing products business, identity and speciality. This unique small group would segregate them from rest of the other similar clusters.

The assam Co-operative bell metal utensils manufacturer society ltd.
3.5 Scope for technology, modernization and design collaboration

- Melting (Bell-Metal)
  - Small casting moulds can be made. Sand casting would be a better option.

- Solidifying the Molten Metal
  - A common Roller machine for sheet making, dies press can be incorporate.

- Hammering to give Desired Shape
  - Grinder with different profile can be use to file the rough edges.

- To Smoothen Rough Edges
  - Small lathe machine need to be there for scraping off the burnt layer.

- Scraping off the Burnt Layer
  - Small casting moulds can be made. Sand casting would be a better option.

- Carving Design Patterns (Imprints & ring making in traditional Spinning Tools)
  - Skill training to better design, imprints & carving through lathe, new design & motifs keeping in mind Assam identity.

- Final Products
  - Better Aesthetically appealing designed products with proper grading system.

- Packing & Transport
  - Base rate according to raw materials, demand of better quality products & understanding of emerging life style.

- Dealers/End Users
  - Packing according to design & grade, common vehicle for the cluster to delivered order.
3.6 Scope for operations and process innovation from design perspective

The existing tools & equipment are traditional & manually operated which need to be upgraded with new one. Also these new machine would increase their production & decrease hard labour.

Recommended machine for fast up the production & saving time.

Close-up of a lathe machine.

Existing traditional spinning tools to scrap off the burnt layer & imprints pattern.
3.7 Design opportunity in workstation and tooling design

The existing practices are casual and not designed keeping in mind the work habits and ergonomic postures. Also, they have been put together to proceed with the process and do not consider safety, health and semantics.

However, there is scope to redesign the workstation, the tools in use, keeping the fabrication space very organized with proper light arrangement which would enhance the products quality and work efficiency.

Better tools and new design can be developed according to process, work phase & nature of materials.

Better organized workstation to improve work efficiency and production.

The workstation need to divide according to work keeping in mind safety and health hazards.

A cluttered workstation always lead to decrease the work potentials, therefore, it is recommended that the workstation need to be have inner organized system and places for each step work accordingly.
3.8 Details of market and competition study for design advantage and distinction

There is a good market demand of the Bell-Metal Utensils all over the Assam as well as countrywide but a tough competition over prices. Whomsoever products would be cheap and best would get multiple order.

The unit is making only running products which has a big demand in the local market and it has fix clients/dealers who use to placed order and do business through their channels only.

The products being produced right now are very limited and being sold at competitive prices where, more variation in product line, surface treatment and colors variation could be proposed keeping in mind the target states for market.
3.9 Need of training and skill up gradation

The member or workers engaged in doing product sizing, shorting & finishing to manage the quality by few traditional simple tools & method where, those tool are not designed to fit with the tools that need. Thus those tool need to be modification or redesign to achieve the quality up to the mark.

The workers does not understand the critical aspects of finishing, They need to informed, explained and trained for the same and for this, time to time training camp need to be organized by concern authorities.
3.10 Ergonomic and environment factors in MSME premise

The environment of the workstation is cluttered and unorganized.

The body posture and tools are not ergonomically designed according to the workstation.

The insufficient lighting arrangement reduces the work efficiency and product quality.

While working with melted metal where its release gases so inhaling gases would cause of internal body diseases and affect health severely. Thus it is highly recommended that always wear a safety mask & kits to avoid inhaling harmful gas accidental cause.
3.11 Packaging and logistics related design opportunities

Need to pack properly with suitable material and stacking techniques.

Need to be categorized according to the product size, quality and grade.

Need proper space division for different products which took time to arrange/shorting.
3.12 Exhibition/Display design opportunities

The unit does not have any proper display area/showroom, there is hardly any unit who use to keep their stock in a proper display room.

With the branding, the cluster should have a organized display showroom which showcases all the designs for the buyers. Also in order to invite clients and make deals.
3.13 Study of infrastructure setup from design perspective

Need to be organized, systematic,

Precise and reduce human error,

Workers friendly practices and ergonomics and

Improper awareness of market.
4. Value Chain & Analysis...
4.1 Description of the bell metal value chain

A detailed mapping of the bell metal value chain was carried out and the mapping identified actors in the cluster who were involved in the business of crafts production and sales including master craftsmen, traders and other marketing intermediaries. A detailed analysis of the existing commerce in the cluster, including current sources of credit accessed by artisans and traders, was then undertaken.

