BAMBOO & WOOD CRAFT
A NEED ASSESMENT SURVEY REPORT
KAHIKUCHI CLUSTER, KAMRUP, ASSAM
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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, Ahmedabad, has been setup as the nodal agency for the scheme. With its rich experience in design training and consultancy, NID will act as matchmaker to the MSMEs and design professionals. It shall also administer effective implementation of the plan.

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

Design Clinic Scheme will help MSMEs to develop product/process expertise through design intervention through multiple level interactions. Design 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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Also thanks to NEDC’s project assistant- Mr. Palash Nath & Mr. Lila Gogoi along with Designers - Sri Rebat Deka and Sri Abhijeet Deka and entire Bamboo & Wood cluster’s each individual unit member who has given me their great support during the design audit. Where, without their involvement & assistance I was unable to understand cluster background & their present status. Thus I come up with such informative, structural, analytical and design intervention opportunities.

I would also thanks “Design Clinic Scheme; National Institute of Design”, who has given me an opportunities to accumulate an intensive report after realizing my strength, potential and past experience.

I also offer thanks to the promotional agencies like- NEHHDC (Purbashree), ARTFED (Jagaran), AGMC( Pragjyotika), SIRD (Aastha) who are encouraging the sales and marketing of the Bamboo and Wood products from the cluster.
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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 up gradation 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 areas 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 sustain-ability. 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, 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 is an organization which offering consultancy services in different fields and expertise in different areas. It was started in 2000 at Guwahati aiming to serve the people of North-East. The organization is managed by a set of dedicated persons having expertise in different areas. It is not a profit organization dedicated to formulate and implements plans and projects that improve the social and economic condition of North-East people. Through this NEDC want to assist to improve house held condition of North-East with a sense of community & sense of personnel empowerment. It also offering services that assist women & children who are experiencing violence, homelessness & chronic poverty & to create an environment that strengthens a women belief in her ability to influence the direction of her life. In other words it want to serve as a regional voice for the land of eight sisters.

**Organization Profile:**

NEDC is registered under the Societies Registered under the Societies Registration Act, XXI of 1860 with registration no. RSKAM/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:**

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

**Mission:**

1. To serve the people by offering quality services for their progress & economic up 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,

**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), Ahmedabad, Indian Institute of Entrepreneurs (IIE), Guwahati, NI- MSME, SIRD, Guwahati. NEDC has not only confined itself to trainings of unemployed educated people but ensured that they after fulfilling the norms are credit linked & enable them to set up their own enterprises. Many such clusters have been developed throughout the state of Assam by NEDC under different Govt. Schemes and with assistance from the local banks. NEDC has also helped the interested persons by creating Marketing opportunities for their produce and ensured that the producers get the actual price for their products. NEDC has established linkages for the weavers with many reputed organizations doing business with Handlooms products. NEDC has been offering consultancy services to many organizations as per requirement and has excelled in this regard. Many events has been organized by NEDC for many departments successfully and already earned reputation in this field. NEDC also entered the field of Advertising & Publicity and has also provided consultancy in this field. For conducting sessions during training programmes & for guidance time to time Faculty support is taken from all leading 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.

Need Assessment Survey || Bamboo & Wood Craft Cluster, Kahikuchi, Kamrup, Assam || 2012 || Anupam Dutta
1.4 AN OVERVIEW OF THE DISTRICT KAMRUP

District Background and Demographic Profile:

Kamrup (Rural) District is situated between 25.46 and 26.49 North Latitude and between 90.48 & 91.50 East Longitude. It is bounded by Udalguri and Baksa districts in the North, Meghalaya in the South, Darrang and Kamrup Metropolitan in the East and Goalpara and Nalbari district in the West. It has a total geographical area of 1346.26 sq. mile, (which is equivalent to 3486.8 sq. km.)

The demographic pattern of the Kamrup District is a heterogeneous one. Various ethnic groups like the Koch-Rajbongshi, Kalitas, Brahmins, Gosains, Rabhas, Boros, Garos, Hajongs, religious and linguistic minorities i.e. Muslim and both Hindu and Muslim Bangalies etc. are the main ethnic groups that inhabit in the district. All these different ethnic groups subscribe to different religious faith viz. Hinduism, Christianism, Islamic and Budhism etc.

Demographic Profile of the District:

According to Census, 2011
Kamrup District population constituted 4.87 percent of total Assam population. In 2001 census, this figure for Kamrup District was at 4.87 percent of Assam population. In 2011, Kamrup had population of 1,517,202 of which male and female were 779,608 and 737,594 respectively. There was change of 15.67 percent in the population compared to population as per 2001. In the previous
census of India 2001, Kamrup district recorded increase of 14.97 percent to its population compared to 1991. The initial provisional data suggest a density of 436 in 2011 compared to 382 of 2001. Total area under Kamrup district is of about 3,480 sq.km. With regards to Sex Ratio in Kamrup, it stood at 946 per 1000 male compared to 2001 Census figure of 934. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. The total number of villages in the districts is 978. There are total 14 blocks and 139 Gaon Panchayats in Kamrup district.

**Literacy Rate in the District:**
The Male literacy rate in Assam according to 2011 Census is 78.81% while Female literacy rate is 67.27%. The average literacy rate of Kamrup in 2011 were 72.81 compared to 67.73 of 2001. If things are looked out at gender wise, Male and Female literacy were 77.64 and 67.69 respectively. For 2001 census, same figures stood at 75.89 and 58.95 in Kamrup District. Total literate in Kamrup District were 962,677 of which Male and Female were 528,117 and 434,560 respectively.

**Rural Poverty context in the District:**
According to BPL Census 2002, Kamrup has 42.50% BPL population.

**Status of Human development in Assam:**
The estimate of the HDI for Assam during the year 2007-08 was 0.444 as against for all India 0.467. The HDI for the District was 0.574.
The Kahikuchi area in South Kamrup has rich resource base for the bamboo & wood product. The raw materials are plenty to be found and at a very low cost. The production is skill with traditional tools as a result of which the rate of production is very slow and the product are also not that beautiful as the finishing is not up to the expectations of the customers so the price of the products are low as compared to the branded ones available in the market. The artisans are skilled but they are still manufacturing same products for a long time and unable to match the modern day demands in terms of quality and design.

The above mentioned sector too enjoys the advantage of low cost for raw materials and easy availability. The artisans still use the traditional tools as Da, Kotari etc for manufacturing the products. The products are still very traditional and there has been no development or diversification for a long time in this case.

There is tremendous scope for use of power tools in this cluster which will make the production faster and the products more beautiful. That will help in increasing in the price of the products for which the artisans will be able to earn more.

The artisans will be able to go for diversification and as there is an existing demand and for these products throughout the county these products will be very much sold out at an attractive price. The introduction of the power tools will make the work environment more comfortable for the artisans as that will also reduce the work load and hardship. Moreover effort for finishing will also be reduced in this case. Another important thing that has been observed is the requirement of treatment for wood and bamboo which will make the products durable and long lasting, thus increasing the confidence of the customers.
2.1 **The Process:** Bamboo/ Wood as raw materials are treated first for termite resistance. As there is moisture in the raw form they are dried up for a period and then the actual work with these raw materials are started. The treatment make the Bamboo & Wood resistant to the insects and cool and moist weather the durability of the products is increased in this way and in the process the satisfaction of the customer also increases there is very little use of the power tools till date. The machines like sander and cutter will be very useful as they will make the work more accurate and easy and ensure the display of the finished products is good. Moreover there will be less wastage of raw materials which will also help in reduction of the cost of production.
2.2 Raw Materials

The raw materials Bamboo & Wood 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 a 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.

Assam has probably the maximum resources for the Bamboo & Wood industry in India, comparable with Canada and the Scandinavian countries-Sweden, Norway and Finland. In bamboo and Wood, Assam has the most concentrated forests in the whole of India. As many as 51 species of bamboo grow in Assam 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.
2.3 **Tools and Equipments;**

Traditional tools are very much in use till date. For wood the tools like Karat, Renda, Cutter etc are in use. For Bamboo the tools 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](image)
Dremel

Router
Random Orbit Sander

Drill Bit Set
Jack

Cordless Drill/Driver
Traditional jack machine

Blue lamp
Design cutting machine

Generator
Traditional Equipment

Randa (traditional equipment)

Traditional Equipment
Traditional Equipment

READMADE TRADITIONAL DESIGNS
**Why Bamboo and Wood Products & Furniture are in**

As both of 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 & wood 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 & wood 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 customers 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.
BAMBOO AND WOOD CULTURE OF ASSAM:
The traditional woodcraft industry of Assam provides an insight into the versatility of the craftsmen of the rural areas of the state. Endowed with the traditional knowledge of making beautiful products from woods, the woodcraft industry is one of the ancient handicraft industries of the state. Assam has been the cradle of many civilizations. The royal blue blood of the ancient state of Assam encouraged in the growth of the woodcraft industry. Many important and famous craftsmen of the ancient times received royal favor. The woodcraft industry flourished under the patronage of the rulers of Assam who were fond of wooden handicraft items. The traditional skill of carving beautiful items of wood has triggered down to the modern era. The eloquent and exquisite patterns of designs on the wooden items reflect the rich artistic skill and creative imagination of the craftsmen. The craftsmen of Assam are adept in producing excellent items of wood that has captured the imagination of the poet. The splendid woodcraft items have taken the world by storm because of its fine designs that makes them one of the unique products of the handicraft industry of Assam. The only reminiscent of the glorious cultural past of our country, the woodcraft handicraft industry once again rose into prominence during the recent years with the intervention of the state government of Assam.
Assam is rich in sylvan resources and most of its forests are richly stocked with bamboos and wood of various species. Bamboo is a raw material of great versatility and forms an integral part of the lifestyle and economy of Assam. Special mention may however be made of the forests of Mizo Hills, Cachar, Mikir and North Cachar Hills, Nowgong and Lakhimpur districts. While touring in the hill districts, one sometimes wonders at the vast expanses of bamboos and woods. The important species of bamboos of economic value are the Muli (Melocanna bambusoides), Dalu (Teinostachyum dalloa), Khang (Dendrocalamuslongispatnus), Kaligoda (Oxytenanthera nigrociliata) and Pecha (Dendrocalamus Hamilton-ii). The Muli and the Dalu have great commercial importance, the former for pulping, constructional and fencing purposes, and the latter for the mat and basket industry. The making of bamboo and wood products is perhaps the most universal of all the crafts practiced by a large number of artisans scattered throughout the State. It is practiced as a household industry and no mechanical device is used. Wood and bamboo products are used for a wide range of purposes and extensively used in every household. This industry has carved for itself an important place among the handicrafts of the State. It provides part time employment to the
cultivators in their spare time and full time employment to the few highly skilled artisans who produce only fine decorative baskets, furniture and mats on a commercial basis. No definite records are available to establish the antiquity, history and origin of this craft in Assam. However, it can be safely assumed that the craft was practiced since the misty past with the very dawn of civilization. In the early period in Assam, bamboo was held with special reference and is forbidden to cut in “auspicious days”. It is a general belief that bamboo possesses auspicious character and is of religious significance.

