

INDEX

Sl. No.	Particulars	Page No.
1	Executive Summary	2
2	Introduction	6
3	Description of the cluster	8
	3.1 Defining the product	9
	3.2 Defining various sub activities	10
	3.3 Process Flow chart	11
	3.4 Current output	12
4	Cluster actors	13
	4.1 Core Cluster actors	13
	4.2 Other Cluster actors	13
5	Current Institutional Matrix	16
6	Present Cluster Map	19
7	Value chain analysis	21
8	Analysis of business operation	23
9	Industry structure analysis	26
10	SWOT analysis	28
11	Strategy	30
12	Action plan	31
13	Detailed budgetary estimates for various activities	33
	13.1 Awareness Program for Cluster Development	33
	13.2 Strengthening Association.	34
	13.3 Setting of metal casting facility at CFC of SISI for Training & Demonstration	35
	13.4 Exposure visits to CDE	36
	13.5 Exposure visits to cluster actors	36
	13.6 Training	37
	13.7 Creating Consortium for marketing and Raw Material procurement.	38
	13.8 Marketing and Publicity	38
	13.9 Technology Upgradation	39
	13.10 Creation of common marketing website	39
	13.11 Creation of Common Service center	40
	13.12 Facilities for cluster development program at SISI	41
14	Time schedule of activities quarter wise	42
15	Consolidated budgetary statement	43

1. Executive Summary

Hajo in Assam is a growth centre about 35 Km away from Guwahati. The Brass industries located at Hajo in Assam are having their own importance, these consist mainly of artisan families. The skill and the technique involved in the process of manufacturing and repairing is passed on by tradition from father to son. Culturally both the industries are linked to the cultural heritage of Assam since most of the products of these industries are used in marriages, rituals, puja, presentations, gifts and other ceremonies. The products of the two industries are also used as household utensils for day to day use. The report is based on interaction and deliberation with the key SME actor in the cluster, the leading entrepreneurs, and nation institutions.

Current output

The current output is estimated to be around 200 MTS per annum. The cost of product on weight basis is around Rs 215 per kg. this amounts to 4.3 crore of output per annum. The output will be still more if the full capacity of units is utilized throughout the year. The other features of this industry are seasonality, job work, manual operation, high labor intensity, lower capital requirement etc. Very few units in the two industries run on full time basis.

Brass Utensils

Sarai

Statue

Manufacturing Process

The main tools and equipments used by the artisans in manufacturing Brasswares are very simple. They are anvils (Belmuri) Chatuli, Akul hammers, chisels, files and some minor implements. The furnace is indispensable and same is the bellows made of goat skin housed under a simple shed. No electric power is involved. The process of production is also very simple and traditional. The brass sheets are cut into various sizes required for the size of different type of products. Generally they are cut into two or three portions. They are (i) bottom artisans mould the portions into required shapes by beating method with the help of hammers. The adjoining parts are fastened with brazing.

Traditional Metalworking Process

Traditional Annealing & Soldering

Problems Identified

Scarcity of Raw material, Obsolete technology, Lack of marketing support, Poor Background of the entrepreneurs & their enterprises, Lack of support for Finance & working capital, Non availability of suitable Training, Lack of Infrastructural facilities, Absence of networking among cluster actors

Strategy for intervention

The brass parts cluster in Hajo has enough growth potential provided strategic intervention is made in certain “key areas”. The clustering phenomenon was a natural process and it showed resilience in terms of encountering various problems in the past.

The “key areas” in which the strategic interventions are needed are Technology upgradation, Networking among cluster actors, Skill development Practical trainings on Brass foundry practices for Diversification of product, Marketing support for Products, Raw material support, Common facility Center, Developing BDS

TIME SCHEDULE OF ACTIVITIES QUARTER WISE

SL. No.	Activity	Year – 1				Year – 2				Year – 3			
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
1	Two Awareness Seminars on Cluster Development	√		√									
2	Two Seminars on Strengthening the Associations & Infrastructure facilities	√			√								
3	For training & Demonstration Setting up of pilot Brass casting facility in Existing common Facility Center of SISI Guwahati	√	√										
4	Exposure visit of CDE to Brass & Bell Metal Cluster Thrissur & Moradabad		√			√							
5	Exposure visit of Entrepreneurs to Moradabad for diversification to decorative brass items			√			√						
6	Skill development Training to Entrepreneurs for diversification on decorative Brass items in CFC of SISI				√		√		√		√		√
7	Three seminars on the benefits of consortium approach for marketing & procurement of rae material.				√				√		√		
8	Participation in Domestic Trade Fairs				√	√	√	√	√	√	√	√	√
9	Two Workshops on Technology Upgradation				√			√			√		
10	Creation of common marketing website					√	√						
11	Creation of Common Facility center					√	√	√	√	√			

**CONSOLIDATED BUDGETARY ESTIMATES YEAR WISE TO BE FUNDED BY
O/o THE DC (SSI), NEW DELHI.**

Sl. No.	Activity	The DC (SSI), New Delhi			Supp. Instns./ Association etc.	Total
		Y1	Y2	Y3		
1.	Awareness seminars on cluster development	40000				40000
2.	Seminar on strengthening associations and infrastructure for association	80000			50000	130000
3.	For training & Demonstration Supplementing Brass casting facility in Existing common Facility Center of SISI Guwahati	250000				250000
4.	Exposure visit of CDE to Moradabad, Thrissure Brass & Bell metal clusters	50000				50000
5.	Two Exposure visit of Entrepreneurs to Moradabad for diversification to decorative brass items	50000	50000		50000	150000
6.	Skill development Trainings programs for diversification to decorative brass items.	60000	120000		120000	380000
7.	Three seminars on the benefits of consortium approach.	25000	25000		25000	75000
8.	Participation in Domestic Trade Fairs	20000	20000	20000	30000	90000
9.	Three workshops will be conducted on technology upgradation over a period of three years.	30000	30000	30000		90000
10.	Creation of common marketing website		50000		25000	75000
11.	Creation of Common facility center		500000		1000000	1500000
12.	One P4 computer with laser printer , Scanner & furniture etc.	100000				100000
13.	Printing of publicity material, Stationary & Postage, other recurring Expenses under OE etc. @ Rs50000 per year for three years	50000	50000	50000		150000
14.	POL for vehicle	30000	30000	30000		90000
	T O T A L	7,85,000	8,75,000	1,30,000	13,00,000	30,90,000
		1790000				

DIAGNOSTIC STUDY REPORT OF BRASS & BELL METAL CLUSTER AT HAJO, ASSAM

2. Introduction

The potential of small and medium enterprises (SMEs) in contributing to the development process at local, national and global levels has received substantial recognition the world over, during the last quarter

of a century or so. Notable achievements in the spheres of technological dynamism, market expansion and regional economic regeneration have been noted in a number of SME clusters across the globe, particularly in the industrialised West, mainly in Europe. As SME promotion has often been linked to the on-going process of globalisation, it has been observed that such a strategy of industrialisation, assigning key role to SMEs, would be largely relevant to the developing countries, where, typically, SMEs dominate the industrial scene.

Brass-smithy is one of the important traditional cottage industries in the State of Assam. Since the activities in the industry is carried on by the artisans rather than by well organized dynamic and risk taking entrepreneurs so, the Brass-smithy as found in the state can not strictly be called an industry in the modern sense. Hence, often the industry is called a craft.

Bell metal industry is another traditional cottage industry of Assam having known records in history from the 7th century A.D. This industry is also found to be concentrated in certain areas of the state. Historically the most famous centers are Sarthebari in Barpeta district, Raha, Kamrup and Hojai in Nagaon district and Titabar in Jorhat district.

