NEED ASSESSMENT SURVEY,

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Forewords

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, Ahmadabad, 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 sensitization 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

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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.

**Design Awareness Seminar:**
The design sensitization 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 experts 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. Projects 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 intended, 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 sustainability. Designing may also be done for reliability or quality or business processes. Service designs are primarily to cater to customer’s 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 organization. A well-designed product, service, or organization 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 recognized 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, and 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 (NEDC)

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 wants 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-18/19
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 regions of 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 the organization & the results it can achieve. As a result, the vision & mission of NEDC should be as follows.

**Vision:**

- To improve the quality of life of the rural people of North-East.
- 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 liftman.
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 & nongovernmental 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 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
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Expertise in:

a) Consultancy   b) Marketing Linkages
c) Training & Research  d) Event Management
e) Advertising & Publicity.

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), Ahmadabad, 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 Departments, 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, Dibrugarh 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 Sikkim and “Rongli Cluster”

Small but beautiful, Sikkim is situated in the Eastern Himalayas. Spread below the Mount Khanchendzonga, (8598 mtrs.), the third highest Mountain in the world and revered by the Sikkimese as their protective Deity, this tiny state, bigger only than Goa and Delhi and India’s least populated, lies tucked in between Nepal and Bhutan in India’s eastern region. Sikkim is Picturesque and verdant with clean crisp air, deep blue mountain lakes, gorgeous Buddhist monasteries and hillsides ablaze with rhododendrons against a backdrop of snow-clad mountains.

If you are looking for exciting trekking routes in unspoilt terrain, or a quiet communion with the mountains, there are few places in India that would match the Himalayan state of Sikkim. Just 110 kms from north to south and 60 kms across, Sikkim is entirely mountainous with altitudes varying from 800 ft in the south to the 28,199 ft. Mt. Kanchenjunga, in the northwest (India’s highest peak, and the third highest in the world). The awesome mountain is revered by the Sikkimese as their protecting deity. The capital of the state, Gangtok is an attractive and interesting town in eastern Sikkim, well developed and with absolutely amazing views of the snow clad Himalayan peaks including the Kanchenjunga.

Physical Setting

Sikkim, which is situated in the eastern Himalayas, from longitude 88 degree 03’40” to 88 degree 57’19” East and from latitude 27 degree 03’47” to 28 degree 07’34” North, became the twenty second state of India on April 26, 1975. It has a total area of 7,096 sq.km. 114 km from north to south and 64 km from east to west. The entire state is mountainous, with altitudes ranging from 300 to 8,586 meters. There are 440 villages, eight towns and four districts in Sikkim. The state has three major ethnic groups, namely Lepchas, Bhutias and Nepalis. The climate of the state varies from cold temperate and alpine in northeast to subtropical in the south. Agro climatically, the state is divided into four zones, viz., the subtropical zone (below1,000 meters); the humid zone (1,000-1,600 meters); the mid-hill dry zone (again in altitudes ranging from 1,000-1,600 meters);
and high hill temperate zone (with an altitude of above 1,600 meters). The genetic diversity, of both forest vegetation and agricultural crops, is enormous. The state has about 600 plant species and more than 4,000 species of flowering plants.

**Climate in Sikkim**

Sikkim is the wettest part of the north eastern region; the climate varies from the Sub-tropical to the Alpine depending upon the altitude. (Sub-tropical up to 1500 meters; Temperate-1500-2000 meters; Alpine up to 4000 meters; snowline at 5000 meters and above). The relative humidity remains above 70 per cent throughout the year at most places. The temperature varies with altitude and the slope (generally 6 degree to 10 degree). The area experiences a heavy rainfall due to its proximity with the Bay of Bengal.

The rainfall in North District is comparatively less than that of the other Districts. Pre-monsoon rain occurs in April-May and monsoon (South-West) operates normally from the month of May and continues up to early October. The mean temperature in the lower altitudinal zones varies from 4.5º C to 18.5º C, whereas at higher altitudinal zones, it varies from 1.5º C to 9.5º C. Temperature varies with altitude and slope. The maximum temperature is recorded usually during July - August, and minimum during December - January. Fog is a common feature in the entire state from May to September. Biting cold is experienced at high altitude places in the winter months and snowfall is also not uncommon during this period.

An examination of available rainfall data shows that the mean annual rainfall is minimum at Thangu (82 mm.) and maximum at Gangtok (3494 mm.). An isohyetal analysis of these data reveals that there are two maximum rainfall areas (i) South-East quadrant, including Mangan, Singhik, Dikchu, Gangtok, Rongli etc. (ii) South - West corner including Hilley. In between these two regions, there is a low rainfall region e.g. Namchi. Rainfall in this area is about half of that in the former areas. There is an area in the North- West Sikkim, which gets very little rainfall (even less than 4.9 mm.). This area has mainly snow-covered mountains. Rainfall is heavy and well distributed during the months from May to early October. July is the wettest month in most of the places. The intensity of rainfall during Southwest monsoon season decreases from South to North, while the distribution of winter rainfall is
in the opposite order. The highest annual rainfall for the individual stations may exceed 5000 mm. and average number of rainy days (days with rain of 2.5 mm. or more) ranges from 100 at Thangu to 184 at Gangtok.

**Demographic Features of Sikkimese People**

Sikkim is a multi-ethnic state. Broadly, the population can be divided into Tribal and Non-Tribal groups. Lepchas, Bhutias, Sherpas, Tamang and Subba are categorized as scheduled Tribes. The Lepchas are the original inhabitants of the state. Compared to other ethnic groups, Over 70% of the population consists of Nepalese. They are today the dominant ethnic group in the state. The populations also constitute the business class from the plains. East district is the most populated whereas North Sikkim with a density of only 7 per sq. km is least populated. Sex ratio (Females per thousand Males) in 1981 was 835, whereas it has improved and now is 878. There are only eight urban towns and urban population is 0.37 of total population. Scheduled Caste and Scheduled Tribe population is 5.93% and 22.36% respectively. North district is a tribal district as it has about 55.38% tribal population. Literacy rate is 56.94% (19th position), higher than the all India average literacy rate of 52.11%. Total population of the state is 4,06,457, whereas in 1981 it was 3,16,385 only. Decennial growth has come down, as in 1971-81 it was 50.77%, whereas for 1981-91 it is 28.47% only groups, the Lepchas still maintain many of their traditional ways.

<table>
<thead>
<tr>
<th>NUMBER OF DISTRICTS</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA</td>
<td>7,096 Sq.Km.</td>
</tr>
<tr>
<td>Population</td>
<td></td>
</tr>
<tr>
<td>Persons</td>
<td>5,40,493</td>
</tr>
<tr>
<td>Males</td>
<td>288,217</td>
</tr>
<tr>
<td>Females</td>
<td>252,276</td>
</tr>
<tr>
<td>DENSITY OF POPULATION</td>
<td>76 per sq. KM.4</td>
</tr>
<tr>
<td>SEX RATIO</td>
<td>875 Female per 1000 Males</td>
</tr>
<tr>
<td>POPULATION IN AGE- GROUPS 0-6</td>
<td>Absolute</td>
</tr>
<tr>
<td>Persons</td>
<td>77,170</td>
</tr>
<tr>
<td>Males</td>
<td>38,856</td>
</tr>
<tr>
<td>Females</td>
<td>38,314</td>
</tr>
</tbody>
</table>
Initiatives of the Handlooms & Handicrafts Department, Govt. of Sikkim for the development of Handlooms & Handicrafts sectors