An idea about the flourishing state of wood and bamboo products of Assam was fond even during the time of Bhaskara Varman (early part of the 7th century A.D.), the king of Assam, may be had from the following extract. (An extract from “The History of civilization of the people of Assam” by Dr P.C. Choudhury “Early literature refers to the well-decorated and coloured Sital patis (cool mats) used by the rich people. Mats were usually made of wood. The classical writers testify the abundance of wood in the forests of Assam. Ptolemy, for instance, states that to the east of Serica, which we have identified with Assam, there were hills and marshes where woods were grown and used as bridges. Evidence of the production of other wood articles is also supplied by the ‘Harshacharita’, which mentions stools of wood. The cultivation of bamboo and its use for various purposes are well known. Bana again testifies to this highly developed craft. He states that Bhaskara sent to Harsha ‘baskets of variously coloured reeds’, ‘thick bamboo tubes’ and various birds in ‘bamboo cages’. All these prove that various industrial arts were developed in Assam at an early period and were continued to be practiced till recent times, based on that traditions like those of the craftsmen of other parts of India.”
History of Wooden Furniture

India has a very long woodcraft history with its prime time during Vijayanagar Empire southern India (1336AD). Wood craftsmen then were highly respected by the royalty because woodcraft was considered an art and a trade. Woodcrafts can be found everywhere in India, on wooden doors, posts, walls, in remote villages, in cities, in modern buildings, in temples, and one will be impressed by the wide variety of styles of this craftwork. Woodwork carries several important implications in India. Being heavily influenced by art and literature, ebony particularly among the royalties, whereas walnut legends and folklores are kept for many years. It and culture are preserved. It is well-known that other amazing wooden inventions in the world. into decorative objects such as cabinets, screens, toys or in a different scale houses and rooftops. sesham wood, Indian rosewood, teakwood, and encourages the wide range of wooden creations it is considered by most Indians to be a gift from years. Contrast to the present rapid Indian wooden furniture still maintains its processes in its production. Because of this, there is still much ethnic flavour to be found in the furniture. And also due to the way the furniture is made, Indian wooden furniture is the symbol of durability and elegance. The availability of raw material and regional variations has long influenced furniture making in India. Wooden furniture has always been known for its durability, elegance and design, which lends an aristocratic look to a particular room, be it an office or a home. The reason why Indian furniture has been regarded as prized possession is its ethnic flavour. In some parts of Rajasthan and Gujarat colourful painting of furniture is quite common. Traditional designs and motifs are
painted in colours, which are again traditional. The items that are generally available in this range are small chairs and tables, bajots and chowkis, stools with string seats, boxes, cabinets, mirror/picture frames, doors and windows. In Rajasthan, the furniture that comes from Shekhawati holds its unique importance in the market. This furniture is made from local timbers like sheesham (Dalbergia sissoo), mango (Mangifera indica), and babool or kikar (Acacia nilotica). We will also find several pieces of Indian furniture that have been transformed into something else. As an example, window grills and doors have now been turned into coffee tables and cupboards. Although India is known for many fine things, it stands at the top of the list when it comes to furniture. Remember, domestic furniture as it is known in Europe today was not traditional in India prior to the 16th century. It was soon discovered that while the Indians were not good or accurate at copying, they were highly skilled. We specialize in the following range of furniture and iron items:

**Lasa III**

The about few pieces of shisham furniture are from our LASA III collection which is made by using ‘A’ grade plantation shisham wood from Bihar. Shisham is a dense hardwood, with high natural oil content, naturally repelling moisture. No other wood shares shisham exceptional strength and durability. All products are classified in coherent ranges, which are based on the principle of complementarily of function and style. This implies a range of furniture intended to be simple but powerful, pure in function and spirit, but attractive to the senses.
**Copenhagen**

The Copenhagen collection is created from mango wood with rich medium finish that’s sealed for practicality. The Copenhagen collection products are designed to balance quality and design with the practicality that home would demand. This collection is perfectly designed with a variety of options, it will work perfectly whatever the space or room design.

**Scandinavian**

Here are few pieces from our Scandinavian Range, the combination of modern & old lines. This whole collection is made from Acacia wood sourced from managed environmentally friendly timber sources and assembled in accordance with old time traditions. Each individual piece of furniture features a unique grain and therefore has its own distinctive characteristics that give it a special authentic atmosphere & appearance. Classic, Scandinavian traditions of design match perfectly with the look of the light and natural acacia whilst the darker colours signal an elegant. The whole collection of Scandinavian range has a simple, beautiful and timeless design. Being handmade, each piece has a unique appearance appealing to the individual. All of this acacia furniture has been crafted with daily pleasure and practical use in mind which has been made for years of use in many different homes.

**Cubo**

Each piece in the Cubo collection has been beautifully designed using the best quality of Acacia wood available on the outskirts of Jaipur. As the range is handcrafted each piece is unique in shade and texture which is inspired by bold contemporary lines & warm grains. The range has many marvelously designed pieces such as dining sets, coffee tables and shelving units all are available in the Cubo collection to give a modern & contemporary touch to your home.

**Doka**

The range of painted furniture from Laxmi brings back the olden French times of country living. The expert craftsmanship involved in painting solid mango wood ensures that each piece is unique and colorful, bursting with character and full of life. In its carefully crafted details, the collection of painted furniture takes you back to a different way of life where your house becomes a family home with furniture that
transcends generations. Crafted from solid mango wood then distressed, this collection strives for authenticity and doesn't just show a facade but is genuine in both appearance and construction. Each item of furniture in this range is made mainly from carefully selected solid mango wood with the combination of new wood called 'MDF'.

**Patti**

Each piece in this collection given an ageing process to create the classic look and feel of distressed and antique furniture. Due to the finishing process each unit is giving unique touch to Laxmi’s Patti collection that is both beautiful and practical for today's living.

**Chandeliers**

We are proud presenting our exclusive range of Chandelier’s from India for sophisticated interiors. Our handmade Chandelier's products are manufactured using the best quality material’s of crystals, wood, wrought iron, & brass, and are designed by our well experienced master artisans. We also offer a wide range selection of painted Chandelier's which are specially care take-up for breath takings effects related to finishing, which are achieved through complex layer gilding, made from the finest wood and wrought iron. All Chandelier's are carefully manufactured and checked up at each and every stage up to the final by our well experienced and qualified persons to present not only high esthetic value to our client abroad, but also to provide the best and highest quality standard products with attractive looking’s too. All the electric fittings used in these chandeliers comply with legislation of every country in which we supply. Explore our Chandelier Collections, which have a unique and antique rich finish for your halls, bedrooms, entry ways, Lobby’s, dining rooms and libraries, our Chandelier’s shall surely give your sweet homes pleasant and romantic look which will surely touch your heart with the lovely lights surrounded over them.

Assam has always remained one of the most forest-covered states of the country, and the variety of wood and timber available here have formed a part of the people's culture and economy. An Assamese can identify the timber by touching it even in darkness, and can produce a series of items from it. While decorative panels in the royal Ahom palaces of the past and the 600-years old satras or Vaishn native monasteries are intricately carved on wood, a special class of people who excelled in wood carving came to be known as Khanikar, a surname proudly passed down from generation to generation. The various articles in a satra and naam-ghar(place of worship) are stiff cut on wood, depicting the guru asana (pedestal of the lords), apart from various kinds of birds and animals figuring in mythology. Modern-day Khanikar have taken
to producing articles of commercial values, including figures of one-horned rhino and replicas of the world-famous Kamakhya temple - two items heading the list of demands of a visitor from outside.

**The Process of Wooden Furniture Making**

Building furniture is a complex procedure, knowing and following correct woodworking guidelines will enhance your skill and show in the finished piece.

*Basics of Furniture Making*

Starting with the basics of furniture building, the skills needed to build highly crafted piece can be acquired.

By carefully choosing which projects to build, you can acquire useful pieces of furniture and gain skills for the more advanced pieces.

**Building Children's Furniture**

Building children's furniture is a good way to learn the basics, and then you can upscale them for full-sized furniture.

Children's furniture is also an excellent area for making sales over the internet.

**Building Furniture**

Choosing either the type or style of furniture you want to build depends both on your current skill level, and your current needs.

**WOOD FURNITURE: Introduction**

Finding wood furniture that will stand the test of time, endure everyday use and abuse, and remain beautiful isn't as daunting when we have some basic information. When it comes to furniture design, ask yourself, how does a piece make you feel? Is it aesthetically pleasing? Does it feel proportioned properly? If you moved, could the piece adapt to different environments? Does it provide the functionality you need?
All About Applying a Finish

Most finishes can be applied to a wood surface using one of three basic techniques: a wiping rag, a brush, or a spray gun.

The Basics:

- Spray gun: Lies on most finishes fast and evenly.
- Wiping rag: This is the easiest skill to master.
- Brush: Amateurs and professionals find this a good choice.

Most woodworkers who have tried all three settle in on a preferred method and stick with it. What follows are some tips that will help you broaden the scope of your finishing talents.

Spray gun:

Without a doubt, we can lay on most finishes faster and more evenly with a spray gun than with any other technique. In professional shops where time is money, spray guns rule for those reasons. They are especially efficient at applying fast-drying finishes such as shellac and lacquer. The downside is, of course, that to use them correctly, we need to invest in air-handling equipment to exhaust the inevitable overspray that accumulates even with HVLP guns that are designed to reduce it. The cost, both financially and in the amount of square footage a booth takes up, makes spraying less appealing to small, home-based shops. It is possible to spray finishes outdoors, in good weather, but then we face other obstacles in terms of wind-driven dust and pollen, as well as insects that can contaminate the finish film. If we choose to take those risks and try our hand at spraying, and if we already own a compressor, we can buy a decent spray gun for as little as Rs. 10000.
Getting a feel for the right finish viscosity is a trial-and-error process, but it won't take long. Most finishes need to be thinned, some as much as 50%, to get them to flow out the tip of a gun. It's important to keep the gun moving in a smooth, sweeping pattern over the surface of the work, and to overlap the finish pattern as you move the gun across the surface. By applying each subsequent coat at a 90° angle to the last one, you can achieve even coverage.

**Wiping rag:-**

By far, using wiping rags is the easiest skill to master. They work especially well with slower drying finishes, such as oil-based varnishes and oil/varnish mixes, but they also work with shellac. Wiping rags lay on a little finish at a time, so you're less likely to make mistakes. The key is to use a good lint-free cloth, such as old T-shirts made of cotton that have been washed and dried so many times that they don't have a lot of loose fibers left in them to contaminate the finish. Simply wad the rag up into a ball, dip it into the finish, and have at it. The disadvantage of this technique is that it can be extremely time-consuming to build the final finish, so it isn't a good first choice if you're in a hurry to get the job done.