The diagnostic study report of brass & bell metal cluster at Hajo in Assam is presented in following section. This study attempts to present and analyse the current position of the industry and also to understand its functional dynamics. The central concern of the study, however, relates to two important issues: (a) the nature and strength of current business and organizational linkages between the various cluster actors and (b) areas of intervention for development of the industry.

The report is based on interaction and deliberation with the key SME actor in the cluster, the leading entrepreneurs, associations and nation institutions. The secondary information was collected from sources like Directorate of industries, Associations, libraries etc. Informal interviews are also conducted with some enlightened and experienced entrepreneurs.

In order to obtain a comprehensive picture of the status and dynamics of the industry in Assam and also to capture the regional specificities we had to take recourse to a number of approaches. The principal basis of information and perspectives detailed in this study derives from primary sources, mainly, structured surveys of artisans enterprises and detailed issue based discussions/interviews with a number of individuals directly or indirectly concerned with the industry in the state, officials of the concerned state departments, R and D specialists, academics, policy makers and other knowledgeable and experienced persons in the field. A selective list of persons consulted/interviewed as part of this study appears as below:

Profile of Survey Respondents

Category	Persons/Organisations Interviewed
Main Raw Material suppliers in Guwahati	2
Main Artisan Families/ units	3
Small Artisan Families/ units	10
Industrial Development organizations like Handicrafts, NSIC, NE Council, ITI, North East Industrial Technical Consultancy Organisation, Assam Small Industry Development Corporation	20
Indian Institute of Technology Guwahati	3
Machinery manufacturers	4
Financial institutions (SIDBI, SBI, Assam Finance corp. etc.)	4
Persons knowledgeable about the industry	6
Policy making and regulatory bodies (Directorate of Industries)	4
Industry associations	2

However, in addition to the aforesaid primary sources, information on the important performance variables and policy directions of the industry, both at the regional and national levels, was collected through detailed literature scanning, including a variety of sources of statistical database. These included government publications and also documents, papers and research reports of industry associations, research institutions and the press.

3. Description of the cluster

Hajo in Assam is a growth centre about 35 Km away from Guwahati . The Brass industries located at Hajo in Assam are having their own importance, these consist mainly of artisan families. It may be mentioned that most of the brass metal artisans come under the category of landless households, if not marginal farmers. The artisan comprises both Muslims and Hindus. However the major segment of artisans belongs to the backward moria community of Muslims. The entire family of an artisan depends on the earning from the brass metal units. According to the records of Directorate of Industries, Assam there are above 500 artisans scattered in different areas. However, the artisans are found to be concentrated in the areas like Hajo in Guwahati Sub-Division,

The emergence of Hajo cluster dates back to the Mughal period when Muslim warriors settled in this area due to various reasons and for their survival they started this activity which grew over a period of time with a present estimate of around 250 mainly Muslim families are engaged in brassware making in Hajo. Both the industries (in brass metal and bell metal) are run on as hereditary occupation. The skill and the technique involved in the process of manufacturing and repairing is passed on by tradition from father to son. Culturally both the industries are linked to the cultural heritage of Assam since

most of the products of these industries are used in marriages, rituals, puja, presentations, gifts and other ceremonies. The products of the two industries are also used as household utensils for day to day use. People also store it as assets since the values of the products of bell and brass metal appreciates over time. The organizational pattern of both the industries can be classified into the following categories namely:-

- i) Pure artisans.
- ii) Proprietary unit.
- iii) Co-operative unit.
- iv) Partnership
- v) A combination of the above categories.

Though there are some similarities between the two types of industries, there are also noticeable differences between the two. As for instance, in the Bell Metal industry the tools and equipments used are similar to that of Brass metal, yet there numbers are relatively more in Bell Metal industry than in Brass Metal. The numbers of workers are four or five in Bell Metal and less than this in Brass Metal. Under Bell Metal industry the Kohar Bhaiga or Ojapalli system four or five artisans combined together and pool their resources together to work under a common production program, known as Kohar Bhaiga or Ojapallim where the artisans mutually agree to work under the Master worker known as Kohar or Oja. Rests of the artisans are called Vaiga or Rallies. The Kohar usually owns the tools and equipment. None of the workders is supposed to get any direct wages under this system. The proceeds from the unit is shared according to mutually agreed upon ratio. The main Kohar generally gets a higher share because of his tools and equipments, usually 1.5 times the share of a Bhaiga. The Bhaiga normally received the equal share among them selves.

The other features of this two industries seasonality, job work, manual operation, high labour intensity, lower capital requirement etc. Very few units in the two industries run on full time basis.

3.1 Defining the product

In India the brass and bell metal industry is located in Gujarat, Haryana, Orissa, Assam & Uttar Pradesh. The product manufacture in Hajo cluster is entirely different than other clusters. This cluster mainly manufactures the brass items which are required for domestic purpose and items used in ritual ceremonies. Following is the list of some of the items items which are manufactured in cluster.

Sl. No.	Name of product	Weight (Kg)
1.	Kalah	1-2.5
2.	Sarai	0.250-3.0
3.	Lota (Ghati)	.0100-1
4.	Tau	0.5-13
5.	Heta (Kanthi)	300-750 gms
6.	Karahi	Up to 10 kg
7.	Tekeli	1.5kg

8.	Flower Base	1 kg
9.	Gacha	1 kg
10.	Drinking Glass	500 gms
11.	Dhupadani	1 kg
12.	Chamus	100gms

There are other items which are not regular in nature. The weight is ranging from around 200 grams to 8 Kg. All the above items are manufactured from sheet metal, artisans purchase the circles which are readily available from Guwahati ranging from 8” to 32” diameter which are given different shapes by hand operation, soldered and then pickling is done. Designing is also done by Hand. The beauty of cluster is that there is no mechanization and all operations are done by hand.

Brass Utensils

Sarai

Statue

3.2 Defining the Manufacturing Process & various sub activities

Brass Metal Industry: - The existing technology in respect of this industry in Assam is very simple as well as traditional. Brass is an alloy of Copper and Zinc. Brasswares are manufactured out of the sheets of the above metal.