Directorate of Handicrafts & Handlooms is the recent name given to the old Handloom and Handicrafts Centre of Sikkim. Located at a distance of half kilometer from the main market of Gangtok, the centre is also known as the Government Institute of Cottage Industries (GICI). The Institute was founded during the reign of the Chogyals of Sikkim. The undertaking started with the intention to preserve and propagate the art & craft skills of the local artisans. The Institute is an authentic warehouse of traditional handicrafts and handlooms that are exceptional to Sikkim. Here, you can see hand-woven carpets with traditional motifs, blankets, shawls (in Lepcha weaves), ‘thangka’ paintings, graceful ‘Choktse’ (hand carved foldable tables), hand-painted masks, dolls and many other objects. Established in 1957, the Directorate has an emporium from where you can buy every kind of handicraft at nominal price. Apart from the above mentioned items, you can spot lovely dolls in wood, dappled appliqué work, batiks, lamp-stands, shade, bamboo-craft, sporadic silks, rich brocade and embroidered boots. Sikkimese Carpets get the main attention as the quality of these class carpets has made them popular not only in India, but in the whole world. Besides carpets, the exclusive handmade paper is another specialty of the Institute. This paper is made from the bark of Algeri tree. The Institute has no less than hundred student workers, who produce the cottage crafts, following strictly the conventional rules of genuine Sikkimese designs. The carpets that are produced at the institute have fine textures and amazing designs ranging from stylish contemporary patterns to the traditional ones. The Directorate of Handicrafts and Handlooms welcomes numerous tourists, who come to buy and admire the crafts of Sikkim. The Directorate of Handloom and Handicrafts of Sikkim works with the aim of promoting and preserving the ethnic arts and crafts of Sikkim. It is a separate authority which encourages both training and production of ethnic arts and crafts. Another organization, the Handloom and Handicraft Development Corporation, Ltd., will promotes effective marketing of quality based products and creates more jobs and avenues for crafts persons. Here one can see blankets, elegant handcrafted folding tables (Choktse), hand-loom woven carpets with conventional themes, hand-painted masks, shawls, traditional paintings such as Thanka,
wooden dolls and many other handicrafts.

**Tribal Culture**

As in most tribal dominated places, women in Sikkim were found to be more active than the men and they were really interested and looking forward to work for some income generating activity to enhance the income level for their family. The women were found to be familiar working with in traditional production of bamboo products and selling them locally. Some women were already familiar with the traditional products but due to lack of finance there are unable to purchase power tools. With little bit of assistance these women will be able to earn a good amount considering the demand seen in case of bamboo products especially throughout India.

**Potentiality for Development of Bamboo**

The availability of raw materials mostly bamboo always create opportunity for the entrepreneurs. The entrepreneurs can easily get them and more importantly at a very low cost and at their doorstep. But there is scope for mechanization in the production process. Power tools will make the production faster and attractive. Here also the products are traditional. No diversification or development for designs has taken place. People buy these traditional products as mementos which are not very attractive. Blending and proper treatment of bamboo & wood are need of the hour.

**Advantage of Land holding**

As Sikkim is very strict about the preference of land holding which is only restricted to the Sikkimese people. Only the local people enjoy the benefits mostly and face very less competition from outsiders in terms of handlooms and handicrafts products. There is plenty of scope for design development as well as product development.

**Lack of specialized institutes or organization to support Skill Development Programmes**

The people of Sikkim are found to be less skilled which has limited their activities as well as income level. Their income has remained constant for a long time now. From agriculture to all other income generating activities the people have not received any training to upgrade their existing skills. Moreover the technologies are also found to be old and are not helping for increasing the production as well as productivity. Some Institutions have come up in East and South district but has not been able to provide training as per need of the people from the entire state.

**Status of Government schemes**

Unable to reach the actual needy people. The remoteness is one of the reasons why the schemes
NEED ASSESSMENT SURVEY at “Rongli Cluster”

Sikkim

implemented thus far has not been successful. There is need for many self employment and employment related programmes to create opportunities for the youths and the skilled persons of the state. The central govt. sponsored schemes also need to be spread to all the remote areas. The financial institutions should also show positive approach to attract the local entrepreneurs to open their enterprise and create employment opportunities for others.

Remoteness of the places and lack of communication

The places in Sikkim are not well connected with each other. Sometimes there are delays to reach one place from another. The road conditions are also not very good and cause abnormal delays during movement. In many places there is also shortage of proper mode of transport. Though the district and sub divisional headquarters are well connected most villages are till date not connected and roads are not motor able.

About “Rongli cluster”

Sikkim has four districts namely- East, West, North and South. Gangtok is the capital City of the State and possess all that is expected of a State capital. Gangtok is also the Headquarters of the East District. North District is full of hills and the density was also found to be lowest. People are leaving in places which are not well connected. Due to cold climate it is really hard to work also. There is problem for livelihood related worksto be carried out. South District was found to be much developed. It is easily accessible from West Bengal which gives advantage to the district. Many Skill Development and Training Institutions have been opened in this district. The Indian Institute of Entrepreneurship has its centre at Jorethang a town in South Sikkim. The State Institute of Rural Development, Sikkim is also located in this district. Jorethang is well connected from Siliguri in West Bengal and Resource persons from other Institutes are readily available. Namchi is the Headquarter of the South District. The East Sikkim District was most developed and have all facilities. The people are also very aware and interested for taking up activities which will increase their income level. As these places are always having visitors, tourists as well students reading in Sikkim Manipal university come from all the places in the Country as well as from abroad the people have learnt a lot and found to be very hospitable and adopt to the conditions very easily .Rangli is a Sub divisional Headquarter and possesses all infrastructure required for conducting
skill development training. Moreover Rongli is well connected and near Gangtok (The Capital City) and Rangpo (Where the main campus of Sikkim Manipal University is Located). The resource persons can easily be transported to Rongli from any of the two places.

**Advantages**-

1. People were interested and found to be aware.
2. People with minimum level of the Skill in the bamboo sector.
3. Availability of Raw materials required for bamboo.
4. Availability of proper Infrastructure required for the trainings.
6. Reputed Institutes are located nearby.
8. For publicity these places were found to be ideal.
9. Experience of NEDC in Sikkim will help conducting training in Rongli.
10. The climate of these places was found to be proper.
11. All communication facilities required for Communication, Documentation during the training were good.
12. As a town, Rongli have all modern day facilities.
13. Law and Order situation of these places was found to be normal as well as politically peaceful.
1.5 BAMBOO CULTURE IN SIKKIM:

As Sikkim is a hilly state and there is abundance of bamboo the Sikkimese does not hesitate to use bamboo as and when required. They make many items like bowl, dish, glass, with bamboo and dispose them after use. During construction of huts bamboo is use. Even for construction of RCC structure bamboo is again used in abundance. The Sikkimese during also use bamboo as firewood and burn huge quality to keep them away from extreme cold. The bamboo shoots are consumed in huge quantities. As such to collect the shoots the bamboo is cut. Moreover furniture is also prepared from bamboo. New technology as also adopted nowadays to prepare new products from bamboo. During the new construction after the major Earth quake in Sikkim bamboo structure has come in huge number as the Sikkimese feel more safe and confident staying under the bamboo structure. Many food items as well as traditional drinks are prepared and served using bamboo bowls/ Glasses. The products are not only hygienic but are very tasty. These products have huge demands in urban areas.

BAMBOO CRAFT WORKS

Why Bamboo Products & Furniture are in demand

As these are natural that is certain advantage for the users. Moreover the products are very unique. These natural raw materials do not cause any harm to the users and are eco friendly. The bamboo products give pleasure to the user also. The products are generally very durable and needs very less maintenance. The cost of raw materials is also very less and easily affordable.