**Brush**

Most amateur and some professional woodworkers prefer to reach for a brush to lay on a finish. Brushes are really efficient for applying oils, oil/varnish mixes, oil-based varnish, polyurethane, shellac, lacquer that's been thinned with slower-drying solvents, and many water-based films finishes. Used properly, brushes lay on a good amount of finish and level it out evenly in the process. Once you overcome the learning curve, using a brush is not difficult. Each type of finish possesses its own particular personality, and you'll often need to adjust the viscosity before brushing by adding some amount of solvent. Also, before you begin, it's always a good practice to dip the brush first into whatever solvent has been used to thin the finish-alcohol, paint...
or lacquer thinner, or water. Doing this will help the finish to flow more smoothly and minimize the build-up of any dried finish on the bristles as you work the finish. After pre-wetting the brush, dip it about halfway into the finish and wipe off the excess on the edge of the can. The bristles will absorb enough finish to allow you to start putting it on. Begin by holding the brush at an angle, 45° or so, to the parallel to the direction of the wood grain. To avoid too little rather than too much finish. Correcting simply brushing on another coat to get the build up need a good quality china-bristle or badger-hair is big enough for most projects. For water-based bristles. Also, disposable foam brushes often are out oil-based varnish, and even the professionals use them (though some may hesitate to admit it). Foam brushes, however, cannot be used with shellac and lacquer because the solvents in those finishes will dissolve the foam.

All About Choosing a Finish

After speaking with hundreds of woodworkers over the span of many years, one thing is crystal clear to me: applying a finish to furniture and cabinetwork represents the biggest headache to most woodworkers. Many accomplished woodworkers spend countless hours building what is sometimes museum-quality work -- designing the piece to the proper scale, milling the lumber to size, executing complicated joinery techniques, even carving intricate details -- and then when they're ready to apply a finish, they freeze up with fear. But a worse problem than being panic-stricken about applying a finish happens when you blithely forge on,
slopping on a bad finish without looking at the results with a critical eye. Nothing can more readily ruin a project. To choose which finish you want to use on any given job, ask yourself a series of questions.

The basic

- Whether the finish needs to resist water, scuffing, and abrasion?
- Must be easy to repair.
- Use of amber or "water-white" tone preferable.
- Deep, lustrous, filled, and polished surface.
- The amount of time it takes to apply a finish matter.
- Evaporative vs. reactive.
- Why do so many woodworkers dread finishing?

We are convinced that the reasons are twofold. First, some finishes are highly complicated chemical formulas, and the contents are not always listed on the labels. Manufacturers employ chemists with doctoral degrees to research and develop their products. This can make people feel like they have to be an expert on hydrocarbons to be able to put a good finish on a woodworking project. Second -- and perhaps more important -- early on in their hobbies or careers, woodworkers tend to find one finish they prefer and stick with it. Learning how to lay on a finish is like riding a bicycle or playing golf -- there's a learning curve involved with the process, and the more you do it, the more skilled you become. The best approach to learning how to apply a new finish is to practice on scraps of lumber or plywood. Experiment with a new technique until you get it down pat. The results can be immensely rewarding, both for you and for the quality of your future projects.

An 18th-century reproduction demands a different finish from a set of new kitchen cabinets, or a keepsake box, or the wood frame of a mostly modern upholstered chair. Most of the priceless furniture in museums was finished with either shellac or an oil-based varnish, and the surfaces of tabletops were often filled and highly polished. And chances are that the museum furniture has been refinished and coated with wax several times over its lifespan. If you've built a set of new kitchen cabinets, you'll want the most durable finish you can find, to withstand the daily onslaught of greasy air and
chemicals in foodstuffs and cleansers. It's no accident that most kitchen-cabinet manufacturers use catalyzed lacquers or conversion varnishes. For a simple keepsake box, it's hard to beat the natural looking beauty of an oiled surface. And for a project such as the wood frame of a contemporary chair, the choice is wide open: You don't have any concerns about being historically correct in your choice, nor is durability much of an issue.

**Whether the finish needs to resist water, scuffing and abrasion:**

If so, shellac, plain oil finishes, and waxes would not work. To varying degrees, they scratch easily and do not hold up well to the threat of moisture absorption. Most oil- and water-based varnishes and polyurethanes, catalyzed lacquers, and conversion varnishes do a much better job protecting the surface of wood.

**Must be easy to repair:**

Wood finishes vary greatly in how easy they are to fix when something goes wrong. In general, the easier a finish is to apply, the easier it will be to repair. Straight oil finishes are a good example. If the surface is lightly scratched or marred by a water stain, simply sand down or scrape the surface clean, and then apply a new coat of oil. The same applies to waxed surfaces -- applying and rubbing out a new coat of wax will often make the surface look like new. This is not the case with many varnishes (including polyurethane) and more modern catalyzed finishes. By sanding the surface, you risk going through the very top coat, or more, and you're left with what are often called "witness lines," which means you've gone all the way through the layers of film. When that happens, it's sometimes not possible to fix the mess without removing all of the finish and starting over.

**Use amber or "water-white" tone preferable:**

All finishes, including simple oils, change the color of the wood at least somewhat, and some do more than that, giving it a slightly darker hue. Most film finishes, such as shellac and varnish, impart an amber tone, often considered desirable for the warm tones that it leaves on the wood surface. Indeed, various grades of shellac are sold and used strictly for their color. But if your goal is to avoid an amber color, you can use nitrocellulose and acrylic lacquers that are sold for that purpose -- they are often characterized as being "water-white."
Deep, lustrous, filled, and polished surface:

Traditionally, on tabletops and, for instance, the crotch-veneered surface on the doors of a breakfront cabinet or a clock case, the open-grain surfaces of the wood are filled and polished. Fillers should be used sparingly, but when properly applied, the effect is nothing short of stunning. When you hear mention of a French polish finish, that’s often what is meant, but you can get the same results with other, less laborious techniques. Either way, a filled and polished surface will require a lot more labor and time.

Does the amount of time it takes to apply a finish matter:

To professional cabinetmakers, time is money, and it pays to get the job done quickly. For that reason, professional shops often use quick-drying finishes, such as lacquer and shellac, because they can easily apply four coats in a day. They also tend to use spray equipment that can lay on a finish faster than you can with a brush or a wiping rag. But some people enjoy the slow, deliberate pace of building a brushed varnish finish. When you're putting a finish on wood, patience really can be a virtue that you learn to appreciate, especially when the resulting finish proves it.

Evaporative vs. reactive

Not long ago, finishes were categorized as either film finishes or penetrating finishes. The problem with these two groupings was that the overlap between them caused confusion. For example, true oils, such as linseed and Tung oil, were classified as penetrating finishes because they soak into the surface of the wood before they harden. That's true, but if you keep applying additional coats of either of these oils, they eventually will develop what could easily be characterized as a layer of film. And oil-based varnishes dry to a hardened layer of film, but also contain oils that penetrate the wood fibers before the film forms. Nowadays, the finishes are categorized as evaporative or reactive, according to how they cure. It's a slightly more exacting view of the differences among the myriad finishes available, though it's still a less-than-perfect way to consider those differences.
All about Surface Preparation

It depends upon the degree to which the surface was properly prepared.

The Basics:
• Planing: Hand planes offer a nice surface, while machines are rough
• Scraping: A well-tuned scraper can create a glassy surface
• Sanding: Success grits lead to a polished finish

Individual woodworkers have strong opinions as to which method produces the best results, and heated arguments emerge from the debates about using one instead of another. In truth, many woodworkers often employ more than one method. Horizontal surfaces, such as tabletops, need the most care because they reflect the most light at an angle which is more visible.

Planing

Electrically powered machines such as planers and jointers are usually not capable of supplying a finish-ready surface to a project. The knives chop the wood surface in a series of cuts that can sometimes leave a slightly rippled surface that is too rough to result in a smooth finish. Hand planes are another matter: they shave the wood in long, clean slices and leave an incredibly smooth surface. Compare the ribbons coming off a well-tuned hand plane to the sawdust flying out of a power planer, and it’s easy to see the difference.

Scraping

Scrapers cut very thin shavings off the tops of the wood fibers on a surface. They also partially burnish the surface in the process and leave it shining and ready for a finish. Dull scrapers do not shave off the wood fibers, but only burnish the surface and accomplish little improvement to it in the process. A well-tuned tool is critical for getting decent results.
Sanding

Sandpaper abrades, or scratches, the surface of the wood, removing layers of wood fibers in the process. The great advantage to using sandpaper, unlike hand planes and scrapers, is that there is no tool that requires tuning. You can use a fresh sheet of abrasive paper and toss it when it gets too dull to do the job. Also, by employing successively smaller grits, you can control the scratch pattern and make the surface as smooth as you want it to be. For preparing a wood surface for finishing, start with 80- to 100-grit paper, and carry it through to 180- or 220-grit, which is as far as you need to take it.

All about Coloring Wood

Woodworkers are sometimes baffled and intimidated by the many choices available to them when they want to add color to their projects. Some techniques are easy to accomplish, others can be more complicated, but just like applying clear finishes, none of the methods used to add color are really too difficult to master with a little practice.

The Basics:

- Pigments and dyes: Pigments and dyes are easy to apply
- Toners: Toners even out color variations
- Glazes: Glazes highlight molding details or the open grain of a wood surface
- Ebonizing and pickling: Home-brew solutions to color wood

Pigments and dyes

Pigment stains, primarily oil-based, are simply finely ground mineral powders held in suspension by some kind of thinner and mixed together with resin
binders. They are the easiest type of stain to apply. Flood them on with a rag, brush, or spray gun, and wipe off the excess vigorously. Wipe in a circular motion to remove most of the excess, and then wipe the surface in a direction parallel to the grain pattern. Any unintended streaking will therefore be less visible. After wiping them down, what remains trapped in the open pores, or as a fine film on tighter grained woods, is similar to a thinned-down layer of mud. They work better with open-grain woods such as ash, mahogany, oak, and walnut. Dye stains are made of much smaller particles, which are actually dissolved in a solvent. You can buy them in powder or liquid form and mix your own colors. The solvent base can be alcohol-, lacquer-, oil-, or water-based. Dye stains afford much better clarity than pigments stains, so you can see the patterns in the wood grain more clearly after a finish goes on the wood. Dye stains also tend to penetrate more deeply, leaving more color on the wood surface after they've dried. The learning curve to using dye stains is steeper than that of pigment stains, and they pose more of a threat toward something going wrong. One common problem is that of overlap, caused by streaks of darker color that can emerge on some areas that receive more stain than others. One way to avoid color disparities from forming is to flood the surface as quickly and thoroughly as possible. It also helps to pre-wet the surface with the same solvent used to make the stain -- water and alcohol are the most common solvents used to make dye stains. Doing that will lessen the amount of stain that soaks into the wood fibers, and it will also decrease the depth of color left behind. The pre-wetting technique is especially useful for applying water-based dye stains. By flooding the surface first, and then letting it dry, you’re left with raised grain, which can then be sanded off before the stain goes on, which lessens the chances of ending up with a rough finish.