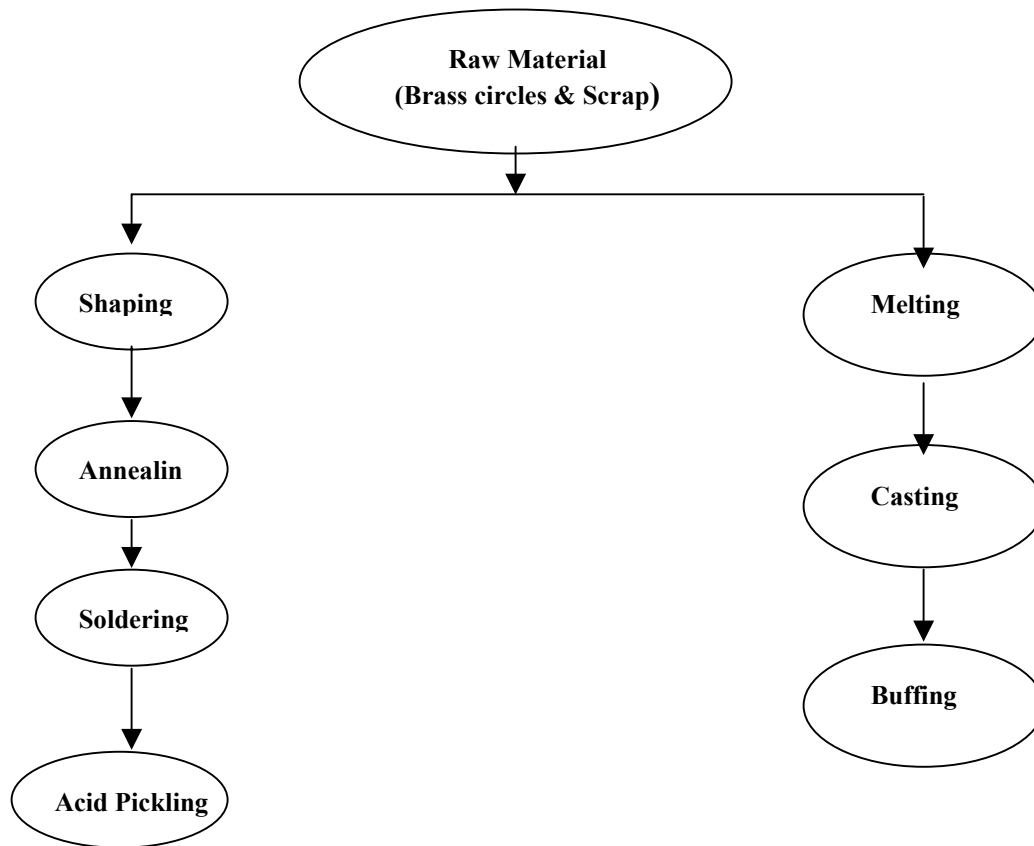
The thin sheets are manufactured by the two non-ferrous rolling mills located in Guwahati either from the available scrap metal or from the virgin raw materials brought from outside. The artisans and the units procure their requirements directly from the mills and also from the local traders.

The main tools and equipments used by the artisans in manufacturing Brasswares are very simple. They are anvils (Belmuri) Chatuli, Akul hammers, chisels, files and some minor implements. The furnace is indispensable and same is the bellows made of goat skin housed under a simple shed. No electric power is involved. The major raw materials are Brass sheets, Brass circle and scrap Brass metal. The minor raw materials are burnt coal (coke) , copper, zinc, borax, tin, acid etc. “Kund” is another item used by the artisans to polish the finished products. The process of production is also very simple and traditional. The brass sheets are cut into various sizes required for the size of different type of products. Generally they are cut into two or three portions. They are (i) bottom artisans mould the portions into required shapes by beating method with the help of hammers. The adjoining parts are fastened with brazing. The articles are smoothened with the help of a file and a little shine is given by rubbing with sand. Whenever required, engraving is done with the help of hammer and chisel. However, engraving is rarely done.

Bell Metal Industry: - Bell Metal is an alloy of copper and tin. The technology used in this industry is also traditional and simple. No electricity is involved in the manufacturing process. The tools and equipments used are simple unsophisticated and more or less the same as in brass metal industry. However, tools like Dulari, Gasha, Saria, Piri, Khanta, Pocker etc. are also used. The main raw

material is Bell metal in the form of old and broken articles. The other raw materials are polishing materials, clay, jute fibre, rice bran, mustard oil, Charcoal, Borax, Zinc, shalpatra etc.

3.3 Process flow chart



Traditional Metal shaping Process

Traditional Annealing & Soldering

3.4 Current output

The Brass & Bell metal artisans of Hajo are four to five centuries old at present there are about 350 artisan families engaged in making brass articles. The cluster is highly unorganized and not maintaining any record of output neither the records of output are available with any organization. The current output is estimated to be around 200 MTS per annum. The cost of product on weight basis is around Rs 215 per kg. this amounts to 4.3 crore of output per annum. The output will be still more if the full capacity of units are utilized throught the year. As observed the existing arrangement of supply of raw materials made only one third of total requirement of units. As a result most of the units suffer idle capacity for 4-5 months a year particularly during the rainy season.

4. Cluster actors

4.1 Core Cluster actors

The players in the brass cluster at Hajo can be catagorised as under:

Category 1: There are two raw material suppliers i.e. brass circles, who manufactures brass circles from brass scrap which is melted in foundry and rolled to sheets which are then cut into circles of different diameters. Coke is locally available for small blower type furnaces the artisans use for soldering and annealing purpose. The reserves of coke in the state of Meghalaya meet the requirement of coke for this cluster.

Category 2: The Middleman (MAHAJANS) who actually purchases brass circles from Guwahati based re-rolling mills and then gives on job work basis to artisans to make final products. These artisans are paid on weight basis. The artisans of Hajo as mentioned earlier are poor and not having any strong financial background. They are mainly borrowing money from locally based money lenders who takes heavy interest on barrowed money. Since the manufacturers are not organized neither they are keeping any record of their manufacturing activity they fails to borrow money from financial institutions and banks. There are around 20 such middlemen available in this area.

Category 3: This group comprise of merchant traders and marketing agents 80% of brass products manufactured in this cluster are sold through these dealers and traders. Only limited number of cases manufactures sells their product directly to customers. Substantial price addition takes place at this phase. There are around 50 small and medium traders are involved in this business. The products are mainly marketed in North-East and so far no export directly or indirectly observed in this cluster.

Category 4: In this category there are suppliers of tools, jigs, fixtures, and sulfuric acid for pickling These inputs are required in various stages of manufacturing and finishing process. Though the exact number of entrepreneurs engaged in this business is not known but it is estimated that there could be 15 such players.

4.2 Other cluster actors

Institution having direct stake in the cluster

Hajo Brass utensils workers industrial Co-operative society

In 1952 this society was formed by the workers with 60 members on roll at present. This society consists of Muslim members only and engaged in collection of product manufactured by the artisans those are then sold to various traders and consumers. This is the only industrial association available in cluster and plays important role in marketing of cluster products. There is no infrastructure available even for the office of this society not only that there are no workings sheds and entire manufacturing activity is done in houses. This is the main requirement where attention is to be focused in providing them proper working sheds.

Institutions having indirect relationship with the cluster

Department of Handicrafts O/o the Development Commissioner Handicrafts

This department can play a very important role in this cluster as the cluster is mainly of artisans. During the visits was found that one of the artisan is awarded either the state award for his best craftsmanship. It is understood that in 1990 this department has provided training to some of the artisans of this cluster. Presently they are not having any kind of interventions for the development of this cluster. However they have shown keen interest to cooperate in SIDOs cluster development program.

State bank of India (SBI)

Under the UPTECH program this institution has organized few entrepreneurship development programs and in process of developing machines for the metalworking operation which are presently being done by hand. To facilitate this they entered an MOU with the IIT Guwahati. By an large this institution is found to be having interventions in the areas of training and technology development. The machines that developed are manually operated without using electricity.

Indian Institute of Technology, Guwahati (IIT)

Indian Institute of Technology is the premier educational institution in India, while contacting them it is understood that State Bank of India Guwahati main branch under their UPTECH program assigned a work of development of machines for metalworking operation. These machines after development are handed over to the units at Hajo as a step for mechanization of their operation. Suitable training is also being organized by them for a group of five persons to whom these machines are given.

Small Industries Service Institute, Guwahati (SISI)

SISI Guwahati can play very important role till date SISI have not done any development activity in this cluster except organizing EDP three years back. However with the launch of SIDOs cluster development program rigorous efforts are being made for the development of this cluster identified on national level.

District Industries Center (DIC)

District industries center is also an important organisation for the development of this cluster. It was informed that in past one common facility center was set up by them to facilitate the supply of raw material i.e. brass circles to the artisans but at present this CFC is not in working condition due to various reasons. At present they are not having any development activities for this cluster.