The products are easily designed because of their characteristics; with little effort these products can be produced. The designs as per the thinking and thoughts of the artisans are easily transferred to the products.
The bamboo can be transformed and used in manufacturing products as per the demand of the customers. The colors as per preference/choice of the customers can easily be given to these products which enhances customer’s satisfaction to a very large extent. In case of mass production, these raw materials are very good for use and with very less effort, the target of production can be achieved easily.
2.1 Raw Materials
The raw materials Bamboo is easily available in plenty. As a result there is no problem with the raw materials. The cost of raw materials is also very low which results in more profit for the producers as the raw materials are available locally this result in low transportation cost and the producers are also not needed to invest a huge amount to keep a stock of the raw material to ensure continuous production. Sikkim has probably the maximum resources for the Bamboo industry in India, comparable with Canada and the Scandinavian countries—Sweden, Norway and Finland. In bamboo, Sikkim has the most concentrated forests in the whole of India. As many as 51 species of bamboo grow in Sikkim and they are being used for diverse purposes, mainly for buildings, furniture and diverse contraptions. Studies are being conducted in some research centers in India as to the suitability of the bamboo being used as reinforcement to replace mild steel bars in light concrete structures. Bamboo is also used for umbrella handles, walking sticks, tool handles, fishing rods, tent poles, cordage adders, yokes, baskets, toys, hand-fans and various domestic and agricultural implements. All these articles can be produced on a cottage and small-scale basis with small machineries.

2.2. Product design, Redesign, Product development-
Product design:
The products presently produced are very traditional and simple. The products are not standardized. There is no quality control to ensure the quality of the products. The artisans is not very particular about the display characteristics or the specifications of the products. Moreover as the target is only limited to local people the products are produced and send to the nearby market. There is scope for introducing new design as well as develop existing designs for the benefit of targeting new segment in the Market. Standardised products will be introduced in the cluster and more emphasis will be given to ensure that the products are manufactured as per the need of the customers. Simplified products may also be tried in the cluster for increasing the use of bamboo products especially by the tourist who helps in economy of the State of Sikkim. Diversification will also be tried in Rongli with bamboo products and new products will be tried and produced targeting new customer segment.
## EXISTING PRODUCTS

<table>
<thead>
<tr>
<th>Product 1</th>
<th>Product 2</th>
<th>Product 3</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
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Scope for redesign with better finish
2.3 SCOPE FOR TECHNOLOGY, MODERNIZATION AND DESIGN COLLABORATION:

Use of traditional tools: Traditional tools are out dated and production process is more time consuming. Product are not able to get desired display and look and lane in finishing.

Use of Power tools: - What is the advantage?

The use of power tools will help in making the production rate faster, the finishing will be undoubtedly better and the products will have a better display. Moreover the specifications will be better and similar products can be manufactured with ease. The power tools will ensure that there is less work load for the artisans and they are comfortable while working with them. The power tools will help in safety measures for the artisan. The power tools will create opportunity for mass production.

Use of traditional tools with power tools: The collaborating both power and traditional tools will give more option and new products can be designed and produced. These type of products more very demandable.
2.4 Innovation Process and related areas for design intervention-

**Process Improvement**- The process is also very traditional. The manufacturing is still done using hand tools. The production process as such is very slow and the product lacks in finishing. As a result the price of the product is also very low. The process needs improvement and the introduction of power tools will definitely help in making the process faster and the products more beautiful. Quality control process needs to be introduced for checking the specifications of the products. Random samples may be selected from the finished products and checked to ensure the products.
3.1 Work Station and tooling design:

Workstation -

The condition of working was found to be very bad as there is no proper shed to work and most of them are working in temporary shed built with bamboo or open spaces. There is no facility for electricity, drinking water and sanitation. The working shed has to be developed scientifically with proper electricity and facilities so that the workers can work in a friendly atmosphere and enjoy working in that shed. The tools are traditional and it takes a lot of hard work and time to produce a simple product. Even after production the products are not very attractive. Those tools need to be replaced by the power tools which will make the production process faster, the products will be beautiful and attractive. The power tools will also help in manufacturing designer products and developed products.

1. **Proper Space for working**: - There should be proper working space to accommodate the working artisans as well as the raw materials with higher dimensions. The worker should feel comfortable and work with ease while working in that space. If required there should be provision to increase the work space to accommodate for more production. The ventilation should be proper to make the space comfortable.

2. **Proper lighting facilities**: - There should be adequate light to work for the artisans and even when there is no power the lights should be ensured even by providing inverter to at least work under sufficient light.

3. **Drinking water/ Refreshment/ Recreation & Sanitation facilities**: - The drinking water should be easily available. There should be refreshment facilities for the workers. Moreover there should be recreation facilities for them as after hard work they can a bit relax. There should be sanitation facilities as well.
Tools and Equipments:
Traditional tools are very much in use till date. The tools like Karat, Renda, Cutter like Dao, Katari etc are used. These tools are out dated and make the production process more tiresome and time consuming. Moreover the products are also not able to get desired display and look and lack in finishing. The modern day tools which are mostly electrically operated will make the process faster and the finished products will be more attractive.

- Double Bevel Sliding Mitre Saw
- Motor Drill Machine
- Jigsaw
NEED ASSESSMENT SURVEY at “Rongli Cluster”

Dremel

Drill Bit Set

Random Orbit Sander
NEED ASSESSMENT SURVEY at “Rongli Cluster”

Jack

Cordless Drill/ Driver

Blow lamp
NEED ASSESSMENT SURVEY at “Rongli Cluster”

Design cutting machine

Generator

Traditional Equipment

Traditional Equipment
3.2 Market and competition study for design advantage and distinction-

There is a good market demand of the bamboo craft all over Sikkim as well as countrywide but a tough competition over prices. Whom so ever products would be cheap and best would get multiple order. The unit is making only running products which have 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 unique and being sold at competitive prices where, more variation in product line, new designs and new products could be proposed keeping in mind the target states for market.
DESIGN AUDIT FOR THE CLUSTER

Description of individual units (total 20 units has covered)
**4.1 Description about the 20 units covered in the cluster (Rongli, Sikkim)**

**UNIT- 01**

Artisans Name: - Mrs Bindhya Chettri.
Age: - 20 years.
Education qualification – HSLC passed.
Contact Number-+91-8967561251
Product Range- Flower Vase, Tray, Decorative items
Experience: 2 years.
Monthly income-Rs. 10,000 /= per month.

**Problem faced**- Traditionally products are produced, Lack of standardized products, traditional tools are used, No proper bamboo treatment etc.

**Remedial solution**- Introduction of power tools for better designs, Product development by standardization, specification, simplification and diversification, Proper treatment of bamboo before production etc.

**Family background**-
Address: - Vill- Lower Dalapchand, P.O. Rathey Khola via Rongli, Dist- East Sikkim, Pin- 737131.
W/o- Khem Bdr. Chettri.
Family member- 3 persons
Male- 1 (husband)
Female-2 (herself)
Children- 1 (daughter)
Education of family member- Her husband is Class- V pass, Daughter is a nursery student.
Member involve in the business – (herself and her husband)
UNIT- 02

Artisans Name- Mrs. Bimla Pradhan.
Age- 40 years.
Education qualification – Class VIII.
Contact Number- +91-8912553590
Product Range- Tray, Tea mug, basket etc.
Experience: 1 year.
Monthly income-Rs 6,000/= per month.
Problem faced- No proper treatment of bamboo, Traditional bamboo items are being produced, No use of machineries during production, artisans comfortable with producing decorative items only.
Remedial solutions- Proper treatment of bamboo before production, New designs as well as development of existing design as per requirement of the customers, Introduction of power tools for better designs, Product development by standardization. Bamboo furniture will be introduced.
Family background-
Address: - Vill- Lower Dalapchand,
P.O. Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131.
Family member- 4 persons
Male- 2 (husband + son)
Female- 2 (herself & daughter)
Children- 2(Son+ daughter)
Education of family member- Husband Class-(X), Son Class-(IV), Daughter Class-(VII)
Member involve in the business - (herself+ husband)
UNIT- 03

Artisans Name-  Mr. Bhanu Bhakta Pradhan
Age- 48 years.
Education qualification – Class VIII Std.
Contact Number +91-8972117284
Product Range- Flower vast, bamboo chair, tray, decorative items.
Experience: 5 years.
Monthly income-Rs 10,000 /= per month.