**Toners**

Maybe you've looked at mass-produced furniture and wondered how they made all the pieces of that complete cherry bedroom set look just alike. They did it by using toners. Toners are simply clear finishes, usually lacquer or shellac, that have been tainted with a pigment or a dye stain. They even out color variations, leaving a more balanced overall color tone to the wood. Dye stains are preferable because they lay on each coat of color in a clearer, more transparent fashion. We can apply toners effectively only by spraying them on, either with your own spray equipment or by buying pre-mixed toners from finish suppliers. These are packaged in disposable aerosol cans, just like those used for spray paints. The biggest mistake novices make with
toners is trying to lay on too much color at once. Once you've made a surface too dark, it's very difficult to lighten it up again. When that happens, the best solution is just to strip off the finish and start over. The better approach is to sneak up on the color, just a little at a time, until you get it right. Both lacquer and shellac dry so quickly, that you can put on several coats of toner in a day.

**Glazes**

Glazes are more easily reversible than toners, as long as you use the oil-based variety. Glazes are simply pigment stains that are applied by brush or wiping rag to an already sealed surface and partially wiped off, leaving some color behind to highlight molding details or the open grain of a wood surface. Commercial varieties commonly available are both oil- and water-based acrylic latex formulations. The oil-based versions take longer to dry, which gives you more working time to get the effect you are after. Because you apply glazes to an already sealed or finished surface, they are easy to remove if you're not happy with the results. Simply saturate a rag with the solvent used to make the glazing stain, wipe it off and start again. The first coat can go on quickly, and you don’t have to be neat because after slopping on the stain, you wipe most of it off anyway. After the first wipe, you can use a dry brush to better blend in the pigments left behind. Once the first coat is dry (usually an overnight wait), if you are satisfied with the results, you need to seal in the color with another clear coat of finish.

**Ebonizing and pickling**

Ebonizing wood is sounds mysterious, and it’s sometimes suggested that the process is difficult to do. Nothing could be further from the truth. All the word means is “to make it black,” and you can do that in any number of ways, or by using a combination of them. The practice arose when woodworkers decided to fool their customers into believing parts of projects were made from ebony, which is costly. To make wood black, you can dye it with pigment, dye, or chemical stains; or you can paint it with black lacquer. Whatever technique you choose, you’ll probably want to complete the job with a clear coat of finish over the ebonized surface. The age-old homemade chemical stain produced by soaking nails and steel wool in vinegar works incredibly well on woods (such as oak and mahogany) that contain a lot of tannins. Black dye stains also penetrate the surface effectively and deliver a deeply rich color.
to the wood. Pigment stains are the least effective; they often leave the surface looking a somewhat lifeless, dark gray, not the deep brown/black of real African ebony. One method is to use both the chemical stain and a dye stain after the first one has dried. Or you can use a dye stain, and then topcoat it with a misted layer of black lacquer. You should follow either of those approaches with a final clear coat for protection against wear-and-tear on the colored finish. During the 1970s to early 1980s, pickling was a very popular finishing effect in demand for use on custom-built furniture. It has since fallen out of favor, for the most part, but will likely surface again at some point. Think of pickling as the opposite of ebonizing: the intent is to lighten the wood, not darken it. To accomplish the task, most finishers turn to pigmented white paint, thinned or right from the can. This technique works better on open-grain woods (such as ash or white oak), but will also work with tighter-grain woods (such as maple). The process is identical to glazing: you slop on a coat of white paint, wipe some or most of it off, let that dry, and then topcoat that to seal in the color. A CAB-acrylic lacquer or some of the water-based film finishes would be a good choice for a clear finish over a pickled surface because they will not yellow as they age. The only trick to learning how to do it well is in the wiping. How vigorously you wipe is how you control the amount of color left behind. Like anything else, it just takes a little practice.

**All about Repairing Finishes**

Fine furniture is built to last several lifetimes, but that’s not always true for its finish. Dings, nicks, scratches, burns, and other defects are bound to materialize as a furniture piece gets used in the real world. Fixing a finish often first requires that you clean the area thoroughly with a solvent, such as naphtha, and then lightly sand the area with a high-grit abrasive and steel wool to produce an even surface. Depending on the size of the blemish,
The Basics:

- **Simple touchups**: Touch up a scraped or worn edge with a marker or small paintbrush.
- **Filling dents**: Fill a dent with wax or a burn-in stick.
- **Beyond repair**: Some damages can't, or shouldn't, be repaired.

**Simple touchups**

Small blemishes on colored surfaces might require a simple touchup with a marker or a bit of paint. Felt-tipped markers work well at mimicking a black finish, and dry pigments mixed with shellac offer a good material for finishes of other colors. Small blemishes on a clear-finished surface might just require a few more coats of the original product.

**Filling dents**

There are two common ways to repair larger gouges or dents -- with burn-in sticks or colored wax. Burn-in sticks fill a void with melted shellac resin and are topped off with an appropriate finish. This method is effective for oil, varnish, shellac, and lacquer finishes. It is also good for repair and restoration work where the piece won't be finished over again. A less permanent fix is to use a colored wax in the same fashion. However, you can't apply a top coat over wax.

**Beyond repair**

Sometimes a blemish is beyond repair. This is the case if damage has affected not just the finish but the wood underneath it. If it's essential that these types of blemishes be repaired, you may have to strip the entire surface of the finish and start over from scratch. It should also be noted that defects can build character in a piece (especially antiques) and don't always have to be repaired.
All About Sealing and Priming

Most finishes are self-sealing, meaning that the first coat that goes on the wood soaks in, dries, and does the job of preparing it for subsequent coats of finish just fine. But there are three reasons to consider using another type of finish as the sealer coat:

The Basics:

- Selecting a sealer: Your choices are oils, shellac, lacquer sanding sealer, and vinyl sanding sealer
- The function of primers: When to use them, and what to use

Selecting a sealer

No matter what topcoat you intend to use, any of the true oils make good sealers for highly figured woods because they highlight the figure better, and they darken the color of the wood. Boiled linseed oil and Tung oil are both good choices, but it’s important to let them dry thoroughly before proceeding to the next layer of finish. In dry, warm weather, overnight is usually enough time for them to set; but in humid or cool conditions, you might want to wait longer. Shellac bonds extremely well to raw wood and to other finishes. One of the darker varieties of shellac, such as shellac or garnet, will also serve to add some depth of color to all woods, light and dark. A layer of shellac will also make the wood fibers fairly impervious to absorbing additional finishes, so it works as a good first step to building a film finish over it. When used as a sealer under other finishes, it’s important to use dew axed shellac; otherwise you may have problems with other finishes not bonding well to the shellac seal coat. If the final goal is to build a healthy lacquer film capable of being rubbed out to a high polish, lacquer sanding sealer is the best choice. It has high solids content, and stearates have been added to it to facilitate sanding the finish smooth after it has dried. Sanding sealer is not a substitute for filler, but it goes on so thick that once it has been sanded out (220-grit, open-coat silicon carbide paper works best for this purpose), the sanding sealer does partially fill open grain. Enhanced moisture resistance is the big benefit to using a vinyl sanding sealer. It is a good choice for sealing any projects that will be finished with CAB-acrylic lacquer, or most of the catalyzed lacquers and conversion varnishes. And it is especially appropriate for kitchen or bathroom cabinets that will be subjected to the abuse of a moisture-laden environment.
The function of primers

Primers bond tightly to raw wood and to other finishes, and they’re used under any kind of pigmented finish, such as paint or lacquer. We can buy primers made with shellac-, oil-, lacquer-, or water-based formulations, and it’s best to match each of those to the intended to coat of our choice.

History of Bamboo in Assam

It is observed that there is no particular caste or community in the Assam Valley who are exclusively connected with this traditional craft. It is generally carried on by all, particularly the peasants irrespective of caste, community or creed. At present, there are vast untapped resources of bamboo that can open avenues for utilization of bamboo for many productive works. Such a huge surplus of bamboo is not to be found elsewhere in India. At present, there are vast untapped resources of bamboo that can open avenues for utilization of bamboo for many productive works. Such a huge surplus of bamboo is not to be found elsewhere in India. The prospects of establishment of several pulp and paper plants, big and small, on bamboo alone, are tremendous. The important species mentioned below are available in commercial quantities.

1. Muli (Malocanna Bambusoides).
2. Hill Jati (Oxytenanthera Parvifola).
3. Kako (Dendrocalamus Hamiltoni)
4. Dalu (Teinostachyum Dalloa)
Apart from forests, bamboo is also plentiful in the villages throughout the State. Even though Assam has been traditionally rich in bamboo, bamboo craft from Assam do not figure prominently in the handicraft market of India and Assam’s share in the export trade is negligible.

**Chalani (sieve):** It is woven with fine bamboo slips in a criss-cross way, keeping some open spaces between the different slips as required for different purposes. The ‘chalani’ is a round-shaped disc-like object and its diameter varies from 1½ ft-3½ ft. It is used sieving rice, paddy, tea-leaves, etc. and also for washing fish.

**Kula (winnowing fan):** It is prepared out of flat bamboo slips for winnowing purposes in different sizes and shapes. Twilled design is used for a ‘kula’. The edge of the ‘kula’ is made strong by fixing of two sets of one-inch wide bamboo pieces wrapped up in flexible wood strips.

**Khorahi (small basket):** Khorahi is made of fine bamboo splits for washing rice, vegetables, fish, etc. It is a small basket-like thing with provision to allow water and dirt to pass out. The Khorahi is woven in plain and square form but is gradually bent in a round form at the time of final stitching by flexible wood slips.

**Dukula / Tukuri (Big basket):** The shape of a dukula is exactly the same as that of the Khorahi, but the size and process of preparation is a bit different. The required shape of a ‘tukuri’ is made by bending the bamboo splits forming the
warp gradually when the process of weaving with the weft is in operation. Fixing two or four flat bamboo strips strengthens the edge. The last stage is to stitch the edge along with those flat bamboo strips with some flexible wood slips. The size of a ‘dukula’ or a ‘tukuri’ is much bigger than that of the Khorahi and is used for carrying as well as keeping paddy, rice, etc.

Dala (bamboo tray):- Dala is prepared out of flexible bamboo slips in twilled design. The shape of a dala is exactly like a disc with various sizes for different purposes. The edge around the dala is stitched in the same way as that of the edge of a tukuri or dukula, but the bamboo rims used in the edge of the dala is about 1½”. The dala is used specially for rearing silk worms and for winnowing in addition to other domestic purposes.

Duli (Assamese) / Tali (Bengali), Big Basket:- The ‘duli’ or ‘tali’ are used for preserving paddy. The process of weaving is almost the same as that of a tukuri but the size of bamboo slips used is more flat and flexible. The dulis are much bigger than the tukuri and the shape is a bit different too.