National Small Industries Corporation (NSIC)

This organization is also not having any kind of interventions till date. However upon contacting they assured for the possible support in case required.

Small Industries Development Bank of India (SIDBI)

SIDBI is an important financial institution who can support them under their various cluster development schemes. In past they financed some NGO for providing trainings to the artisans of this cluster.

KVIC

This organization is instrumental in providing financial assistance to the artisans of this cluster under their various schemes.

5. Current Institutional Matrix

	Dept.of Handicrafts	DIC	SIDBI	NSIC	SISI	IIT	SBI	workers Co- operative society	NEDF I	N-E Counc il	KVIC
Dept. of Handicrafts		1	1	1	5	0	0	3	2	1	3
DIC	1		3	1	5	1	2	2	2	2	1
SIDBI	1	3		1	5	1	1	3	1	1	0
NSIC	1	1	1		5	1	1	0	1	1	0
SISI	5	5	5	5		1	2	2	2	3	5
IIT	0	1	1	1	1		5	5	1	2	0
SBI	0	2	1	1	2	5		5	1	1	0
workers Co-operat. society	3	2	3	0	2	5	5		3	2	4
NEDFI	2	2	1	1	2	1	1	3		1	1
N-E Council	1	2	1	1	3	2	1	2	1		1
KVIC	3	1	0	0	5	0	0	4	1	1	

The current institutional matrix depicts various stakeholders in Hajo brass part cluster. The nature of relationship between these cluster actors is not always very clear and direct. Some of them have very remote relationship and it is limited to the extent of organizing some programs, providing some marginal services and sometimes conducting some seminars/training programs.

There is only one association which is active and proving the role of facilitator in marketing of the product manufactured by their members. The name of association is Hajo Brass utensils workers industrial Co-operative society having 60 members on role established in 1957 but registration is not presently valid.

There are some institutions which are active, and providing the role of facilitators in solving the problems and taking up issues to the various Govt. depts. For example, Department of handicraft, SIDBI, they organizes training programmes, help in conducting study. The nature of relationship and the extent of cooperation among these associations are very minimal. This relationship has been developed based on the need of the artisans.

Based on the role of these various support institutions, associations and strength of their inter-linkages and cooperation, they are given a score in a five point scale. The score '1' indicates that there is very little cooperation among this cluster actors whereas the score '5' indicates that there is strong inter-linkages and responsiveness among the cluster actors. This cooperation may be expressed in terms of joint planning, bulk purchasing of raw material and inputs, solving each others problems, taking up pertinent issues to various Govt. depts., organizing seminars and conferences, implementing programmes jointly and reviewing the progress of the cluster through organizing periodic meetings. The current institutional matrix delineating the scores, is shown in the above table.

The Govt. depts.. which have direct/indirect stake in the cluster but certainly can play a very significant role for the overall growth of the cluster are ;

- District Industries Centre (DIC)
- National Small Industries Corporation (NSIC)
- Small Industries Development Bank of India (SIDBI)
- Indian Institute of Technology(IIT)
- NEDFI
- N-E Council
- KVIC
- IIT Guwhati

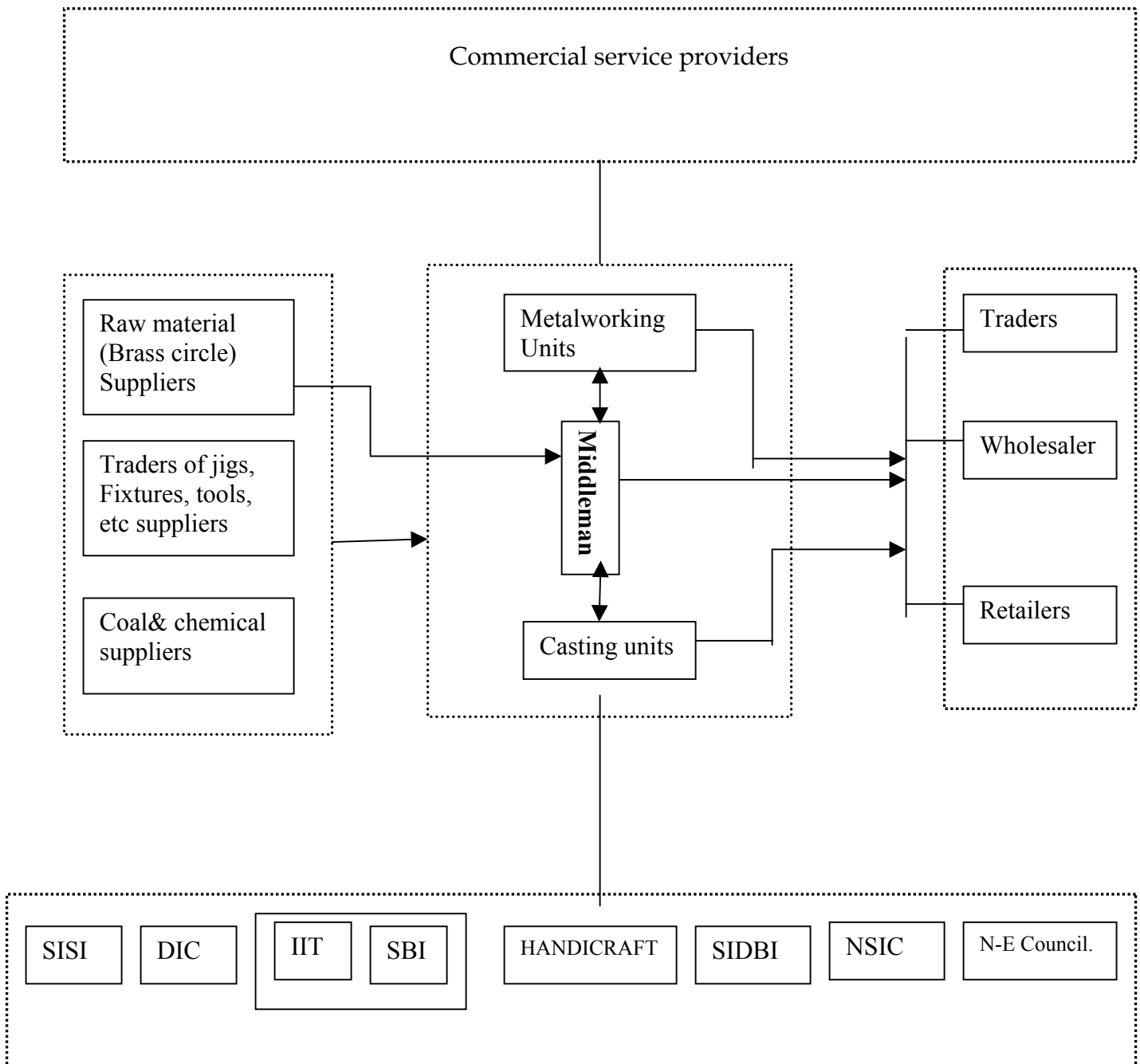
From the institutional matrix it is pretty clear that District Industries Centre has moderate linkages with local association. The relationship between Dist. Industries Centre, SISI, NSIC, SIDBI is one the higher side. But it has very weak/no relationship with other R&D institutions. The associations of NSIC & SISI with local industry associations are limited to the extent of organizing one or two programmes and/or conducting few programmes. The brass part cluster requires a lot of technological

intervention in the field of brass metallurgy. In spite of this, there is hardly any linkage between any R & D organization & local industries.