Problem faced- No proper treatment for Bamboo, Traditional methods are applying during production. No new products being manufactured or design developed for a long time, Lack of finishing, no proper working shed etc.

Remedial solution- Proper treatment of bamboo before production, Product development by standardization, Development of work sheds, Exposure of the artisans to new technologies as well as designs etc.

Family background-
Address: - Vill- Rongli (near Mandir Dara),
P.O. Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131.
Family member- 5 persons
Male-4 (himself+3 sons)
Female-1 (wife)
Children- 3
Education of family member- Wife Class-(VII), I Son Class-(XII), II Son Class-(XII), III Son Class-(X)
Member involve in the business - (himself + wife)
UNIT- 04

Artisans Name- Mrs. Anita Gurung.
Age- 29 years.
Education qualification – Class VII.
Contact Number-+91-80116071977
Product Range- Bamboo lamps, candle stand, flower basket.
Experience: 3 years.
Monthly income-Rs 5,000 /= per month.

Problem faced- Lack of using power tools, No Proper finishing, quality of products not up to mark etc.

Remedial solution- Introduction of power tools for better designs, Exposure of the artisans to new technologies as well as designs, Product development by standardization, Quality control measures to be introduced etc.

Family background-
Address: - Vill- Dalapchand Mandir Dara , P.O. Rathey Khola via Rongli, Dist- East Sikkim, Pin- 737131.

Family member- 3 persons
Male- 2 (Husband + son)
Female- (herself and her mother in low)
Children-1

Education of family member- Husband Class-(VIII), Son Class-(IV)
Member involve in the business - (herself)
UNIT- 05

Artisans Name- Mr. Meera Thapa
Age- 30 years.
Education qualification – Class VIII.
Contact Number-+91-8016010969
Product Range- Pen Stand, flower vase, fruit basket, Bamboo mug.
Experience: 2 years.
Number of workers- Herself.
Monthly income-Rs 7,000 /= per month.
Problem faced- Lack of proper finishing, no proper treatment of bamboo, No use of power tools, traditional methods are used etc.
Remedial solution- Proper treatment of bamboo before production, Introduction of power tools for better designs, Exposure of the artisans to new technologies as well as designs etc.
Family background-
Address: - Vill- Dalapchand Mandir Dara ,
P.O. Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131.
Family member- 7 persons
Male- 4 (husband + 2 sons + father in low)
Female- 3 (herself + daughter+ mother in low)
Children- 3
Education of family member- husband Class-(VII), daughter Class-(IV), I Son Class-(II), II Son Class- (I)
Member involve in the business - (herself)
UNIT- 06

Artisans Name- Mr. Sarju Gurung.
Age- 31 years.
Education qualification – Class VIII passed.
Contact Number-+91-8116071977
Product Range- Decorative item,
decorative flower vase.
Experience: 3 years.
Monthly income-Rs 7,000 /= per month.

Problem faced- No new product/ design tried,
production of traditional bamboo items ,
Lack of proper treatment, no use of power tools
No proper work shed etc.

Remedial solution- Product development by
Standardization, quality control measures to be taken up, Introduction of power tools for better
designs.

Family background-
Address: - Vill- Lower Dalapchand,
P.O. Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131.
Family member- 3 persons
Male- 2 (himself+ Son)
Female- 1 (wife)
Children- 1
Education of family member- Wife Class-(VII), Son Class-(III)
Member involve in the business - (himself and his wife)
UNIT- 07

Artisans Name- Mrs. Menuka Chettri.
Age- 30yrs
Education qualification – VIII passed.
Contact Number-+91-9832399478
Product Range- CD Holder, Spoon Holder,
pen holder, flower vase,
Magazine holder etc.
Experience- 3 years.
Monthly income-Rs 8,000 /= per month.
Problem faced- No use of modern tools,
using traditional methods during production,
No new design on existing products tried,
lack of finishing, No proper work shed, No proper treatment of bamboo before production.
Remedial solution- Introduction of power tools for better designs, better designs will be tried on
existing products, development of work sheds, Product development by standardization,
Proper treatment of bamboo before production etc.

Family background-
Address: - Vill- Rongli, P.O. Rathey Khola via Rongli
Dist- East Sikkim, Pin- 737131.
Family member- 6 persons
Male- 1 (husband)
Female- 2 (herself, sister, mother in-law, two daughters)
Children- two daughter
Education of family member- sister and mother in-law education is Nil,
Husband Class-(XII), I daughter Class- (V), II daughter Class-(III)
Member involve in the business- (herself)
UNIT- 08

Artisans Name- Mrs. Chandra Kala Sarma.

Age- 22years
Education qualification – VII passed.
Contact Number-+91-9635760444
Product Range- flower vase, pen stand, tray etc.
Experience: 2 years.
Number of workers- (herself)
Monthly income-Rs 8,000/= per month.

Problem faced- Lack of finishing, No proper working shed, No use of power tools, products are mostly decorative items, Lack of proper treatment etc.

Remedial solution- Quality control measures will be taken up, Development of work sheds, Introduction of power tools for better designs, Exposure of the artisans to new technologies as well as designs for making the products more attractive etc.

Family background-
Address- Vill- Dalapchand, PO- Rathey Khola via Rongli
Dist- East Sikkim, Pin- 737131.
Family member-5 persons
Male- 2 (husband and son)
Female- 3 (mother in-law, daughter & herself)
Children-2
Education of family member- mother in-law-Nil, husband (Class-X), Daughter (Class- IV), son Class-Nursery.
Member involve in the business - (herself)
UNIT- 09

Artisans Name- Mrs Harimaya Chettri.
Age- 26 years.
Education qualification – Class VI.
Contact Number-+91-9635947951
Product Range- flower vase with stand, magazine holder, bamboo Tray, spoon holder.
Experience: 1 year.
Number of workers- (herself)
Monthly income-Rs 6, 000 /= per month.
Problem faced- Only decorative and gift bamboo products are manufactured, traditional designs are still existing, use of hand tools, no treatment of bamboo.
Remedial solutions- New designs as well as development of existing design as per requirement of the customers, Exposure of the artisans to new technologies as well as designs and finishing, Product development by standardization, introduction of power tools, treatment of bamboo will be shown etc.
Family background-
Address- Vill- Rongli (near Mandir Dara), PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 4 persons
Male- 3 (husband+ 2 sons)
Female- 1 (herself)
Children- 2
Education of family member- husband Class- (VI), I Son Class- (III), II Son Class-(I)
Member involve in the business - (herself + husband)
UNIT- 10

Artisans Name- Mrs. Sita Chettri.
Age- 25 years.
Education qualification – Class 12th passed.
Contact Number-+91-9593732958
Product Range- magazine holder,
flower stand, candle stand,
Flower vase, tray, decorative items.
Experience: 2 years.
Number of workers- 5 (including herself)
Monthly income-Rs 10,000 /= per month.
Problem faced- mostly decorative products
are produced, no new designs tried for a long
time, No proper work shed, traditional tools are used, No proper treatment etc.
Remedial solution- New Designs on existing products will be tried, Development of work sheds,
Introduction of power tools for better designs and finishing, better treatment process before
production.
Family background-
Address- Vill- Dalapchand, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 7 persons
Male- 3 (herself and 2 sisters)
Female- 4 (Mother, wife and his mother)
Children-0
Education of family member- Elder sister Class- (B.A), younger sister Class- (IX), elder brother Class-
(VI), younger brother Class-(XII), mother Class-(V), father Class-(VIII), Grand-mother -Nil
Member involve in the business - (herself+ father and brother)
UNIT- 11

Artisans Name- Mr. Sanjok Chettri.
Age- 22 years.
Education qualification – Class IX.
Contact Number-+91-7602241145
Product Range- Bamboo chairs,
Fruit basket, tray with stand,
Container, basket.
Experience: 2 years.
Number of workers- (himself+ 1others)
Monthly income-Rs 5,000 /= per month.