Doon (Assamese) Kathi (Bengali), Measure:- It is prepared in an almost conical shape with fine bamboo strips for measuring rice or paddy. Its holding capacity varies from 2 seers - 3½ seers from place to place. A ring is attached at the bottom to enable it to stand on the ground.
Fishing Implements: - There are various kinds of fishing contraptions prepared out of wood and bamboo in different parts of the state. A brief description of some of the fishing implements widely used like polo, Jakai, Khalai, Dori, Chepa, Paran, Jhuti, Hogra, etc. is given below:

Polol:- It resembles the shape of a dome with short stem of about 6” diameter open at the top. The diameter at the bottom varies from 2 ft-3½ ft. and even upto 4 ft. and the height varies from 2 ft. to 3 ft. It is prepared out of small bamboo strips fastened with fine and flexible wood slips. Polo is used for fishing in shallow water. The man who uses it hold it by the side of the stem, presses its rim on the mud, then pulls it back and lifts above or up to the level of water and again presses it as before while moving on through water. Whenever any fish is caught, he puts his hand inside through the stem to catch hold of the fish; julki is a small polo prepared in the same fashion.

Jakai:- The ‘jakai’ is a species of wicker work shovel that is either dragged along the bottom or placed on the water bed to catch the small fishes which take refuge in it when the weed is trampled. It is prepared with bamboo slips, which are locally known as ‘dai’. ‘Jati’ bamboo is specially used for making this particular implement.

Chepa:- The Chepa is made of some prepared bamboo rods according to required size. These are woven in a roundish fashion with jute string or soft wood slips. A bamboo-made valve locally known as ‘par’ (Bengali) and ‘kal’ (Assamese) is fitted in the middle of the chepa to allow the fishes to enter inside with no scope for going out.
Dori:- Fishermen in the rural areas of the state manufacture dories of various types. A ‘dori’ is generally rectangular. It is prepared out of small bamboo strips woven with flexible wood slips. A trap is fitted with a ‘dori’ in such a way that a bamboo-made screen is prolonged inwards from either side of the oval mouth and the pointed splints of the two sides interlock.

Khalai:- The ‘khalai’ is also prepared with bamboo strips. The strips required for the weft are very long, while those for the warp are short. The ‘khalai’ is woven in the shape of an earthen ‘kalasi’ or pitcher. This is used for temporary keeping of fishes during hand-net fishing.

Parans:- These are various cages or basket traps made of bamboo splits used for catching fishes. There are two kinds of ‘parans’, namely (i) ‘uba paran’ (vertical cage) and (ii) ‘pora paran’ (horizontal cage). These are provided with one or two valves or trap doors through which fishes can be easily trapped.

All these implements mentioned above are generally used in catching fishes in shallow water. Apart from these contrivances, there are some other implements made of bamboo and wood and are used for catching fishes in deep waters. These are locally known as gui, jhuti, dingaru, thupa, hogra, etc.
Bamboo and leaf headgear is the most indispensable item of the open air workers. Such ordinary headgears are produced throughout the State. 'Chhatas' on commercial basis are largely produced in some villages (e.g., Rangpur, Chinipatan, etc.) of Cachar district and supplied mainly to neighboring tea-gardens and some parts of Nowgong district. The products are generally carried on shoulder loads to the nearby 'hats' and sold to consumers in retail or to middlemen in bulk. Many varieties of 'Japis' such as 'halua japi', 'pitha japi', 'sorudoiya japi', 'bordoiya japi', 'cap japi', etc. are produced in the districts of Kamrup, Nowgong, Darrang, Sibsagar and Lakhimpur. Nalbari and its neighbouring villages (such as Kamarkuchi, Mughkuchi, etc.) of Kamrup district deserve special mention in respect of manufacturing of 'fulam japis' (decorated bamboo umbrellas). In olden days, this particular type of 'japis' served as headgears for the females of noble and rich families, but now it has become outdated. Productions of 'fulam japis' are now only intended to serve as items of drawing-room decorations. This traditional headgear (japi) is made of strips of bamboo and a special kind of dried palm leaves locally known as 'tokow-pat'. The manufacture of ordinary 'japi' does not require any special skill. First of all, the selected bamboos are split into small strips of required sizes. Then the strips are woven in open hexagonal design into a circular disc with a dome in the centre for the head to fit in, putting a few dried
‘tokow’ leaves (previously cut into required sizes) in between two such discs and finally sewing them securely with yarn and fine strands of wood. Thus, the manufacture of ordinary ‘japi’ is completed. A japi is more advantageous to the cultivators and other open air workers than the conventional umbrella, because the cultivator after putting it on can tie the strings around his chin leaving his hands free to work in any position standing, squatting or stooping. ‘Japi’ can also be called a poor man’s umbrella, because of its cheap price.

Folk Medicine from bamboo as used in Rural Areas of Assam

**Fresh Cuts:** Greenish portion of the bamboo stem is grounded and made into a paste for application over the fresh cut area. It usually serves as an antiseptic and acts fast in the wound healing process.

**Early Diabetes:** Water collected inside the bamboo stem when taken relieves the disease considerably.

**Toothache:** Toothache is relieved by heating young bamboo twigs and applying over it.

**Loose Tooth:** The sticky juice that comes out from burning dried bamboo is applied on the root of the tooth to make it firmer.

**Hypertension:** White part of the mew bamboo leaf is to be taken on empty stomach early in the morning, which helps to control hypertension.

**Dandruff:** The ash of clump sheath of bamboo is effective for removing dandruff.

**Body pain:** Sleeping in a bed made of whole bamboo relieves body ache.

**Chicken pox, Small pox and Ulcers:** Dried young bamboo shoot is to be grounded and taken with cooked Catfish which helps in early healing of chicken pox, small pox and ulcers.

**Giddiness and Chronic Pain:** Curd prepared with young bamboo shoots taken with black pepper relieves giddiness and chronic pain.

**Headache and Sinusitis:** Dried bamboo burnt and the inhaling of the smoke of the bamboo relieves headache and sinusitis.
Some other common products

Considering the present market demand and export potentiality, entrepreneurs are either proposing of starting manufacture of following bamboo and wood products:

- Weaved bamboo blind and screen
- Skewers
- Fruit forks
- arty picks
- Back scratchers and ear scrappers
- Rice spoon
- Plant support sticks
- Tooth picks
- Seat cushions
- Ice-cream spoons
- Bamboo brooms
- Knife handle
- Bamboo curtains
- Wooden tray
- Flower vases and ash trays
- Wall hanging
- Folding fans
- Walking Sticks
**Plaited or woven basket:** Plaited basketry consists essentially of two sets of elements (warp and weft) crossing each other. The plaited baskets are prepared in different designs such as check, twilled, twined, wrapped and hexagonal. Baskets used for keeping clothes and ornaments, wood suitcases, etc. are generally prepared in this method.

**Wicker work:** In wicker work, the warp is not pliable, but the weft is pliable and passed alternately over and under the warp. In this method, the warp is kept in a lesser rigidity. Plucking baskets are prepared in this method.

**Coiled Basketry:** The warp is arranged by wood of sufficient length. Before arrangement, such wood is soaked in water for some time to give it a flexible character. Simply binding coiled wood while the process of weaving is in operation preserves the shape of the basket. Finally, the edge of the basket is stitched with a thin and flexible wood slip. Plucking baskets, ration baskets, baskets used for carrying earth, stone-chips, coal etc. are manufactured in this method, technically known as ‘bee-skip’ design.

**What the Customer Want:** Customers want something that looks good and is of better quality. The finishing should be good and the products should be durable. The customers now a day’s do not mind to pay more to get something which is really different from the existing range. So the products which are branded is often is in use and have greater acceptance. The customers taste over the years has changed. The look matters most then comes price and then quality which is never compromised. The production rate of product especially of wood and bamboo in south Kamrup area is very slow. First there is some treatment related problem and secondly there is a long wait to get the raw materials dried. Even after that the
production rate is very slow and a result the cost of labour is never met in terms of time consumed to manufacture the products.

2.5 Insight- Understanding of the customer product producer Market relation from design point of view

After an interactive research and studying ‘Kahikuchi Bamboo & Wood Cluster’ to the point of- customer-product-producer-market relation it is observed that, there as a big gap between their interdependency, marketing channels and linkages; which must need to be established with a proper business model and its regulatory bodies. When we go more depth of the cluster’s business method & traders’ policy, we find a series of missing linkage from products level to consumer level. For example-the cluster is fully depends upon few dealers and their orders. Also they are fully engaged with those fluctuated orders which are given by the intermediates. The artisans are engaged to fulfill the orders placed directly or through some dealers. Also there is no connection between producer and the end users who must be well known to be up to date what exactly market demands. The client or market should need to be aware regarding customer demand, emerging life style and their need & usages. Thus, they need to motivate towards new design, multipurpose products & their development with proper costing. (Purchasing rate & selling rate both) So here is big scope for the cluster to expand their business in connecting with adding new products, redesign and its development to increase their earning and production growth gradually and look forward to new client and market for expending their order.
### RAW MATERIALS
- Local Community Store for better quality raw material and it’s availability.
- Our Training Center.

### HEALTH & SAFETY
- Better Hospital
- Mask & Safety kits

### MACHINES
- Saw
- Sander
- Drill Machine

### PROCESS
- Skill Up-gradation & Training time to time.
- Awareness of Modern Trend.

### ERGONOMIC
- Right body postures
- Awareness about Techniques

### TRANSPORTATION
- Better Connectivity With internal roads
- A Common Vehicle for the Cluster

### BRAND & MARKETING
- Establishment of a cluster brand
- Proper Branding & Marketing

### LINKAGES
- Looking for marketing
- Fixing base rate according to the raw material

### END USERS
- Beautiful & attractive products
- Targeted Area
- Export

### STACKING & PACKING
- Better Stacking & Space for Storage
- Better Display or Exhibition Room

### 2.6 OPPORTUNITY MAPPING
DESIGN AUDIT FOR THE CLUSTER

Description of individual units (total 20 units has covered)
Description about the 20 units covered in the cluster (Kahikuchi)

UNIT - 01

Business Background:
Firm Name- Sahayika Cane and Bamboo Industry.
Address-
Vill – Kahikuchi, P.O. + P.S. – Azara, Pin – 781017
Dist – Kamrup, Assam
Artisans Name- Mr. Manoj Kumar Sarma
Age- 35 years
Education qualification – B.A. passed
Contact Number- +91-9864632124
Product Range- Bamboo and cane furniture (sofa, murha, jhulna, etc.)
Work duration- Started business 13 years back.
Experience: 15 years.
Number of workers-5 (himself+ 4 others)
Monthly income-Rs 10,000/= per month.
Problem faces- No new product/design produced, lack of finance, no use of power tools and no proper working shed.

Family background-
S/o – Dhaneswar Dev Sarmah,
Family member- 6 persons
Male-3 (himself+ 1 brother+ father)
Female-2(wife and his mother)
Children-1
Education of family member- His father is a teacher, mother H.S.L.C. passed, brother is B.A passed, wife is B.A passed.
Member involve in the firm - 1(himself)
UNIT- 02

Business Background:
Firm Name- Barnali Manalisha Furniture House
Address-
Vill – Kahikuchi, P.O. + P.S. – Azara, Pin – 781017
Dist – Kamrup, Assam
Artisans Name- Mr. Subhash Dev Nath
Age- 40 years.
Education – 8th std.
Contact Number-+91-8822530584
Product Range- Wooden furniture and household items.
Work duration- He started his own business 23 years back.
Experience- He has total 25 years experience in this field.
Number of workers- 5 (himself+ 4 others)
Monthly income- Rs15, 000 /= per month.
Problem faces- Lack of finance, labour problem, no new product or design development tried.