The current institutional matrix clearly shows that the relationship between these stakeholders is either minimal or moderate. This is one of the drawbacks of the Hajo brass & bell metal cluster. All leading clusters world wide, which are widely quoted in various articles, journals and books and which also provides a model for the developing and emerging clusters (e.g. shoe making cluster in Emilia Romagna, Italy) exhibit a very strong relationship among the stakeholders and the cluster actors. A strong relationship and inter linkages among stakeholders can not only solve the problem of the cluster but also could source technology, finance, marketing etc. for the overall growth and development of the cluster. It is therefore important that the inter-linkage among these stakeholders needs to be strengthened by organizing meetings and motivating each others. This can be taken up as a capacity building exercise for the cluster.

It became clear from the diagnostic study that, not only inter-linkages among stake holding institutions needs to be strengthened but also the relationship between individual enterprises and associations needs to be improved. A win-win situation has to be created where all the cluster actors and stakeholders work in unison.

6. Present cluster map



The above cluster Map of Hajo brass parts cluster indicates the various linkages and actors that exist in this cluster. (the bold lines indicates the prevalence of organization whereas, dotted lines indicates the organizations to be developed.) So far Public Policy is concerned there are institutions like DC(SSI), Central Excise and Customs, Sales Tax Dept., Dept. of Factories & Assam Pollution Control Board. These organizations decide the policies, which have direct repercussion on the activities of the industry.

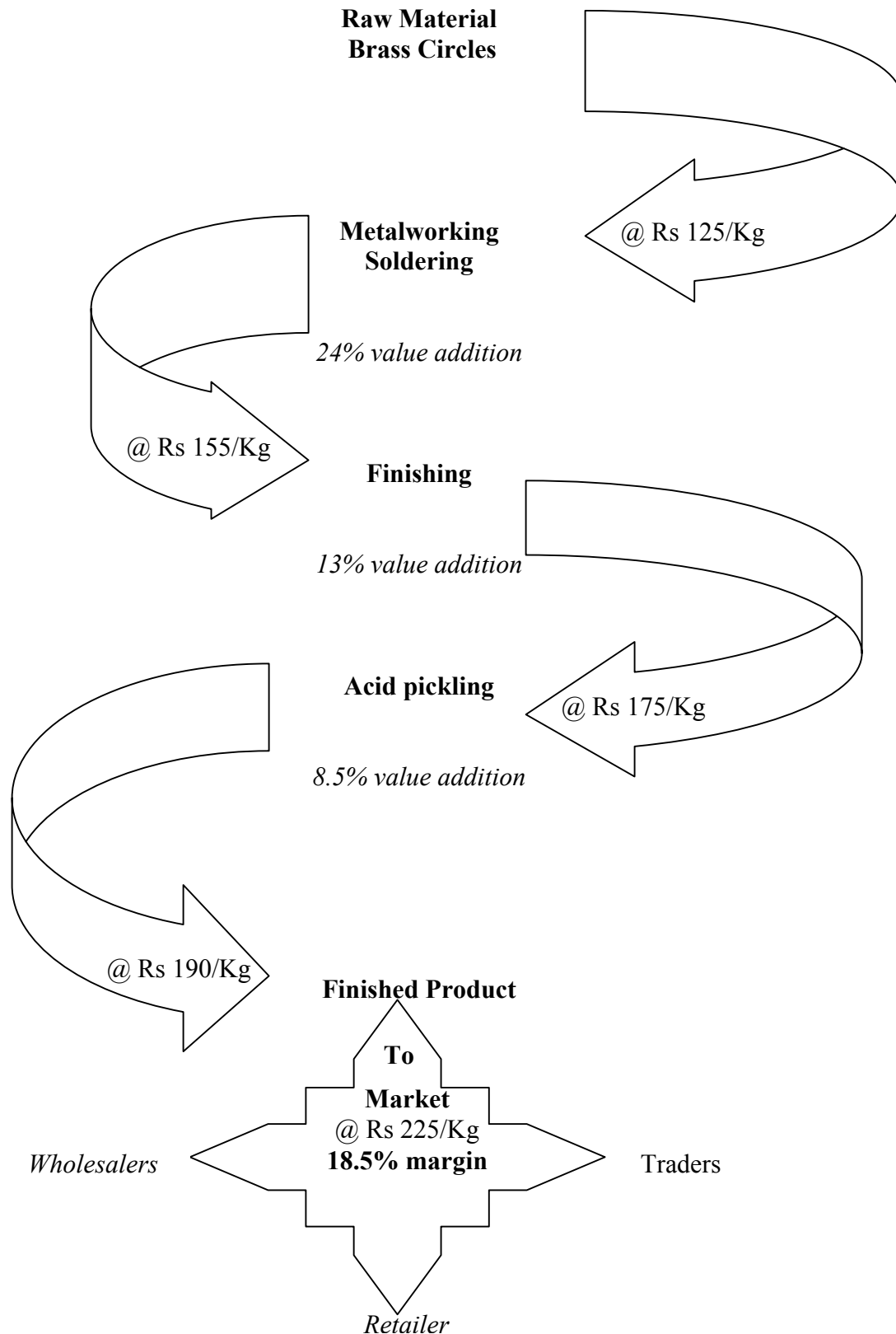
There are Commercial Service Providers like chartered accountants, export consultants and merchant bankers. The actors in this category provide valuable services on commercial basis. In Guwahati, the availability of services are not omnipresent and effort should be made in strengthening these Business Development Services.

In the nucleus of the Cluster Map there is Artisans involved in manufacturing brass & bell metal products and the Middleman who plays very important role while enjoying heavy profit. The linkage among these SMEs is job-specific and commercial oriented. Another important thing, which needs to highlight here, is the practices of sub contracting. Middleman takes up job and get it done in some other firm. Sub contracting is widely prevalent in this cluster and this gives flexibility in the operating system.

Among the constituents of Backward Linkages there are raw material suppliers and suppliers of machinery, tools and other inputs. There are around two large raw material suppliers who use brass scrap for remelting and then re-rolling. Among the forward linkage members there are marketing agents, exporters and large industries. Though most of the marketing activity (around 80%) is done through marketing agents, traders and exporters but there are enterprises who are supplying products directly to large industries.

The organizations which are providing support services are DIC, SISI, NSIC, SIDBI, etc. The role of these institutions and their inter linkages were described in the current institutional matrix.

7. Value Chain Analysis



The above figure depicts the Value Chain Analysis of the brass parts cluster. It describes the degree of value addition in each stage of processing. As mentioned earlier, the main activities involved here are:

- Metalworking
- Finishing
- Acid pickling

The price of brass scrap available in the market is Rs.125per kg. Metalworking artisan charges

Rs.30/- per kg..

Thus per kg. rate of Brass ware = 125 + 30 + 20 + 15 = Rs.190/- (approx)

Though the rate of final products available in the market varies between Rs.225/- to Rs.240/- per kg the normal rate can be treated as Rs.230/- per kg.

The profit percentage in this industry varies between 5% to 30% . However the normal profitability is 20%

It is also reported that there has been increase in the rate of brass scrap, machines, tools, accessories over the years. However, due to stringent competition the rate of final products did not increase to that extent.

8. Analysis of Business Operation (Problems Identified)

The following section presents an analysis of business operations for the brass parts cluster. The analysis is built on the following factors viz.,

- Raw material
- Machinery & production
- Products & marketing.
- Background of the entrepreneurs & their enterprises.
- Finance & working capital
- Training
- Manpower requirement
- Infrastructural facilities.
- Business Development Services.

Raw material:

The raw material requirement of the brass part industry is met mainly from the following source:

- Local recycled brass scrap to foundries and re-rolling mills

As a matter of fact, 90% of the raw material requirement of this brass parts cluster is met through the above source and rest is flowing from Kolkata.