Problem faced- Minimum use of tools and machinery, no new design or product has been develop, lack of raw material storage place, Mostly decorative products are produced etc.

Remedial solution- Introduction of latest power tools for better designs and better finishing, new products and designs will be tried, Exposure of the artisans to new technologies as well as designs, Development of Work sheds etc.

Family background- 
Address- Vill- Lower Dalapchand, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 5 persons
Male- 3 (himself+ brother+ father)
Female- 2 (Sister and his mother)
Children- 0
Education of family member- Father Class-(VIII), mother Class- (VII),
Sister Class-(X), brother Class-(B.Com)
Member involve in the business - (himself+ father)
UNIT- 12

Artisans Name- Mrs. Sangita Gurung.
Age- 20 years.
Education qualification – Class VIII.
Contact Number-+91-9635562933
Product Range- tray, CD stand, spoon stand, flower vase.
Experience: 2 years.
Number of workers- 2 (including herself)
Monthly income-Rs 9,000 /= per month.
Problem faced- Lack of proper finishing, No new designs, only traditional old products tried , use of hand tools, no proper work shed etc.

Remedial solution- Exposure of the artisans to new technologies as well as designs and finishing, New designs as well as development of existing design as per requirement of the market, Development of work sheds, Introduction of Power tools for better designs etc.

Family background-
Address- W/o- Rajen Rai.
Vill- Rongli, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 5 persons
Male- 2 (husband + father)
Female- (herself, mother in low and daughter)
Children- 1
Education of family member- husband Class-(V), father in-law Class-(II),
Mother in-law Class-(VI) daughter –nursery
Member involve in the business - (herself and her husband)
UNIT- 13

Artisans Name- Mr. Dil Ram Chettri.
Age- 22 years
Education qualification – Class VIII.
Contact Number:+91-9593912252
Product Range- Flower stand, book stand, file cover, CD holder
Experience: 3 years.
Number of workers- 2 (including himself)
Monthly income-Rs 10,000 /= per month.
Problem faced- No new product/ design tried,
No use of power tool, No proper work shed,
Lack of proper treatment of bamboo.
Remedial solution- New designs will be tried
with better quality assurance of the existing products, furniture and other items in demand will be introduced, Product development by
Standardization, Introduction of power tools for better designs, Development of work sheds, better treatment process during production etc.
Family background-
Address- S/O- Bal Bdr Chettri
Vill- Mandir Dara, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 4 persons
Male- 3 (himself+ brother+ father)
Female- 1 (his mother)
Children- 0
Education of family member- Brother Class-(X), father Class-(II), mother Class-(V)
Member involve in the business - (himself+ father)
UNIT- 14
Artisans Name- Mr. Gupta Das Rai.
Age- 24 years.
Education qualification – Class XII.
Contact Number-+91-9635712932
Product Range- Bamboo chair, magazine holder, decorative items etc.
Decorative item, trolley rack.
Experience: 7 years.
Number of workers- (himself)
Monthly income-Rs 9, 000 /= per month.
Problem faced- Existing products lack finishing, furniture production tried but still lack the show/ display value, No proper working shed,
Quality of the products not up to mark, use of traditional tools etc.
Remedial solution- Proper finishing to be ensured, Quality control measures and procedures for may be started, Introduction of power tools for better designs/products etc.
Family background-
Address- S/o- Man Bdr Rai.
Vill- Rongli (Near Mandir Dara),
PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 6 persons
Male- 5 (himself+ 3 brother+ father)
Female- 1 (his mother)
Children- 0
Education of family member- Brother Class-X, two younger brothers Class-IX,
Member involve in the business - (himself + brother)
UNIT- 15

Artisans Name- Mr.Devika Pradhan.
Age- 30 years.
Education qualification – Class VII.
Contact Number-+91-8016122638
Product Range- flower vase with stand,
   CD holder, glass cover etc
Experience: 2 years.
Number of workers- 3 (including herself)
Monthly income-Rs 9,000 /= per month.
Problem faced- old techniques for production,
   No design developed newly, only traditional
   items tried, hand tools still on use.
Remedial solution- Introduction of power
   tools for better designs, quality control and proper finishing techniques will be introduced etc.

Family background-
W/o- Bikash Pradhan.
Vill- Lower Dalapchand, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 5 persons
Male- 2 (husband + son)
Female- (herself + 2 daughters)
Children- 3
Education of family member- Husband Class- (VI),I Daughter Class-(VII),
   II Daughter Class-(III), Son Class-(IV)
Member involve in the business - (herself + husband)
UNIT- 16

Artisans Name- Mrs Rita Gurung.
Age- 22 years
Education qualification – Class VI.
Contact Number-+91-9635151392
Product Range- Wall hanging, pen/spoon stand, tray, candle Stand, bamboo mug.
Experience: 1 year.
Number of workers- 2 (including herself)
Monthly income-Rs 6,000 /= per month.
Problem faced- product finishing, design are old, product range limited to smaller and gift items , still use of traditional tools, No proper treatment of bamboo.
Remedial solution- Newly developed design, attractive items will be tried, Introduction of power tools for better designs, Proper treatment of bamboo before production etc.

Family background-
Address-D/o- Arjun Gurung
Vill- Rongli, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 7 persons
Male- 3 (2 brother+ father)
Female- 3 (elder sister + brother in low and her mother)
Children- 1
Education of family member- All members have nil education
Member involve in the business - (herself)
UNIT- 17

Artisans Name- Mr. Damber Chettri.

Age- 19 years

Education qualification – Class VII.

Contact Number- +91-9593378389

Product Range- Bamboo chair, fruit tray, decorative items.

Experience: 2 years.

Number of workers- (himself)

Monthly income- Rs 5,000 /- per month.

Problem faced- New products tried but problem with specifications and finishing, No use of power tools, lack of standardized products etc.

Remedial solution- Better finishing techniques, quality control measures, Introduction of power tools for better designs etc.

Family background-

Address- Vill- Dalapchand, PO- Rathey Khola via Rongli,

Dist- East Sikkim, Pin- 737131

Family member- 7 persons

Male- 4 (himself+ 2 brother+ father)

Female- 3 (brother in low sister and his mother)

Children- 0

Education of family member- Elder brother Class-(III), younger brother Class-(X), elder sister Class-(XII), brother in law Class -(IV), Mother Class- Nil, Father Class-Nil

Member involve in the business - (himself+ brother+ father)
UNIT- 18

Artisans Name- Mrs. Reshma Pradhan.
Age- 21 years
Education qualification – Class VIII.
Contact Number-+91-9832282849
Product Range- Cup, Mug, Light Stand, Fruit Basket, Flower Pot
Experience: 1 years.
Number of workers- (herself+ husband)
Monthly income-Rs 6,000/= per month.

Problem faced- Simple and non attractive products, designs are old and the products lack quality, Lack of proper bamboo treatment and problems with working shed.

Remedial solution- New designs as well as development of existing design, proper treatment of bamboo before production, development of work sheds etc.