Family background-
S/o – Late Tarani Dev Nath
Family member- 4 persons
Male- 1 himself
Female-1 (wife)
Children- 2 (daughter)
Education of family member- Wife 5th std., daughter HS passed on commerce stream, and another daughter studying in 8th std.
Member involve in this business- 1 (himself)
UNIT- 03

Business Background:
Firm Name- Nandinee Bamboo House.
Address-
Vill – Rampur, P.O.– Rampur, P.S.- Palashbari, Pin – 781132
Dist – Kamrup, Assam
Artisans Name- Mr. Manash Kalita.
Age-44 years.
Education – B.Sc.
Contact Number-+91-9854063961
Product Range- All type of bamboo furniture.
Work duration- He started his own business 5 years back.
Experience- He has total 6 years experience in this field
Number of workers- 7 (himself+ 6 others)
Monthly income- Rs 8,000/= per month.
Problem faces- No proper display, no proper working shed, lack of finance few designs have been developed but proper finish is not there.

Family background-
S/o –Late Suresh Kalita,
Family member- 5 persons
Male- 1 (himself)
Female-2 (mother+ his wife)
Children-2(daughter+ son)
Education of family member- His mother teacher (rtd.), wife B.Sc., daughter studying in 4th std,& son 2nd std.,
Member involve in this business- 1(himself)
UNIT- 04

Business Background:
Firm Name- Pragati Handicraft.
Address-
Vill – Kahikuchi, PO + PS – Azara
Pin – 781017, Dist – Kamrup, Assam
Artisans Name- Mr. Mantu Haloi.
Age-27 years.
Education – 10th passed.
Contact Number- +91-9854381124
Product Range- Bamboo furniture & products
Work duration- He started his own business 5 years back
Experience- He has total 10 years experience in this field
Number of workers- 3 (himself+ 2 others)
Monthly income- Rs 7,000/= per month.
Problem faces- Lack of marketing linkage, financial assistance and use of power tools, no new products have been manufactured.

Family background-
S/o –Utshav Haloi
Family member- 6 persons
Male- 3 (Father+ himself+ brother)
Female- 3 (Mother+ Sister in law)
Children- 1
Education of family member- His father x passed, mother 8th passed, brother H.S. passed, & sister in low H.S. passed.
Member involve in this business- 2 (himself + brother)
UNIT- 05

Business Background:
Firm Name- G.G industries.
Address-
Vill – Rampur, PO –Rampur PS- Palashbari
Pin – 781132, Dist – Kamrup, Assam
Artisans Name- Mr. Biplabananda Goswami.
Age- 37 years.
Education – B.Sc. passed
Contact Number+91-9854030879
Product Range- All types bamboo furniture and fishing items.
Work duration- He started his own business 10 years back
Experience- He has total 11 years experience in this field
Number of workers-6 (himself+ 5 others)
Monthly income- Rs 20,000/= per month.
Problem faces- No proper lack for treatment and working, marketing linkages are poor.

Family background-
S/o – Mr. Paramananda Goswami.
Family member- 8 persons
Male- 3 (himself+ father + 1 older brother)
Female-2(wife+ sister)
Children-3 (1 daughter+ 2 nephew)
Education of family member- Father B.A. ( Rtd. teacher), Wife- B.A.,
Brother and Sister both are B.A passed.
Member involve in this business- 1 (himself)
UNIT- 06

Business Background:
Firm Name- Nil.
Address-
Vill – Bhagawatipara, PO – Palashbari,
PS- Mirja,Pin – 781132,Dist – Kamrup, Assam

Artisans Name- Mr. Narayan Kalita.
Age:- 42 years.
Education – 10th std. pass
Contact Number-+91-8751953472
Product Range- wooden furniture and household items
Work duration- He started his own business 18 years back
Experience- He has total 18 years experience in this field.
Number of workers- Nil.(himself)
Monthly income- Rs 6,000/= per month.
Problem faces- Lack of proper finishing, no development in designs
products, methods of production is traditional and no use of power tools.

Family background-
S/o – Atul Kalita
Family member- 7 persons
Male- 2(Father+ himself)
Female-2 (Mother +wife)
Children-3(2 daughter+ 1 son)
Education of family member- Wife Metric std., daughters are 8th and 7th
std, son is 3rd std.
Member involve in this business- 1 (himself)
UNIT- 07

Business Background:
Firm Name- Nil
Address-
Vill – Azara, PO + PS – Azara
Pin – 781017, Dist – Kamrup, Assam
Artisans Name-Mr. Kamal Das.
Age-36 years.
Education –B.A.
Contact Number+91-9957411665
Product Range- Bamboo and cane furniture.
Work duration- He is engaged in this business since 2007.
Experience- 5 years working experience.
Number of workers- Nil. (Himself+ others)
Monthly income-Rs 5,000/= per month
Problem faces - Traditional products are produced, lack of finance for expansion and new product development.

Family background-
S/o – Jatin Das
Family member- 11 persons
Male- 4
Female-3
Children-Daughter 3, son 1,
Education of family member- Daughter 6th std., Son 8th std. Brother 10th std.
Member involve in this business- 1 (himself)
UNIT- 08

Business Background:
Firm Name- Nil.
Address-
Vill – Kahikuchi, P.O + P.S – Azara
Pin – 781017, Dist – Kamrup, Assam
Artisans Name- Mr. Ankur Sarma.
Age- 30 years.
Education –12th passed
Contact Number+91- 9706388944
Product Range- Bamboo and cane furniture and house hold items.
Work duration- He started his own business 5 years back
Experience- He has total years experience 5 in this field.
Number of workers- Nil.
Monthly income- Rs 6,000/= per month.
Problem faces - Lack of marketing linkage, lack of worker, finance related problems, no thrust on new designs on existing products etc.

Family background-
S/o – Rajesh Sarma
Family member- 9 persons
Male- 5
Female- 3
Children- 1
Education of family member- Father rajmistry, Mother 5th std. Brother 10th pass, Sister 10th pass, Wife 12th passed,
Member involve in this business- 1 (himself)
UNIT- 09

Business Background:

Firm Name- Nil.
Address-
Vill – Bangapara,
PO+PS – Azara, Pin – 781015
Dist – Kamrup, Assam

Artisans Name- Mr. Tapan Kalita.
Age- 35 years.
Education – 12th passed
Contact Number+91-7678278897

Product Range- Bamboo and cane furniture and household items.
Work duration- He started his own business 10 years back.
Experience- He has total 13 years experience in this field.
Number of workers-Nil.
Monthly income- Rs 7,000/= per month.

Problem faces- Lack of finance, marketing linkage, similar products are being produced.

Family background-
S/o – Putkan Kalita
Family member-5 persons
Male- 1
Female-2 (Mother+ wife)
Children-2
Education of family member- Wife is 9th std.,
Member involve in this business- 1(himself)
UNIT- 10

Business Background:
Firm Name- Nil.
Address-
Vill – Rampur, P.O - Rampur
PS – Mirza, Pin – 781132
Dist – Kamrup, Assam.
Artisans Name- Mr. Tapan Kalita.
Age-25 years.
Education – 8th passed.,
Contact Number-+91-8752009346
Product Range- Bamboo and cane furniture, stools etc.
Work duration- He started his own business 10 years back.
Experience- He has total 10 years experience in this field.
Number of workers-Nil.
Monthly income- Rs 6,000/= month approximate
Problem faces- Low level of income as the production is low due to financial problem, similar products being produced. No development in terms of products development or design development etc.
Family background-
S/o – Late Gobinda Kalita
Family member-5 persons
Male- 1
Female-4 (Mother+ 3 sister)
Children-Nil
Education of family member- Elder sister is 10th passed, younger one is studying in 9th std. and another studying in 10th std.
Member involve in this business-1 (Himself)
UNIT- 11
Business Background:
Firm Name- Nil.
Address-
Vill – Rampur, P.O. – Rampur,
Pin – 781132, Dist – Kamrup, Assam.
Artisans Name- Mr. Mahesh Kalita.
Age- 25 years.
Education – 9\textsuperscript{th} std.
Contact Number-+91-9508403256
Product Range- Bamboo fishing implements and household items.
Work duration- He started his own business 4 years back.
Experience- He has total 5 years experience in this field.
Number of workers-3 (himsellf + 2 others)
Monthly income- Rs 8,000/= per month.
Problem faces- No treatment facilities for raw materials, lack of finance,
minimum use of tools and machinery, no new design or product has been develop.
Family background-
S/o – Sabhar Kalita
Family member- 6 persons
Male- 5
Female-1
Children- Nil.
Education of family member- Mother class 8\textsuperscript{th} passed, two elder brothers
one is 9\textsuperscript{th} std. and other is 8\textsuperscript{th} std.
Member involve in this business- himself
UNIT- 12

Business Background:
Firm Name- Nijara furniture house.
Address-
Vill - Rampur (Sarurampur)
PO + PS – Azara, Pin – 781132
Dist – Kamrup, Assam

Artisans Name- Mr. Bilash Sharma.
Age- 51 years.
Education – HSLC passed.
Contact Number-+91-9854786764
Product Range- Wooden furniture and decorative items.
Work duration- He started his own business 30 years back.
Experience- He has total 35 years experience in this field.
Number of workers-5 (himself + 4 others)
Monthly income- Rs 15,000/= per month.
Problem faces- Lack of proper finishing, display is poor, rate not appropriate for the products, no linkages for marketing.

Family background-
S/o – Bihashasor Sharma
Family member- 5 persons
Male- 2 (himself + Son)
Female-1
Children- 2 daughter.
Education of family member- Wife H.S.L.C., both of daughter are graduate, son is class 10th std.
Member involve in this business-1 (himself)
UNIT - 13

Business Background:
Firm Name- Nil.
Address-
Vill – Rampur, PO – Rampur, Pin – 781132
Dist – Kamrup, Assam
Artisans Name- Mr. Dilip Das.
Age- 50 years.
Education – 9th std.
Contact Number-+91-9613629062
Product Range- Wooden furniture and decorative items.
Work duration- He started his own business 30 years back.
Experience- He has total 35 years experience in this field.
Number of workers-5 (himself + 4 others)
Monthly income- Rs 12,000/= per month.
Problem faces- No new product/ design tried, lack of labour involve, no use of power tools low investment capacity etc.