Technically speaking brass is an alloy of copper and zinc and the ratio of these products is 60:40 (60% copper & 40% zinc). For getting the right products and good quality, it is important that this 60:40 composition is maintained. However, due to heterogeneous nature of the scrap and different alloying of the base metal, it becomes almost impossible to maintain this 60:40 ratio. As a result, the quality of the final product varies, defects are produced and the rejection rate increases.

The best method of getting the right quality and right alloying is using copper and zinc ingot. But because of higher price of ingot, scrap is used as the basic raw material. Because of cutthroat

competition, manufacturers are not getting the right price for their products. This price war (on final product) compels them to use cheaper raw material.

Machinery & Production:

Units are working with traditional manufacturing techniques that are obsolete. Practically the tiny units of this cluster are not using any machinery and all operations are carried out by hand by the artisans. As mentioned earlier state Bank of India in collaboration with IIT Guwahati has developed three machines that are operated without electricity. These are turning machine, grinder and Hand operated press for deep drawing and this effort is made to maintain the traditional look at this cluster. These machines will be made popular through the cluster development program to make this cluster to convert into mechanization.

Products & Marketing

There are about 350 brass and bell metal product manufacturers in the cluster. Whatever be the volume of orders, the entrepreneurs in this cluster are able to meet that. They are capable of handling orders which are as small as 10 pieces and as big as 1000 of pieces. The sub contracting arrangement is widely prevalent in the cluster.

The products are marketed within India particularly North East region. The products are marketed through traders/dealers. There is no export till date recorded from this cluster but if the products are diversified to decorative items on line with Moradabad cluster there will be potential for export.

In the area of globalisation, the marketing activities of the entrepreneurs, needs to be integrated in order to capture the more market share. As the units are small it is almost imperative that networking is done in order to capture largest orders. This will not only ensure economies of scale but also developed accountability of the entrepreneurs.

In the present scenario the entrepreneurs can join hand together, form consortium and grab large orders. There can a brand building initiative where all the products can be projected under one brand name.

Entrepreneurs and their enterprises:

A majority of the enterprises are family owned. The owner and other family members are the manager, operator, marketer, technician and negotiator. There is hardly any qualified people recruited from outside. As a result no fresh idea came up and the process of manufacturing remained traditional. One needs to understand that there are several functional areas in an enterprise where qualified and experienced persons are required.

The level of awareness of the entrepreneurs; especially in technical and marketing areas, is not as high as it should be. Low level of education and inability to communicate in Hind and English has remained a major problem for them.

Finance & Working Capital:

Finance has been a problem for the entrepreneurs at Hajo. Due to the illiteracy, unawareness and poor family background of entrepreneurs they are compelled to work on job work basis for Mahajans who purchases raw material i.e. brass circles and give it to the artisans on piecemeal basis. If these tiny enterprises are strengthened to buy raw material from main source to produce the final product it will bring drastic change in the scenario of this cluster. There are banks that are ready to provide the financial assistance to them but these tiny units are accustomed to work on job work basis and not making efforts to borrow the money from financial institutions. This is also due to the reason that these tiny units are not maintaining any record of there transaction which is needed for the govt. borrowings. There is a good scope for providing working capital to enterprises by organizing them.

Training

There is no training facilities/institutions available in Hjo The skill and the technique involved in the process of manufacturing and repairing is passed on by tradition from father to son.. Even R&D institutes and quality testing laboratories are non-existence.

Infrastructure:

The enterprises are located in two areas called Muslim Patti and remaining part of Hajo block. In muslim patti mainly units are dominated by Muslims and in other part Hindu people are operating there enterprises. The units are set up in there houses and there are no working sheds or suitable infrastructure available with them. There is a high scope that with the help of Industrial Infrastructure development organisation proper working sheds can be provided to them.

Business Development Services:

The business development services have not grown in Hajo as it has been in other industrial clusters. There is no technical training institutions, no R&D laboratory, no management institutions, no testing facility, no marketing expertise, no design development institute available in Hajo. It is difficult why these services have not developed in Hajo because; in most of the cases these are demand-driven. Probably, the requirement of the cluster is not properly projected. Therefore, there is a need to have networking and consortium among the SMEs in the cluster.

Technical training institutes and testing laboratories can also be developed to fulfill the requirement of the enterprises.

9. Industry structure analysis

Entry barriers: <div style="text-align: center;">Low</div>	Rivalry: <div style="text-align: center;">Moderate</div>
Bargaining power of suppliers: <div style="text-align: center;">Low</div>	Bargaining power of Customers: <div style="text-align: center;">High</div>

The above figure depicts the Industry Structure Analysis of the brass parts cluster in Hajo. This industry structure analysis determines firm level profitability, competition, SME viability and prospect of growth.

The entry barrier in the above cluster is low because anyone can enter the industry with a minimum investment of Rs.30,000-50,000/- and inputs are available plenty. There is no proprietary skills/technologies and there is hardly any product differentiation and brand identification.

Another positive factor is the economies of scale which means the more you produce, the less is per unit manufacturing cost. These two factors(customers loyalty and economies of scale) pose some impediment for new firms entering into business

The rivalry amongst firms is moderate. Though there is rivalry in the domestic market. Most of the producers have fixed clientele to whom they are supplying for the last many decades. There are large numbers of firms in the industry and the product differentiation is minimal. With the opening up of economy after globalisation, the growth potential of the industry is tremendous, provided technology is upgraded, economies of scale is achieved and marketing consortia is formed. Rivalry among firms can be reduced by encouraging non-price competition and product differentiation; notional or real (may be with diversification). Rivalry is moderated by the fact that the exit barrier is also very low.

The bargaining power of the suppliers in the cluster is low and there are large numbers of suppliers available in the market. There is hardly any switching cost from one supplier to another and no input differentiation. Moreover, the brass parts industry is an important customer for the suppliers. There is hardly any evidence of suppliers forward integrating. The bargaining power of the suppliers can be further reduced by forming hard networks for common bulk purchase.

So far bargaining power of the customers is concerned, it was found to be on the higher side. There is hardly any product differentiation and the customers can switch from one supplier to another. The switching cost is also very low. Moreover, customers are quality and price sensitive. However, for

some enterprises there is strong customer-supplier relationship and the level of trust and loyalty is very high. Some customers of the large industries do not want switch over to new supplier on the fear of getting bad quality and not 'in-time' delivery. The bargaining power of the customers can be reduced by forming consortium and brand building.

10. SWOT ANALYSIS

STRENGTHS OF THE CLUSTER

- Easy and cheap workforce availability.
- Location Advantage – Strategically well placed, connected to other states by road, rail and air.
- Availability of number of Financial Institutions, Banks etc.
- Industrial City and Commercial Capital of Assam
- Manufacturers/suppliers/service providers.
- Availability of Educational/Technical Institutions/Collages/University.
- Availability of central and state Government Institutions.

WEAKNESSES:

- Trust level in the cluster is very low
- Old and Traditional Technology /manufacturing processes in most of the units affecting productivity.
- Poor Testing & almost nil R& D facilities.
- Untrained work forces – No qualified person in majority of the units.
- Under utilisation of financial facilities.
- Poor coordination with Government bodies and other related Organisations.
- Maximum number of units running in Residential Areas.
- No scope for expansion in Residential Areas.
- No Presence of Industry Association.
- Hardly any changes in design, technology, process and marketing.
- Poor infrastructure facilities.
- Scarcity of Raw material and other related material
- No skill upgradation training for the workers.