Family background-
Address- D/o- Pradeep Kr. Gurung
Vill- Mandir Dara, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 3 persons
Male- 1( husband)
Female- 2 (herself+ daughter)
Children- 1 (daughter)
Education of family member- Husband Class- (VII), Daughter -infant
Member involve in the business - (herself)
UNIT - 19

Artisans Name- Mrs. Bishnumaya Pradhan.
Age- 23 years.
Education qualification – Class VI.
Contact Number-+91-8967807795
Product Range- Bamboo Sofa Set, Tea Tray, Magazine Stand, Pen Stand,
Light Lamp Stand
Experience: 2 years.
Number of workers- (herself)
Monthly income-Rs 10,000 /= per month.
Problem faced- Lack of proper finishing,
simple products not very attractive,
No development in designs or existing products for a long time, methods of production is traditional and no use of power tools.
Remedial solution- Introduction of power tools for better designs, new designs as well as development of existing design as per requirement of the market etc.
Family background-
Address- Vill- Lower Dalapchand,
PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 4 persons
Male- 2 (husband + son )
Female-2 (herself + daughter)
Children-2
Education of family member- Husband Class-(IV), Son Class -(I), daughter Class -nursery
Member involve in the business - (herself)
UNIT- 20

Artisans Name- Mrs. Nirmala Pradhan.
Age- 26 years
Education qualification – Class VIII.
Contact Number-+91-897208893
Product Range- Wall hanging, Light Stand,
Fruit Basket, Flower Pot,
other household items etc.
Experience: 4 years.
Number of workers- (herself)
Monthly income-Rs 6,000 /= per month.
Problem faced- Lack of finishing, Lack of
standardized products, old designs are still
followed no use of power tools and no
proper working shed.
Remedial solution- Introduction of power tools for better designs, Development of work sheds
product development by standardization, introduction to new designs etc.
Family background-
Address- W/o Rajen Pradhan.
Vill- Mandir Dara, PO- Rathey Khola via Rongli,
Dist- East Sikkim, Pin- 737131
Family member- 3 persons
Male- 1(husband)
Female- 1 (herself)
Children- 1
Education of family member- Husband Class -VII, Daughter Class - UKG
Member involve in the business - (herself and her husband)
4.2 Photographs of Working Condition
4.3 OPPORTUNITY MAPING

1. Raw materials
   - Strong facility
   - 10%

2. Process
   - Skill-up-gradation and training time to time
   - Awareness of modern trend

3. Machines
   - Sander
   - 0%
   - Saw
   - Draper
   - Drilled

4. Ergonomic
   - Right body postures
   - Awareness about
   - Techniques
   - Working

5. Health & Safety
   - Hotel hospitality with modern treatment
   - Mask and safety kits

6. Storing and Packing
   - Better display and storage space
   - Better display at exhibition room

7. Transportation
   - Proper connectivity
   - Own transportation facilities
   - Remote area

8. Branding & Marketing
   - Establishment of a cluster brand
   - Proper branding and marketing

9. Linkage
   - Looking for marketing
   - Fixing base rate according to the raw material of Sikkim Handloom & Handicraft development department (NHDC)

10. End Users
    - New developed/Products
    - Skilled/Safe products
4.4 Need of training and skill up gradation:
The training is required to upgrade the knowledge of use of power tools to increase the capacity to produce more. The product design can be developed and the dimensions can be more accurate. The training will empower the artisans to try new products and designs and thus increase the numbers of customers. The artisans will be able to increase the production rate as well and reduce the wastage of raw materials. Moreover the working houses will also be increased as there will be less tiredness on part of the artisans. The power tools are electrically as well as battery operated. As such in places where electricity or power supply is interrupted the production process is continued.
Moreover the advantages of different schemes of Govt. which are implemented in Sikkim will be discussed and the artisans during training will be interacting with officials of such departments and Institution/ organizations which are implementing the schemes.
In future they can avail in those schemes and apply for financial assistances like marketing linkages, participants in Melas & exhibitions. Officials of the banks concerned area, DIC, MSME and other promotional areas will be interacting with the participants during training programme.

4.5 Ergonomic and environment factors in MSME premise
The working condition is poor as such the artisans are never at ease while working in the cluster. The cold weather also hampers their working and during winter they help of fire which causes smoke which also harms the health of the artisans. Moreover the artisans also work with traditional tools and working with them needs concentration. Even a small disturbance results in injury to their hands. Without proper light and hygienic condition at their work places also cause problems while working for hours at their units. The working conditions needs vast improvement with scientifically built work shed with all facilities and the introduction of power tools in the cluster will help in the safety of the artisans as well as make the working condition perfect for working.
4.6 Safety Issues-

The present working conditions are not fully safe for the artisans and there are always some minor problems for the artisans while working. The artisans are using traditional tools which causes harm to their hands and fingers and often very painful after working for several hours. The working places are also not very safe and in most cases there is no proper cover to be saved from rains and cold weather. Working in this condition sometimes causes health related problems for the workers. There is no proper drinking water or sanitation facility which is also causing some problem for the workers. These problems needs to be solved and once the work shed are developed and the artisans start working with power tools there will be some relief for them.

5.1 Packaging and logistics and storage related design opportunities

Packaging-

The bamboo products are not very hard and may be damaged during transportation as such care is to be taken during packaging that they are not damaged. Moreover the packaging should be water proof and heat resistant. The weather in Sikkim is cold and often raining so care is very much necessary in this regard. Presently the products are somehow packed with jute and tied with ropes and transported by buses in the carrier. The products when they reach either Gangtok or Siliguri are damaged and are to be given finishing again before handling over to the traders or the Agencies.
Storage and Logistics-

The storage facilities in the units are very poor. The raw materials, Semi finished and finished products are kept in the same room. It’s difficult to find and identify their status. The finished products are often damaged in this process and the artisans have to repaint or give finishing again before delivering it to the traders. There is no specific transporter of Bamboo products in Rongli and the bamboo products are transported along with other products. The units among them should ensure that their products are collected in a common place and properly packed and then transported to the nearby market together and in a covered truck/van.

5.2 Exhibition/Display design opportunities

The display of products is generally very poor and the Artisans are also not willing for proper display. As a result the products are kept in much unorganized manner and there is not much care taken for them and they are generally dumped. As there is very less effort for promotion and as the products are not displayed in a proper manner the customers never get an idea of what products to order for. The products are kept in storage and before delivery the finishing touches are provided. Moreover in case of sophisticated products there is some loss when the products are dumped. The Artisans will have to be trained about how good display will help in promoting their products. Moreover catalogues with all good designs have to be prepared to target more over and more customers.

5.3 Study of infrastructure setup from design perspective

- Need to be organized and systematic.
- Precise and reduce human error.
- Workers friendly practices and ergonomics and improper awareness of market.
5.4 Visual identity, branding from communication design point of view-

Need for a Common Visual Identity.
The cluster has no such identity mark to be recognized. It is very difficult for users to identify the product according to cluster. 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 popular among 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 specialty. This unique small group would segregate them from rest of the other similar clusters.

Branding-
The Rongli products are good and the business is done at individual level. Moreover there is a major role of the Middlemen who are the traders and they take the maximum benefit not only from the manufacturer as well as from the end users. The units should come together and a Brand name may be finalized and the necessary formalities in this regard may be completed as per requirement. This will ensure proper benefit for the manufacturers and their brand. The brand will be able to create name for the clusters and their products. From a unorganized sector Rongli can become a organized bamboo products manufacturing sector which will result in benefits from the Government as well as other business sectors.