Family background-
S/o – Nabin Das
Family member- 8 persons
Male-2 (himself + Son)
Female-1
Children- 5 (4 daughters, 1 son)
Education of family member- Wife 4th std,
Member involve in this business- 1 (himself)
UNIT- 14
Business Background:
Firm Name- Nil.
Address-
Vill – Raja Pukhuri.
PO+ PS – Bhagwati para.
Pin – 781132, Dist – Kamrup, Assam.
Artisans Name- Mr. Kamalesh Kumar.
Age- 45 years.
Education – 5th std.
Contact Number-+91-9577844331
Product Range- Wooden furniture and decorative items.
Work duration- He started his own business 15 years back.
Experience- He has total 20 years experience in this field.
Number of workers-2( himself + 1 others)
Monthly income- Rs 10,000/= per month.
Problem faces- No new product developed, no new design tried, marketing linkages too poor etc.
Family background-
S/o – Late Jadab Kumar.
Family member- 6 persons
Male- 1 (himself )
Female-3 (wife and 2 daughters)
Children- 2 daughters.
Education of family member- Wife H.S.L.C., both of daughter are study in lower primary std.
Member involve in this business- 1(himself)
UNIT- 15

Business Background:
Firm Name- Ma Golapi furniture house.
Address-
Vill- Bhagawatipara, PO- Bhagawatipara,
PS- Palashbari, Pin-781132, Dist- Kamrup, Assam.
Artisans Name-Mr. Mamat Das.
Age- 43 years.
Education – 8th std.
Contact Number-+91-9706566247
Product Range- Wooden furniture house holds items.
Work duration- He started his own business 20 years back.
Experience- He has total 30 years experience in this field.
Number of workers-4 (himself + 3 others)
Monthly income- Rs 15,000 = per month.
Problem faces- No product/ design develop for a long time, no proper marketing linkage etc.

Family background-
S/O- Late Ghana Kanta Das.
Family member- 7 persons
Male-1 (himself + Son)
Female-3 (Mother+ sister+ wife)
Children- 3 (2daughter+ 1 son)
Education of family member- Wife 9th std, one of daughter is 8th std. and other is 4th std., son is L.P. school.
Member involve in this business-1 (himself)
UNIT- 16

Business Background:
Firm Name- Monikut Hasta Hilpa.
Address-
Vill – Kahikuchi, PO + PS – Azara
Pin – 781017, Dist – Kamrup, Assam

Artisans Name- Mr. Prabin Mahanta.
Age- 42 years.
Education – HS passed.
Contact Number-+91-9954655936
Product Range- Bamboo & Wooden decorative items.
Work duration- He started his own business in 6 years back.
Experience- He has total 6 years experience in this field.
Number of workers- Nil.
Monthly income- Rs6,000/= per month.

Problem faces - Proper price is not received, no proper display, lack of finance.

Family background-
S/o – Late Pathak Mahanta
Family member- 2 persons
Male-1 (himself)
Female-1(wife)
Children-
Education of family member- Wife is H.S. passed.
Member involve in this business-1 (himself)
UNIT- 17

Business Background:
Firm Name- Nil.
Address-
Vill- Bhagawatipara, P O- Bhagawatipara,
PS- Palashbari.,Pin-781132, Dist- Kamrup, Assam.
Artisans Name- Mr. Sunil Baishya.
Age- 37 years.
Education – HS passed.
Contact Number-+91-9577108252
Product Range- Wooden furniture.
Work duration- He is engaged in this business since 2000.
Experience- He has total 12 years experience in this field.
Number of workers- Nil.
Monthly income- Rs 9,000/= per month.
Problem faces- No linkages has been established, proper price of the products not received, lack of finishing.

Family background-
- S/O- Khagen Baishya.
Family member- 6 persons
Male-4 (himself + brother+ uncle and father)
Female-2 (Mother and sister)
Children- Nil.
Education of family member- Sister HS passed.
Member involve in this business-1 (himself)
UNIT- 18

Business Background:
Firm Name- Nil.
Address-
Vill – Rampur (Sarurampur)
P.O. – Rampur, Pin – 781132
Dist – Kamrup (Assam)

Artisans Name-Mr. Subhash Kalita.
Age- 38 years.
Education – 7th std.
Contact Number-+91-9613529360
Product Range- Wooden Furniture.
Work duration- He is engaged in this business since 2002.
Experience- He has total 10 years experience in this field.
Number of workers- Nil.
Monthly income- Rs 7, 000/= per month.
Problem faces- Lack of finance, labour availability, no proper working shed.

Family background-
S/o – Late Aruan Kalita
Family member- 5 persons
Male-2 (himself + father)
Female-3 (Mother+ wife +sister)
Children-
Education of family member- Wife HSLC passed, sister is 9th std. elder brother is read in HS std.
Member involve in this business-1 (himself)
UNIT- 19

**Business Background:**
Firm Name- Kamal Furniture House.
Address- Vill- Kahikuchi, P.O.+P.S.- Kahikuchi
Pin-781017, Dist- Kamrup, Assam.

**Artisans Name- Mr. Dipak Kalita.**
Age- 34 years.
Education – 10th std.
Contact Number- +91-9954759690
Product Range- Wooden furniture.
Work duration- He started his own business 18 years back.
Experience- He has total 20 years experience in this field.
Number of workers- 4 (himself+3 others)
Monthly income- Rs 15,000/= per month.

Problem faces- No proper working shed, lack of marketing linkage, use of traditional tools etc.

**Family background-**
Family member- 6 persons
Male- 2 (himself + father)
Female- 2 (Mother + wife)
Children- 2 (Daughter)
Education of family member- Mother 10th passed, wife 10th std., one daughter is studying class 2nd std.

Member involve in this business- 1 (himself)
UNIT- 20

Business Background:
Firm Name- Nil.
Address-
  Vill- Bhagawatipara, P O- Bhagawatipara,
  P S- Palashbari, Pin-781132, Dist- Kamrup, Assam.
Artisans Name- Mr. Arabinda Kumar Rabha.
Age- 35 years.
Education – HSCL passed.
Contact Number-+91-
Product Range- Wooden furniture and household items.
Work duration-He is engaged in this business since 2009.
Experience- He has total 3 years experience in this field.
Number of workers- 3 nos.
Monthly income- Rs 7,000/= per month.
Problem faces- communication problem, lack of finance, no use of power tools.

Family background-
S/O-Mr Mukunda Rabha.
Family member- 6 persons
Male-3 (himself + brother+ father)
Female-2 (Mother and wife)
Children- 3 daughter.
Education of family member- Father HSLC passed, Mother 8th Std., Wife HSLC passed, Brother 6th std., and Daughters are studying in 10th, 6th and 2nd std.
Member involve in this business-1 (himself)
3.2 EXISTING PRODUCTS

**BAMBOO**

- Basketry
- Decorative items

**WOOD**

- Furniture
- Table settings
- Other wooden items
REDESIGN AND PRODUCT DEVELOPMENT

Bamboo

Wood
Promotional Activities that can be taken up in future:-

There are many schemes/ projects being implemented by the Govt. of India as well as Govt. of Assam for the artisans / entrepreneurs who are engaged with bamboo and woodcraft. 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 will also be able to display their products in the showrooms of different promotional agencies/ organization. The artisans will also become eligible to participate in exhibitions and fairs in different parts of the country and aboard as well as in local places within the states. In this way they can promote their products.

3.4 Existing status and opportunity for visual identity, branding and communication design

Need for a common Visual Identity:

The cluster has no such identity mark to be recognized. It is very difficult for users to identify 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.

3.5 SCOPE FOR TECHNOLOGY, MODERNIZATION AND DESIGN COLLABORATION

*Process Development:*
The production process will be upgraded by use of machineries. The accuracy of the product dimensions will be increased and the involvement of machineries will help in increase in production rate as well as reduce the amount of raw materials wasted in the process. The entire production process will undergo a major change and thus the productivity as a whole will increase. Moreover the changes in terms of stock which will also increase, there will be increase in inventory (raw material) as well. New technologies and methods related with production will be applied for enhancing the production rate. The treatment of the raw materials will have to take care of.
3.6 **Scope for operations and process innovation from design prospective**

The main raw materials for the industry, i.e. bamboo and wood of various types are abundantly available throughout the State. It requires little or no investment and can be pursued by anybody and everybody of a household as a subsidiary occupation. As such, the industry has considerable scope for development and various new products suited to modern tastes can be manufactured out of bamboo and wood. Market intelligence is required to be developed so that products can be made to cater to the need of the consumer market. State Governments Emporia are also trying to popularize a few artistic and decorative wood and bamboo products outside the State to organize the unorganized and scattered handicraft artisans, the Government of Assam had launched a scheme for registration of handicraft artisans and handicrafts units.

**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.
3.7 Design opportunity in workstation and tooling

**Work Station:** - A very unplanned condition exist in the work station. There is no proper rooting no electricity (in many cases), no proper ventilation, and lack of proper lighting and in some cases proper space to manufacture products of higher dimensions. The workstations lack scientific design as a whole in almost all cases. For future course to work with power tools and in a hygienic atmosphere the following requirement are compulsory.

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.
3.8 Details of market and competition study for design

Advantage and distinction

There is a good market demand of the bamboo & wood craft all over Assam 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.
3.9 Need of training and skill upgradation:

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 Assam 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.
3.10 Ergonomic and environment factors in MSME premise

The environment of the workstation is cluttered and unorganized. The body posture and tools are not ergonomically designed according to the workstation. The insufficient lighting arrangement reduces the work efficiency and product quality. While working with bamboo or wood where its release waste and dust may be cause internal body diseases and affect health severely. Thus it is highly recommended that always wear a safety mask & kits to avoid accidents.

3.11 Packaging and logistics related design opportunities

Need to pack properly with suitable material and stacking techniques. Need to be categorized according to the product size, quality and grade. Need proper space division for different products which took time to arrange.
3.12 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.
3.13 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.

4. Value Chain & Analysis

4.1 Description of bamboo and wood craft value chain

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

4.2 Market

Almost all the individual artisans are supplying or dependent over local traders and middle man (Mahajans) with little or no access of bigger market. So a marketing and selling channel is required to uplift this cluster through a direct business also it will help to create brand establishment of “Kahikuchi cluster “and generating more value. Also this would be spread the awareness in the market as well as increased demand and trust.
4.3 Issues in bamboo & wood 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 centers 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.

| Raw material Purchasing (Bamboo+ wood) | Bhaluka bamboo 250 & Segun 1700/ per KB |
| Treatment | Labour charge & medicine Charges 10,000 |
| Sander/ preparing the raw material for next work | Only Labour Charges @ Rs-200 for a day without lunch of bamboo work for wooden carpentry it will be 500 for a day. |
| Design making & Cutting |  |
| Paper Polishing |  |
| Colouring |  |
| Burnishing |  |
(c) Product Diversification and Design Inputs:
Most of the people involved in the bamboo & wood 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 & wood 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 & wood 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 & wood belong to local persons.

(f) Poor External Linkages:
Although this Bamboo & wood Cluster’s technique is unique to the bamboo & wood 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
Photographs of the Working Condition
**SWOT Analysis of the Kahikuchi Cluster:**

**Strength:**
1. Easy availability of raw materials.
2. Use of power tools is very limited in the cluster, thus creating scope for their introduction in the cluster.
4. Scope for product diversification.
5. Existing business of the artisans is well established.

**Weakness:**
1. Traditional method of production.
2. Treatment of raw materials is poor.
3. Lack of training facilities/guidance for encouraging them to take up power tools.
4. 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.
5. Lack of marketing linkage. Proper packaging & display is not there.