- **Raw Material Purchasing** (Bell Metal + Coal Wood)
  - Bell Metal Rs-750 for 1 kg. + Coal Wood Rs-100 for 15 kg.

- **Solidifying Molten Metal and Hammering.**
  - Labour Charge @ Rs-150 to 2000 depends on design, shape and size.

- **Filing & Scraping-off the rough products**
  - Only labour charges @ Rs-90 to 200 for a day + lunch.

- **Design Inputs- Shaping, Carving & imprints**

- **Polishing to get the proper shine & glaze**
  - Sac Packing, Box Packing or according to the dealers requirements.

- **Packing (differs for products) & Transport**
  - Sac Packing, Box Packing or according to the dealers requirements.
4.2 Market

Almost all the individual Artisans are supplying or dependent over local traders and middle man (Mahajans) with little or no access of bigger market. So a marketing and sells channel is required to uplift this cluster through a direct business also it will help to create brand establishment of ‘Serthebari Bell Metal Cluster’ and generating more value. Also this would be spread the awareness in the market as well as increased demand and trust.
4.3 Issues in the bell metal value chain

(a) Proper Costing and Pricing of the Products:
Most of the artisans calculate their per day labour charges as Rs. 90 to 200 while determining the price of their products. The labour charges of the other family members are not included while making these calculations. Also these work needs a very hard labour and time where hardly any artisans have much time to think beyond their basic needs.
The products made of high value and good quality and the production is done for the commercial sales except few utensils that are sold locally. The profit margin of the producers is very small, though the volume of production is high from the same cluster.

(b) Economies of Scale:
Since the craft is practised mostly within the family, most of the families are mini production centres on their own, and handle all the processes themselves. All members of the family accept wife & mother contribute their time and labour in some manner. There is, however, no consolidation amongst the families to form larger groups. Most of them work as family units or individual artisans.

(c) Product Diversification and Design Inputs:
Most of the people involved in the bell metal craft are the ‘kanhor’, who has little amount of money for any kind of capital inputs, which is why they do not want to risk diversifying into products with new designs, which may not be taken by traders.
Thus, hardly any design development has taken place in the bell metal cluster. Most of the crafts-persons are making the same products or using the same designs that have been in vogue over the years. Consequently, there is a lot of competition among the artisans as all
of them are producing similar kinds of products and selling them in the same markets and same traders.

(d) **Poor Marketing:**
One of the main obstacles faced by this craft cluster is the shrinking market. The target segment at which the Bell Metals products are aimed, over the last few years, shifted to other light materials like using stainless steel articles such as dinner set, which was gifted to bride instead of bell metal utensils. Also these are considered to be cheaper and handy.

(e) **Low Level of Skills:**
Since, the craft is shifted from generation to generation so due to rapid production & traders policy the craft got sifted towards low quality. Also the concern authority has taken least interest to conduct time to time training program within the cluster. The quality of the products should also be enhanced in order to sell them in more upmarket stores or in metros where they can fetch a better price. Even in Assam, and shops that sell bell metal utensils in locally.

(f) **Poor External Linkages:**
Although this Bell Metal Utensils Cluster’s technique is unique to the bell metal work area, there is an absence of linkages with technical institutions, design schools, and marketing bodies which could promote the development of this craft cluster.
**Strength**

1. Skill to make hand made utensils
2. Government support
3. Work potential (gives 12-14 hours every day)
4. CFC (common facility centre)
5. Family business
6. Their traditional craft skill
7. State Identity
8. Having Association

**Opportunity**

1. Need modern machine to avoid health problem and also to save time for their own life
2. Expansion of market at national and international levels
3. Training program could be organized time to time
4. Establishment of brand identity as a cluster
5. Joint endeavour to increase the production & sell
7. Variation & Value addition to enhance the quality

**Weakness**

1. Dependency over dealers
2. Shortage of raw material
3. Lower wages
4. Limited product range, surface finishes and quality
5. Traditional tools & equipment
6. High competition within the cluster
7. Unaware with latest technology and working process
8. Casual attitude
9. Financial condition