OPPORTUNITIES

- Creation of technological awareness among entrepreneurs.
- Tremendous enthusiasm on the part of the cluster actors.
- Prospects of establishing Common Facility Centre is becoming brighter.

- Creation of technological awareness among entrepreneurs.
- Exposure visits, participating in exhibitions may make the entrepreneurs and
- Technicians more innovative and problem solving.
- Demonstration effect
- Increased awareness is likely to improve the skill base of the workers
- Changing business environment can provide opportunity for enterprising firms.

THREATS

- Changing business environment can provide opportunity for enterprising firms.
- Low level of technological development
- Technology can impose a major threat unless it is changed/ modernized
- Skill base of the workers needs upgradation to adopt latest technology
- The changing business environment is always a problem for the less enterprising firms.
- Stiff competition due to WTO norms and arrival of MNCs.
- Commencement of Product Patent law in near future.
- Dependency on Government Supply.

11. Strategy for intervention

The brass parts cluster in Hajo has enough growth potential provided strategic intervention is made in certain “key areas”. The clustering phenomenon was a natural process and it showed resilience in terms of encountering various problems in the past.

The “key areas” in which the strategic interventions are needed are given below:

- Technology upgradation
- Networking among cluster actors
- Skill Development Practical trainings for Diversification of product
- Marketing support for Products
- Raw material support
- Common facility Center
- Developing BDS

SISI Guwahati can play a very vital role of providing practical trainings to the entrepreneurs of this cluster on diversification into decorative brass items. The existing common facility center is already equipped with metal testing laboratory and machining workshop. Only few casting equipments are needed to be install.

These are discussed in detail in the Action Plan. Moreover, for making the cluster development initiative sustainable in the long run, it is imperative to ensure “capacity building” of the cluster actors. An outside organization intervention cannot produce desired result, especially in the long, unless efforts are made for capacity building of the cluster actors. The cluster actors should realize “the need-to-change” (in the changing scenario) and initiate actions in order to solve their problems and making themselves competitive. What is important here is that the process of change should be internalized rather than imposed.

12. Action Plan

The manufacturing process of brass parts has remained mostly traditional. There is hardly any change in technology. The process of melting, casting machining and plating have not changed much. As a result, the quality and productivity of the cluster is very low. There is high rejection rate and lot of time and labour is wasted in correcting defects. Some time $\frac{3}{4}$ of the material is recycled because of not having the right technology (e.g. brazing technology).

In order to eradicate these problems, there is an urgent need to provide them skill development trainings and to popularize the machines which are in operation for such industries The above technologies will help in;

- ❑ Minimising rejection rate.
- ❑ Improving productivity and quality
- ❑ Saving of labour and time
- ❑ Eradicating dimensional distortions
- ❑ Producing precision parts & components.
- ❑ Making the cluster competitive.

Another thing which is also lacking in the cluster is ‘diversification’. For example, no one in the cluster is manufacturing decorative brass items having good demand. These are the areas where the cluster can concentrate and demand of these products is going to increase in the coming years. Moreover, competition in this product segment is also limited.

The networking among cluster is very limited. Only when the entrepreneurs face pressing problems, they do interact in groups. A strong network has to be created among cluster actors so that they can jointly solve each other’s problem, pressurize govt. in liberalizing the rule & regulations. They even can jointly market their products in the global market in order to compete with “the economies-of-scale” approach of Chinese manufacturers. They industry associations need to be made proactive and networking has to be strengthened. This can be taken up as a part of capacity building exercise. The benefits of networking have to be explained to them.

Growth of Business Development Services especially technical and marketing areas, are very limited. There is technical training institute, no R&D and testing laboratory. As a result, the technology and the process of manufacturing have remained unchanged. Moreover, there are no consultant/experts who can guide them in international marketing, export procedures & documentation, etc. Whatever the entrepreneurs learnt, they learnt it by doing it or from other entrepreneurs.

Therefore, Govt. rules and regulations have to be liberalised. The role of the Govt. department should be a facilitator rather than regulator. An awareness workshop for the govt. officials in the form of “department-enterprise” can be organized.

For enhancing the skills of entrepreneurs and to make them capable of manufacturing diversified brass & bell metal products suitable skill development training programs are needs to be organized. This will enable them to sell their products in other domestic as well as international market. To facilitate this pilot metal casting facility can be created in existing common service center of SISI.

For consistence and economic supply of quality raw material, facility of common service center is required. This will eliminate the dependence on only two brass circle suppliers from Guwahati.

Based on the above analysis the following activities can be organized at Hajo

- ❖ Networking among cluster actors
- ❖ Organising Cluster visits
- ❖ Training on ‘diversification as a strategic option’.
- ❖ Joint participation in national fairs.
- ❖ Study in understanding the present manufacturing processes & identifying the scope for improvement.
- ❖ Workshop on technology upgradation.
- ❖ Personal counseling in solving technological problems
- ❖ Establishing Common Facility Centre (CFC) for demonstration and adoption of technology.

13. DETAILED BUDGETARY ESTIMATES FOR VARIOUS ACTIVITIES

13.1 OBJECTIVE: Awareness Program for Cluster Development

Output: Creating awareness among the Cluster Actors on the Cluster Development Programme.

Subject: Creating awareness among the cluster actors for better cooperation for the Cluster Development Programme.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SSJ)/ Resource center	Support Instt./ Assons.		
1	Two Awareness Seminars on Cluster Development	20,000/-		40,000/-	
	Total	20,000/-		40,000/-	

13.2 OBJECTIVE: Strengthening Association.

Out put: Strong networking among the association members will be formed for co-optition.

Subject: Association will be strengthen for better networking and collective efforts. A separate secretariat for the association will be formed for day-to-day activities. The secretariat will take care of getting information on international marketing through Internet and disseminate the same amongst its members and maintenance of association portal. The secretariat will also maintain the information on various government schemes, which benefit the cluster firms.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SSJ)/ Resource center	Support Instt./ Assons./units		
1	seminar on strengthening associations will be organized	30000/-		30000/-	
	Infrastructure facilities for Asson. Secretariat	50000/-	50000/-	100000/-	To motivate the Associations for having the secretariat a token assistance will be given for infrastructure like computers, internet etc.
	Total	80000/-	50000/-	130000/-	

13.3 OBJECTIVE: Supplementing metal casting facility at CFC of SISI for Training & Demonstration

Output: Making the units competent to for diversification of products

Subject: Existing common facility center of SISI guwahati is equipped with Metallurgical Testing, Machining and Heat treatment facility. An addition of Brass casting equipment will enable CFC to provide training for diversification to decorative brass items in line with Moradabad.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SS I)/ Resource Center	Support Instt./ Assons.		
1	For training & Demonstration Setting up of pilot Brass casting facility in Existing common Facility Center of SISI Guwahati	2,50,000/-		2,50,000/-	This will also enable to provide trainings to prospective & existing entrepreneurs other than cluster.
	Total	2,50,000/-		2,50,000/-	

13.4 OBJECTIVE: Exposure visits to CDE

Out put: The CDE will get better understanding on the cluster development for setting up of pilot metal casting and techniques of production.