**Opportunity:**
1. The acceptance/demand of bamboo/wood are very encouraging.
2. The Wood/ 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.
4.6 Present Status of design at 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 Kahikuchi cluster is producing a lot of bamboo & wood product; this is main occupation for the artisans in that area. Now a day’s new generation entrepreneurs and artisans are taking up this activity. 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.

==========XXX================
References......

Website:

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

Books

- Assam Handicrafts: Dreams and Designs
## TRAINING SCHEDULE (PROPOSED)

**Duration:** 5 days  
**Venue:** Kahikuchi, Dist: Kamrup, Assam

<table>
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<tr>
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<th>Time</th>
<th>Topic</th>
<th>Resource person</th>
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<tr>
<td>Day 1</td>
<td>10:00 am - 11:00 am</td>
<td>Inauguration</td>
<td>Director KVIC, Guwahati</td>
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<tr>
<td></td>
<td>11:00 am – 1:00 pm</td>
<td>Development Entrepreneurial Qualities among the Artisans engaged in Bamboo and woodcraft in South Kamrup</td>
<td>Dr. DD Mali Ex Director /IIE.</td>
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<td></td>
<td>2:00 pm – 5:00 pm</td>
<td>Introduction to different types of Power tools to be used for producing Bamboo &amp; wood products.</td>
<td>A.Dutta/ Design Consultant</td>
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<tr>
<td>Day 2</td>
<td>10:00 am -1:00 pm</td>
<td>Different Schemes and Facilities for development of Enterprises in Bamboo &amp; wood Products.</td>
<td>MSME Officials</td>
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<tr>
<td></td>
<td>2:00 pm – 5:00 pm</td>
<td>Product diversification and latest designs as per the demand of customers</td>
<td>A.Dutta/ Design Consultant</td>
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<tr>
<td>Day 3</td>
<td>10:00 am -1:00 pm</td>
<td>Bamboo &amp; wood treatment for increasing the durability/Quality of the Products.</td>
<td>Expert from CBTC, Guwahati.</td>
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<tr>
<td></td>
<td>2:00 pm – 5:00 pm</td>
<td>Change in the existing Products &amp; blending veguirments for making the products more presentable.</td>
<td>A.Dutta/ Design Consultant</td>
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<tr>
<td>Day 4</td>
<td>10:00 am -1:00 pm</td>
<td>Role of DIC and the Role of Entrepreneurs / Artisans in Enterprise Development.</td>
<td>DIC officials.</td>
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<td></td>
<td>2:00 pm – 5:00 pm</td>
<td>Introduction to different technologies and production method related to Bamboo &amp; wood products.</td>
<td>A.Dutta/ Design Consultant</td>
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<tr>
<td>Day 5</td>
<td>10:00 am -1:00 pm</td>
<td>Linkages &amp; Introduction to different production agencies.</td>
<td>Expert from NEHHDC/ A.C.M.C.</td>
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<td></td>
<td>2:00 pm – 5:00 pm</td>
<td>Product Display and Marketing concepts related with Bamboo &amp;wood products.</td>
<td>A.Dutta/ Design Consultant</td>
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Daily Lunch Break: - 1:00 pm – 2:00 pm
Design Clinic Workshop
On Bamboo & Wood Craft
Under
Design Clinic Scheme at Kahikuchi Cluster

w.e.f. 28.07.2012 to 01.08.2012

at
Chilarai Bhawan, Uparhali, Bijoy Nagar, Assam

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)
Beharbari Chariali, Guwahati-781029, Assam
Contents

1. Report
2. Registration and details of the Participants
3. Inauguration & Felicitation of Guests & Speakers
4. Profile of the Speakers and topics and brief of their Presentation
5. Valediction
6. Annexure
Report Design Clinic Workshop:

After the conclusion and the submission of Need Assessment Survey report under the five-band Design Clinic Scheme, a five-day workshop was conducted on Bamboo & Wood Crafts, Kahikuchi cluster, Kamrup at Chilarai Bhawan, Uparhali, Kamrup from 28/07/2012 to 01/08/2012.

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 one of the main focus areas was on introduction of power tools for better products in terms of design and quality. So for the workshop power tools were used and each and every participant was made aware of benefits of the power tools.

Registration and details of the Participants:

In the Design Clinic Workshop 23 participants from Kahikuchi, Kamrup District, Assam participated in the programme. List of the participants is enclosed as Annexure-I. The workshop had begun at 10.30am and before beginning all the participants were registered and they were all given a copy of programme schedule along with training materials like pen, pad, and folder. The copy of their registration cards are enclosed as Annexure-II.

Inauguration & Felicitation of Guests & Speakers:

The inauguration of the programme was held on 28th July 2012 from 10:30 am to 10:45 am. Dr. D. D Mali, Ex-Director, Indian Institute of Entrepreneurship as Chief Guest, Mr. Nayan Moni Goswami, Project Associate, Resource Centre in IT & Skill Development, Er. Anupam Dutta, Designer, Kahikuchi Cluster, Ms. Trishna Mahanta, Designer, Mr. Jayanta Baruah, CEO, NEDC, Mr. Rebat Deka, Project Assistant, Mr. Leela Gogoi, Project Assistant, & Mr. Abhijit Deka, Project Coordinator, NEDC were present during the inauguration.
Er. Anupam Dutta welcomed the chief guest, the invitees, the participants and all other people present there and gave a brief introduction about the programme & discussed the curriculum of this workshop. Next he introduced the chief guest and the invitees to all. All the participants then introduced themselves and shared their expectations about the programme.

**Er. Anupam Dutta introduced the chief guest and the invitees to all**

**Dr. D.D. Mali inaugurating the programme**
After that, the workshop was inaugurated by the Chief Guest Dr. D.D. Mali, Ex-Director, Indian Institute of Entrepreneurship and then the workshop continued with the discussions and suggestions from the distinguished invitees who are all experts and experienced in their own field.

Profile of the Speakers and topics and brief of their Presentation:

After inauguration the Chief Guest Dr. D. D. Mali gave a lecture on role of artisans for enterprise development. He also discussed on development of entrepreneurial qualities among the artisans. After Dr. Mali’s valuable speech the first session was concluded at 12:00 pm and then there was break for tea. After that Mr. Nayanmoni Goswami, gave a lecture on benefits of power tools. After the first session was concluded at 1.00 pm and then there was break for lunch. After that Er. Anupam Dutta started the 2nd session & told them the treatment of bamboo/wood before production. After that he gave practical use of different types of power tools-Sander, Polisher/Saw/Jigsaw/Planner etc.

Dr. D.D. Mali, Ex-Director, Indian Institute of Entrepreneurship, delivering his lecture on entrepreneurship development.
Mr. Nayanmoni Goswami gave a lecture on benefits of power tools.

Er. Anupam Dutta discussed the treatment of bamboo/wood before production.

Er. Anupam Dutta introduced the different types of power tools.
On 2nd day i.e. 29th July’ 2012, Mr. Dul Chandra Das, Extension Officer (Credit), District Industries & Commerce Centre started the 1st session at 10.00 am & discussed about different schemes and facilities for development of enterprises in bamboo & wood products. He also discussed the registration process DIC for artisans. After that the first session was finished participants break for lunch. After lunch Er. Anupam Dutta, conducted the 2nd session. In this session he discussed different design development using power tools for bamboo & wood. He also discussed the changes in terms of production process for bamboo/wood using power tools.
Mr. Dul Ch. Das discussed about different schemes and facilities for development of enterprises in bamboo & wood products.

Participants interact with resource persons.

Er. Anupam Dutta, gave a practical use of power tools.
On 3rd day i.e. 30.07.2012, Er. Mridu Pawan Medhi, Expert of Power Tools (BOSCH Ltd.), started the 1st session at 10.00 am & discussed about the manufacturing techniques for diversified bamboo & wood products. He introduced the specific uses for expert power tools products of bamboo & wood. In this session he also gave presentation on different types of power tools. After that the first session was finished the participants break for lunch. After lunch Er. Anupam Dutta started 2nd session & introduced the new products designs which are in demand for local market.
Er. M. P. Medhi discussed about the manufacturing techniques for diversified bamboo & wood products.

Er. M. P. Medhi gave presentation on different types of power tools.

Er. M. P. Medhi gave a demonstration of power tools.
Er. Anupam Dutta interact with participants

Er. Anupam Dutta, gave a practical use of power tools

Er. Anupam Dutta, gave a practical use of power tools
On 4th day i.e. 31.07.2012, Er. Anupam Dutta, started the 1st session & discussed the following topics:-

- Standardization/ specification of bamboo/ wood products- necessity for proper marketing.
- Different designs imported by different power tools for less wastage of raw materials using minimum labour.
- Display characteristics for better marketing.

After lunch Er. Anupam Dutta, conducted the practical session.

Er. Anupam Dutta discussed the different designs imported by different power tools for less wastage of raw materials using minimum labour.
On final day i.e 01.08.2012, Er. Anupam Dutta, gave a discussion about proper finishing/different colouring techniques for bamboo & wood products. After that the first session was completed the participants break for lunch.

![Participants during the workshop](image)

**Valediction:**

The valediction of the programme was conducted on 1st August 2012. Mr. Achyut Akash Borah, Officer in Charge, State Institute of Rural Development along with Ms. Niloofar Seikh, Coordinator, NID North East Zone, Er. Anupam Dutta, Design Consultant & Sri Jayanta Baruah, CEO, NEDC also participated in the programme.

Er. Anupam Dutta, has welcomed the gathering and have shared his experience about the programme and offered thanks to NATIONAL INSTITUTE OF DESIGN for giving him the opportunity. Mr. Achyut Akash Borah encouraged the participants to work seriously to launch small scale business units. He complimented the participants for their initiation to become 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. Ms. Niloofar Seikh discussed about the benefits on offer for the artisans under design scheme. She encouraged the
artisans to go for new products and designs. She also stressed upon participation in Melas & Exhibitions by the artisans. Mr. Jayanta Baruah then briefed about the conduct of programme and complimented the participants for their active participation, involvement and successfully completing the programme.

After that all the participants have identified viable business ideas of their own choice to start a small business unit in bamboo & wood craft sector. After that Ms. Nilofar Seikh & Mr. Achyut Akash Borah distributed the participation certificates to all the participants.

After this every participant was given a feedback form which they filled up & submitted.

The programme was concluded with vote of thanks the Mr. Jayanta Baruah

The copy of their feedback forms are enclosed as **Annexure- III.**
Participants during the workshop
Some of the products samples developed during the workshop by the artisans.
Power Tools Presentation during the programme
Design Clinic Workshop
On
Bamboo & Wood Craft
At
Chilari Bhawan, Uparhali, Bijoy Nagar, Kamrup, Assam
Date:- 28.07.2012 to 01.08.2012

List of Participants

<table>
<thead>
<tr>
<th>SL</th>
<th>Name of the Participant</th>
<th>Address</th>
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<td>1</td>
<td>Narayan Kalita</td>
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<td>Biplabananda Goswami</td>
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<td>Mamat Das</td>
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<td>Dinesh Sarma</td>
<td>Bhagawatipara, Palashbari, Kamrup</td>
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