**Threat**

1. Shortage of raw materials & unavailability throughout the year
2. Monopoly of dealers & intermediates
3. Young generations moving towards town to find other job
4. Competition and expansion of market at national and international levels
5. Other materials products is taking place instead of
4.5 Issues & Concerns

Unit Level
- Owner’s vision
- Management efficiency
- Markets catering to Transportation
- Stacking space & packaging
- Quality of raw material and skills
- Overheads and maintenances
- Production capacity
- Skills + workers availability
- Quality check & Standardizations
- Work environment
- Time management/unorganized
- Work station & tough job
- Health Hazards

Cluster Level
- Doesn’t have joint endeavour
- Diversification towards other job due to better pay & less energy input works
- Average education of the cluster
- Casual attitude most workers are from their own family
- Competition within the cluster as a threat, decreases the products rate
- Sometimes hire neighbor who might shifts from one unit to another
- Supply or get order the same design or alter with all existing one
- Internal roads condition
- No one sticks to prices compete within

National Level
- Technical support by training camp
- Younger generation, to take up responsibility
- Technology innovation and Research & development
- Workers policies at national level/West Bengal govt.
- Transportation and connectivity
- Loan policies and subsidies
- Rural trends/schemes
- Urban trends
- Lack of awarenessness
- Better education
- Excise duties
- Brand identity
- Food & health
4.6 Present Status of design at cluster

At the present scenario, the cluster has not design consciousness up to the level, where a design intervention need in every sector whether it is product, its production process, market, health & education or their aspirations.

There is lack of awareness, education, health consciousness, technology and work environment. Also over all work environment, working pattern and time management is very monotonous and unorganized.

The clusters need a system and a proper business model where each and every things taken care by few responsible persons or committee. So thus organized format would be helpful for their betterment from grass-root level.

We as a design experts, always imagine that the cluster should be a centre of better eco-friendly environment, quality production, user friendly workstation and tools with sustainable practices and processes in the place.
4.7 Design intervention need areas

**Raw Material Improvement:**
Raw material quality & quantity stock, should have not depends upon the local supplier.

**Product Improvement:**
New innovative and trendy products and products up-gradation which could be developed keeping in mind usages and modern trends. Sheet work can be taken further as an opportunity to develop new range of products like Jewelry, Mementos, Art Work, Mask, Lamp Shades, Modernized Dining Range, Coasters, etc.

**Process Improvement:**
Traditional techniques need to modernize with better practices & precision, production from moulds could be adopt, Lathe machine to reduce hard labour, precise tools, techniques and training need.

**Production Process Improvement**

**Sizing & Shaping Improvement:**
Filing & finishing is time consuming, casual attitude and working without any marking, traditional tools implies the human error, unaligned, uneven finish goods, improvise the skill and practices, develop jigs and fixtures for better material positioning during manufacturing process.

**Pattern Improvement:**
The antique finish and toned pattern can be developed keeping in mind the contemporary trends. New design and pattern could be development for the new market with state identity.
5. Conclusion...
Bell metal as a craft has survived for ages, yet there seems to be very little transition in the method of preparing bell metal items so far as Sarthebari is concerned; The craftsmen who are also referred to as the Kanhor or Orja still resort to the age old tools required for burning and shaping the metal. Hammering out an existence making bell-metal utensils – its an industry that is barely surviving 400 years after the Mughal-Assam conflict.

During the design audit survey a detailed observation of the craft production process, original skill techniques and over the stack holders being covered; where I have made an assessment that, how the process and whole belonged system is changing and the craft is going towards its languished form gradually. These traditional utensils are an integral part of Assamese society. In fact marriages are said to be incomplete without these kalahs but Although there are banks providing loans and cooperatives trying their best to survive even for the Mahajans who buy the utensils from the artisans but that is not sufficient and creating crucial time to survive the cluster. So, as soon as possible- the government body, concern cooperatives, design institutions and NGOs should show their dedicated initiatives towards the cluster’s uplifting.

At the end, I can only say that, not only Serthebari but the whole Assam’s metal crafts, represents a vibrant and age-old tradition of designing that has gained recognition all over India through its fabulous articles and today it going towards its worse or shrinkage. There is still time for the concern authority to take responsibility to promote & save a unique ‘Bell-Metal Cluster’. 
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