5.5 Inter cluster communication “Rongli” cluster:

At the present scenario, the cluster has low level of design consciousness. As there is 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, and 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 expert, 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.
The women artisans are actively working in “Rongli cluster”. Though the products are good and they are producing only for local demand. First of all the artisans will have to understand and find the
demand of bamboo products. They must try to establish linkages to ensure the continuous process of selling their products. The production rate is very slow as till date the traditional method and tools are used for producing the products. There is no measure in terms of product design and development. Moreover most of the products are made for gift or decoration purpose. The artisans must be encouraged to go for production of furniture which has high demand in other parts of the county.

The uses of power tools need to be popularized in this Himalayan state to ensure the production rate is increased and strengthen the production line to ensure the orders are fulfilled and honored. Moreover very little or almost no care is taken in the treatment of the bamboo at pre production stage. The artisans must be made aware of how important the treatment is for bamboo products. Otherwise the durability of products cannot be ensured. The products will be damaged after using for 3-4 years. The customers will ultimately lose hope in these products. The “Rongli cluster” initiative will also include establishing marketing linkages through different agencies, organizations and departments which promote sales and marketing of bamboo products. Moreover the artisans can also form association and set up a sales outlet at Siliguri which acts as gateway of the North Eastern states. The artisans can also apply for establishing Common Facilities Centre (CFC) where all the facilities for treatment, production, finishing, packaging will be there and act as showroom at Rongli for display and contact place for interested buyers.

6.1 To increase the market share and profitability

The bamboo products have high demand in most of the cities and states outside the North-East. The products are beautiful and increase the show of the rooms where they are placed. The products need to be transported to the other parts of the country. Many schemes related to marketing and development of the bamboo products have been implemented by the D.C. (Handicrafts) under central Govt. The Handlooms and Handicrafts development department has also initiated many schemes to
encourage the artisans and entrepreneurs to develop new bamboo products and are also creating marketing opportunities for them. As tourism is the major industry trust is given for casing the products manufactured in Sikkim. Moreover the NEHHDC (North East Handloom and Handicraft Development Cooperation) also encouraging artisans to produce more and more bamboo based products with better designs. There is also huge demand for the momentous among the tourists who visit Sikkim. Now some entrepreneurs have established linkages with some potential buyers and are regularly selling their products and getting orders from other place in India as well as abroad. The CBTC is also encouraging the Sikkim based artisans to produce more products using new technologies which will have benefits on used in hilly places. The bamboo mission is also being implementing in the state successfully.

There are many schemes/ projects being implemented by the Govt. of India as well as Govt. of Sikkim for the artisans who are engaged with bamboo craft. The 20 (twenty) artisans selected in the cluster will be linked with the promotional organizations who are promoting these products in terms of marketing as well as product development. The artisans will be informed about the technologies/schemes under which they can apply/ register to get the benefits. Moreover these artisans will be encouraged for making and selling these products and the benefits they will get from these linkages. The artisans will also be able to take loans under Govt. sponsored schemes with subsidies to enhance their business and earn more in the process as well as create opportunities in terms of employment for others.

The artisans should target the Gangtok market which is a tourist destination and the mementos will be easy sold at comparatively high price.

The Artisans must target the Siliguri market where they can sell off their product and from their, they will be able to establish linkages with buyers and organizations of any place in India at Siliguri is well connected by rail/ road as well as Air.

6.2 Issues in bamboo value chain

(a) Proper Costing and Pricing of the Products
Most of the artisans calculate their per day labour charges as Rs.200 to 500 while determining the price of their products. The labour charges of the other family members are not included while making these calculations. Also this 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 products 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 practiced on a large scale the artisans mini production centres on their own, and handle all the processes themselves. Mostly members of the family contribute their time and labour during production. Most of them work as individual artisans.

(c) Product Diversification and Design Inputs:
Most of the people involved in the bamboo craft are the 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 bamboo 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 unable to expand the market. The target segment at which the bamboo products are aimed, over the last few years has remained same. Also these are considered to be cheaper and handy.

(e) Low Level of Skills:
There is hardly any skilled person working in these enterprises and new technologies had been introduced. 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 up market stores or in metros where they can fetch a better price. Even in Assam, and shops that sell bamboo belong to local persons.

(f) Poor External Linkages:
Although this Bamboo cluster’s technique is unique to the bamboo 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.

6.3 SWOT Analysis of the Rongli Cluster

Strength:
1. Bamboo is accepted by the tribal culture of Sikkim.
2. The artisans are mostly women and they find it easy to work with bamboo.
3. The tourism potentiality in Sikkim encourages the production of bamboo products.
5. Use of power tools is very limited in the cluster, thus creating scope for their introduction in the cluster.
7. Scope for product diversification.
8. Existing business of the artisans is well established.

Weakness:-
1. Women are mostly engaged traditional method of production. i.e. Bamboo products.
2. Treatment of raw materials is poor.
3. Only small and gift items are produced.
4. Lack of training facilities/ guidance for encouraging them to take up power tools.
5. The price of the products in this region (N.E.) is very low and even the low price has not encouraged buyers in the region.
6. Lack of marketing linkage. Proper packaging & display is not there.

Opportunity:-
1. The acceptance demand of bamboo/ wood is very encouraging.
2. The bamboo products are highly in demand in other part of the country.
3. Traditional products are generally manufactured thus creating opportunity to produce new diversified products.
4. Creation of self employment in this sector.
5. Business opportunities for the artisans.

Threat:-
1. The artisans may give up the trades as they are not able to earn the expected income.
2. The raw materials are mainly wasted as firewood in which may caused scarcity of raw materials in future.
3. Problem of storage after production rate is increased.
4. Competition with similar products produced in other states.
5. Due to lack of proper packaging & transportation facilities the transportation of these products is very troublesome & not encouraging.

6.4 Remedial design solutions/ suggestion for the cluster-

After the NAS and interaction and assessment the work places there were many observations which have been already mention in the report and the following suggestions made so that necessary
remedial actions can be undertaken in the cluster for development of Designs as well as products and the cluster as a whole.

1. Proper treatment of Bamboo before production.
2. New designs as well as development of existing design as per requirement of the customers.
3. New segment of customers are to be targeted by introducing products with new designs.
5. Introduction of Power tools for better designs.
7. Proper storage and Packaging for the finished products.
8. Better transportation for the finished products.
9. Exposure of the artisans to new technologies as well as designs.
10. Quality control measures and procedures for Branding may be started.
6.5 CONCLUSION

The “Rongli cluster” is producing a lot of bamboo product; mostly women artisans are taking up this activity area. Now the new generation entrepreneurs and artisans are taking up this activity seeing the potentiality of the bamboo products. There is tremendous scope for development of the cluster considering the demand of the products at local as well as outside the state and international markets. There is huge advantage for the availability and cost of raw materials. Transportation cost is also low as they are available locally. Many promotional agencies and organizations are engaged in promotion of these products. There are many Govt. schemes for the artisans on offer for production as well as marketing.
Website:

- http://www.designclinicsmsme.org/
- http://www.nid.edu/
- http://Sikkim.nic.in/history.htm
- http://histry/bamboo & woodcraft

Books

Professional Power Tools for Trade & Industry (Range for 2012/2013) By BOSCH invited for life
Design Clinic Workshop
On Bamboo Products and Furniture
Under
Design Clinic Scheme at Rongli Cluster
at
Rongli, Sikkim

Programme Report

Sponsored by
Ministry of MSME, Govt. of India
And
in Collaboration with
National Institute of Design
(An organization of the Ministry of MSME, Govt. of India)
Ahmadabad

Organized By

North East Development Consortium (NEDC)
Dispur, Wireless, Guwahati-781006, Assam
Contents

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2. Registration and details of the Participants
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7. Registration Form
8. Feedback Form
**Report on Design Clinic Workshop:**

On the basis of Need Assessment Survey report under Design Clinic Scheme, a five- day workshop was conducted on bamboo products and furniture at Rongli, in East Sikkim District of Sikkim from 18/12/12 to 22/12/12

The workshop was planned based on the problems and opportunities identified during the Need Assessment Survey. The workshop was aimed to give the artisans a few solutions on spot design for identified opportunities for design intervention from the existing problems.