Subject: Exposure visit of CDE to Moradabad & Thrissure Brass & Bell metal clusters will help in developing the decorative items and other products having demand on which training will be imparted to the entrepreneurs.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SS I)/ Resource center	Support Instt./ Assons.		
1	Exposure visit of CDE to Moradabad, Thrissure Brass & Bell metal clusters	25000/-		50000/-	This will enable CDE to understand technology for diversified brass items manufactured in these clusters.
	Total	25000/-		50000/-	

13.5 OBJECTIVE: Exposure visits to cluster actors.

Out put: The cluster actors will get better understanding on the cluster development

Subject: The cluster units after seeing the developments of the clusters like Moradabad will know development activity and the benefits of the Cluster Development.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SS I)/ Resource center	Support Instt./ Assons.		
1	Two Exposur visit of Entreprenuers to Moradabad for diversification to decorative brass items	50,000/-	25000/-	150,000/-	It was randomly taken that min. of 25units will be visiting
	Total	50,000/-	25000/-	150,000/-	

13.6 OBJECTIVE: Training

Output: Training on diversification will enable them to capture the domestic market as well as sale their products in other part of country plus possibilities of export can also be explored with the development.

Subject: Training at common facility center of SISI Guwahati.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SS I)/ Resource center	Support Instt./ Assons.		
1,2,3	Six Skill Development Training programs each of part time two month duration in three years for diversification to decorative brass items.	60,000	1,20,000	3,80,000	It was randomly taken that min. of 10 i.e. one participant from each units will participate in training. After imparting training successfully it will be ensured that this batch of 10 participants will set up and manufacture diversified brass items with the help of financial institution. These ten units will act as model for futher units. To meet the expenses for conveyance from cluster i.e. Hajo to Guwahati a stipend of Rs.500/- per month will be given to each participant.
	Total	60,000	1,20,000	3,80,000	

13.7 OBJECTIVE: **Creating Consortium for marketing and Raw Material procurement.**

Out put: A collective marketing network will be formed through consortium for better marketing benefits and cost effective raw material procurement.

Subject: Marketing and RM consortium will be created for the benefit of cluster actors to have a better reach in marketing and cost effective RM procurement.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SSSI)/ Resource center	Support Instt./ Assons.		
1,2,3	Three seminars on the benefits of consortium approach.	25000/-		75000/-	
	Total	25000/-		75000/-	

13.8 OBJECTIVE: Marketing and Publicity

Output: More marketing avenues will be opened to the cluster by participation in various parts of country.

Subject: Products of units will be sent to the Domestic Trade Fairs for sale and display.

Year	Activity	Budget Estimates		Total	Remarks
		DC(SSSI)/ Resource center	Support Instt./ Assons.		
1,2,3	Participation in domestic trade fairs	20,000/-	30,000/-	90,000/-	It was randomly taken that min. of 25 units will participate in each trade fair identified.
	Total	20,000/-	30,000/-	90,000/-	

13.9 OBJECTIVE: Technology Upgradation

Out put: Awareness will be created on latest technological upgradation in the Industry in accordance with national standards.

Subject: Experts in the field of metallurgy & mechanical will conduct workshops for creating awareness amongst cluster actors and to upgrade themselves accordingly.

Year	Activity	Budget Estimates			Total	Remarks
		DC(SSl)/ Resource center	Units	Support Instt./ Assons.		
1,2,3	Three workshops will be conducted on technology upgradation over a period of three years.	30000/-			90000/-	It is envisaged that 25 units are going to participate in each seminar.
	Total	30000/-			90000/-	

13.10 OBJECTIVE: Creation of common marketing website

Out put: Marketing reach will be created through e-commerce

Subject: A web site will be developed on association domain or consortium domain for better reach of Domestic & international market.

Year	Activity	Budget Estimates			Total	Remarks
		DC(SSl)/ Resource center	Units	Support Instt./ Assons.		
2	Creation of common marketing website	50000/-		25000/-	75000/-	
	Total	50000/-		25000/-	75000/-	

13.11 OBJECTIVE: Creation of Common Service center

Out put: A common Service center will be created for Supply of Brass circles to the units

Subject: A common Service center for the benefit of units will be created in association with Department of handicraft and other state / central Govt. agencies.

Year	Activity	Budget Estimates			Total	Remarks
		DC(SSJ)/ Resource center	Department of handicraft	Support Instt./ Assons.		
2	Setting up of common Service center which will be managed by the consortium.	500000/-	500000/-	500000/-	1500000/-	This will enable the units to procure brass circles at competitive price and will not be dependant on existing two suppliers enjoying monopoly. The detailed proposal for machinery and equipments will be worked out in consultation with supporting institutions before implementation.
	Total	500000/-	500000/-	500000/-	1500000/-	

13.12 OBJECTIVE: Facilities for cluster development program at SISI, Guwahati

Subject: For the convenience and smooth functioning of CDE the following are required at SISI, Guwahati for exclusive use for cluster development program.

Sl.No.	Item	Amount	Remarks
1.	One P4 computer with laser printer , Scanner & furniture etc.	1,00,000	
2.	Printing of publicity material, Stationary & Postage, other recurring Expenses under OE etc. @ Rs 50000/- per year for three years	1,50,000/-	
3.	POL for vehicle for three years @ Rs. 30000/- per year	90,000/-	
	T O T A L	3,40,000/-	

14. TIME SCHEDULE OF ACTIVITIES QUARTER WISE

SL. No.	Activity	Year – 1				Year – 2				Year – 3			
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
1	Two Awareness Seminars on Cluster Development	√		√									
2	Two Seminars on Strengthening the Associations & Infrastructure facilities	√			√								
3	For training & Demonstration Setting up of pilot Brass casting facility in Existing common Facility Center of SISI Guwahati	√	√										
4	Exposure visit of CDE to Brass & Bell Metal Cluster Thrissur & Moradabad		√			√							
5	Exposure visit of Entrepreneurs to Moradabad for diversification to decorative brass items			√			√						
6	Skill development Training to Entrepreneurs for diversification on decorative Brass items in CFC of SISI				√		√		√		√		√
7	Three seminars on the benefits of consortium approach for marketing & procurement of rae material.				√				√		√		
8	Participation in Domestic Trade Fairs				√	√	√	√	√	√	√	√	√
9	Two Workshops on Technology Upgradation				√			√			√		
10	Creation of common marketing website					√	√						
11	Creation of Common Facility center					√	√	√	√	√			

15. CONSOLIDATED BUDGETARY STATEMENT YEAR WISE TO BE FUNDED BY O/o DC (SSI), NEW DELHI. AS PER THE ABOVE ACTION PLAN.

Sl. No.	Activity	The DC (SSI), New Delhi			Supp. Instns./ Association etc.	Total
		Y1	Y2	Y3		
1.	Awareness seminars on cluster development	40000				40000

2.	Seminar on strengthening associations and infrastructure for association	80000			50000	130000
3.	For training & Demonstration Supplementing Brass casting facility in Existing common Facility Center of SISI Guwahati	250000				250000
4.	Exposure visit of CDE to Moradabad, Thrissure Brass & Bell metal clusters	50000				50000
5.	Two Exposure visit of Entrepreneurs to Moradabad for diversification to decorative brass items	50000	50000		50000	150000
6.	Skill development Trainings programs for diversification to decorative brass items.	60000	120000		120000	380000
7.	Three seminars on the benefits of consortium approach.	25000	25000		25000	75000
8.	Participation in Domestic Trade Fairs	20000	20000	20000	30000	90000
9.	Three workshops will be conducted on technology upgradation over a period of three years.	30000	30000	30000		90000
10.	Creation of common marketing website		50000		25000	75000
11.	Creation of Common facility center		500000		1000000	1500000
12.	One P4 computer with laser printer , Scanner & furniture etc.	100000				100000
13.	Printing of publicity material, Stationary & Postage, other recurring Expenses under OE etc. @ Rs50000 per year for three years	50000	50000	50000		150000
14.	POL for vehicle	30000	30000	30000		90000
	T O T A L	7,85,000	8,75,000	1,30,000	13,00,000	30,90,000
		1790000				