As per the Need Assessment Survey the main focus areas were development of new products for local use, introduction of new designs, development of traditional designs and products and use of power tools for better products in terms of design and quality. So during the workshop the participants were given demos and sessions in which they used the power tools as well as manufactured the products themselves so that they can enhance their confidence in this regard.

**Registration and details of the Participants:**

In the Design Clinic Workshop 24 participants from Rongli, in East Sikim District, Sikkim participated in the programme. List of the participants is enclosed as Annexure- I. The workshop began on 18th December 2012 at 10.00am and before beginning all the participants were registered and they were given a copy of programme schedule along with training materials like pen, pad, and folder. The registration forms are enclosed.

**Inauguration and Felicitation of Guests:**

The inauguration of the programme was held on 18th December 2012 from 10:00 a.m. Mr. Narendra Chetri, Ex. GP Member, Rongli, Mr. Raju Pradhan, Social worker, Rongli, Er. A. Dutta, Designer, Mr. Jayanta Baruah, CEO, NEDC and Mr. Lila Gogoi, Master trainer were the distinguished guest during inauguration.
Mr. Jayanta Baruah CEO, NEDC welcomed the chief guest, the invitees, the participants and all other people present there and gave a brief introduction about the workshop and discussed the curriculum of the workshop. Next he introduced the chief guest and the invitees to all. All the participants then introduced themselves and shared their expectations about the workshop.

Er. A. Dutta felicitated on the day of inauguration.

Er. A. Dutta gave an introduction about Design Clinics Scheme and its benefits.

Mr. Jayanta Baruah gave a lecture on about the role of NID/ Ministry of MSME in Design Clinic Scheme and importance of Design and Product Development.
After that, Er. A. Dutta introduced different power tools which are used for producing bamboo products and furniture.

Er. A. Dutta introducing different types of power tools.

Mr. Lila Gogoi giving demo on use of power tools.

Participant using power tool.

Participant using power tool.
Er. A. Dutta showing a diversified product manufactured by using power tools.

Participants using power tool. (Sander)

Participants using power tool. (Drill)

Participants using power tool. (Cutter)

Design Clinic Workshop Report!! Bamboo products and furniture, Rongli, Sikkim
On 2nd day i.e. 19th December 2012, Mr. Lila Gogoi, Master trainer started the 1st session at 9.00 a.m. and took a practical class on manufacturing of diversified bamboo product. After lunch Er. A. Dutta discussed different design development using power tools for bamboo. He also discussed the changes in terms of production process for bamboo using power tools.

Mr. Lila Gogoi gave a demo of dremel machine.

Er. A. Dutta took a session of development of existing decorative product by using power tools.
Mr. Lila Gogoi giving practical demo on treatment process of bamboo.

Practical session on bamboo products and furniture manufacturing.

Practical session on bamboo products and furniture manufacturing.

Mr. Lila Gogoi giving practical demo on treatment process of bamboo.
On 3rd day i.e. 20th December 2012, Mr. Mani Kr. Gurung, Executive Secretary, YODESS was the distinguished speaker for the first session which was held from 9.00 a.m. He gave introduction about different schemes which are being implemented in Sikkim for self employment. He stressed upon taking bamboo manufacturing as a self employment activity considering the easy availability of bamboo in that area. Then during the second session Mr. Lila Gogoi discussed about the importance of finishing in bamboo which helps in marketing of the products. During the last session practically a tea table as designed by Er. A. Dutta was manufactured using power tools.

Mr. Mani Kr. Gurung, Executive Secretary of YODESS, took a session on about different schemes of self employment of Ministry of MSME.

Er. A. Dutta gave an instruction during manufacturing of a tea table.

Er. A. Dutta gave an instruction on about product diversification.
On 4th day i.e. 21st December 2012, Er. A. Dutta, started the 1st session and discussed about the importance of colour and the impact of different colour on the finished products. The natural colour of bamboo was preserved in some products. Whereas chemical colours were introduced in some other products and in some cases the bamboo was burnt to produce some natural combination in the furniture and products. In the last session a new product (Garden Chair) designed by the designer was practically manufactured.

Er. A. Dutta discussing on about importance of colour of bamboo products.

Practical Session for application of colour to the products which were produced.

Practical session on colouring of bamboo products.

Design Clinic Workshop Report!! Bamboo products and furniture, Rongli, Sikkim
Er. A. Dutta gave a practical session.

Garden Chair being manufactured practically.
On final day i.e 22nd December 2012, Er. A. Dutta, gave a lecture on packaging for protection of finished bamboo products. After that the first session was completed the participants break for lunch.

Er. A. Dutta interacting with the participants.

On final day i.e 22nd December 2012, Er. A. Dutta, gave a lecture on packaging for protection of finished bamboo products. After that the first session was completed the participants break for lunch.

Er. A. Dutta interacting with the participants.

Product Display.

Participant displaying product sample.

Discussion on about packaging and importance for value addition and marketing at Sikkim.
Evaluation of training programme

During evaluation

During evaluation

During evaluation

*Design Clinic Workshop Report!! Bamboo products and furniture, Rongli, Sikkim*
Participants during the workshop.

Design Clinic Workshop Report!! Bamboo products and furniture, Rongli, Sikkim
Valediction:

The valedictory session of the workshop was conducted on 22\textsuperscript{nd} December 2012, Mr. Mani Kr. Gurung, Executive Secretary of YODESS, Ms. Sudha Rai, Accountant of YODESS, Er. A. Dutta, Design Consultant, Sri Jayanta Baruah, CEO, NEDC, Mr. Lila Gogoi, Master trainer of the workshop and the participants participated in the programme.

Er. A. Dutta, welcomed the gathering and shared his experience about the workshop and offered thanks to NATIONAL INSTITUTE OF DESIGN, AHMEDABAD for giving him the opportunity. Mr. Jayanta Baruah encouraged the participants to work seriously to launch small scale business units. He complimented the participants for their initiation to become successful entrepreneurs. In his valedictory address he told the participants about how the attitude and perception will help the entrepreneurs to excel in their business. He also encouraged the participants by saying not to give up hope in life and also discussed about the benefits on offer for the artisans under the Design Clinic Scheme. Ms. Sudha Rai encouraged the artisans to go for new products and designs. Mr. Mani Kr. Gurung stressed upon participation in Melas & Exhibitions by the artisans. Er. A. Dutta then briefed about the conduct of workshop and complimented the participants for their active participation, involvement and successfully completing the workshop.

After that all the participants thanked NID (National Institute of Design) and Ministry of MSME and hoped to start a small business unit in bamboo products and furniture.

After this every participant were given a feedback form which they filled up & submitted. The feedback forms are enclosed. The programme was concluded with vote of thanks from Mr. Jayanta Baruah, CEO, NEDC.
Participants during the workshop.
Some of the products samples developed during the workshop by the artisan.
Power Tools Presentation during the programme.
Design Clinic Workshop Report!! Bamboo products and furniture, Rongli, Sikkim
## List of Participants

**Design Clinic Workshop**

**On**

**Bamboo Products and Furniture**

**at**

**Rongli, East Sikkim, Sikkim**

**Date:** 18.12.2012 to 22.12.2012

<table>
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<th>Address</th>
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<td>Ms. Bindhya Chetri</td>
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<td>2</td>
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<td>Ms. Meera Thapa</td>
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<td>Mr. Sarju Gurung</td>
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<td>Ms. Menuka Chetri</td>
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<td>Ms. Chandra Kala Sarma</td>
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