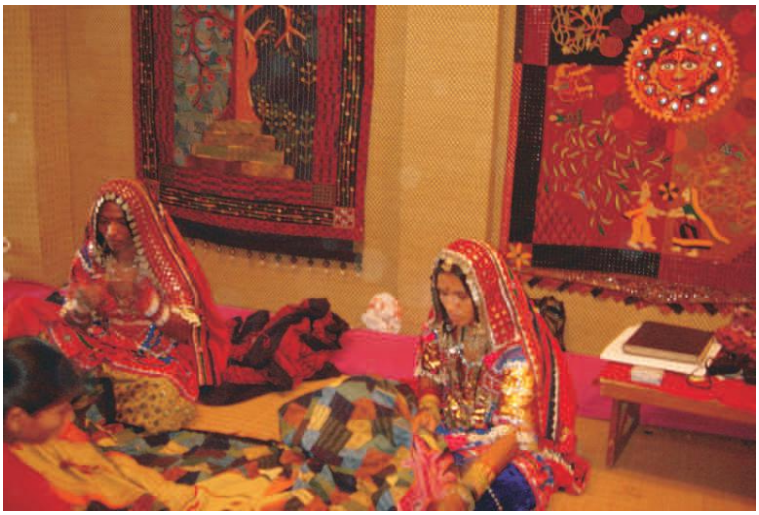
9 INNOVATIONS IN DESIGN AND PROCESSES

Students can learn the basics of a chosen craft such as pottery/weaving/drawing from a practising local artisan, and work on its techniques, handling materials and tools, experimenting with colours, forms, textures, rhythm, balance, etc. The schools should have all the facilities required for practising all the processes involved in a craft including working space, materials and tools. Schools may not have a teacher who is also an expert in all these crafts and in such a case, the schools should identify resource persons/craftspersons from the community, who can come to the school for demonstrations or whom students can visit.

The aim of learning a craft is:

- to provide students a first-hand experience of a craft tradition of their region;
- to enable students to learn the basics of a chosen crafts such as pottery/weaving/drawing from a practising local artisan, and work on its techniques, handling materials and tools;
- to establish an appreciation and understanding of our rich heritage and vast vocabulary of craft techniques and gamut of craft activity;
- to equip the students to undertake field research using suitable research tools/methods once they have had hands-on experience of the process of craft-making;
- to provide students direct interaction with skilled craftspeople so as to aid them in the scientific process of collecting information through observation, enquiry, interaction with people, interviews, and analysing and recording data.

Craftswomen working on new designs



This stage of the course is designed to help students develop their creative and innovative skills. Each term students must choose one topic from those given below that can help them translate what they have learnt in theory into practice.

A. Materials, Processes and Techniques

- Experimenting with eco-friendly packaging of different crafts
- Experimenting with techniques

B. Environment and Resource Management

- Recycling materials
- Reducing hazards
- Resource management

C. Economy and Marketing

- Micro-enterprises
- Costing and pricing
- Status of the craftsperson and changing trends

D. Global Uses and Trends

- Contemporary use of the craft in India and abroad

Pots stored for transportation to the market, Assam

A. Materials, Processes and Techniques

Delicate objects made of material like papier-mâché need to be handled carefully

ACTIVITY 9.1

ECO-FRIENDLY PACKAGING OF DIFFERENT CRAFTS

Class : XI

Time : Homework or holiday assignment

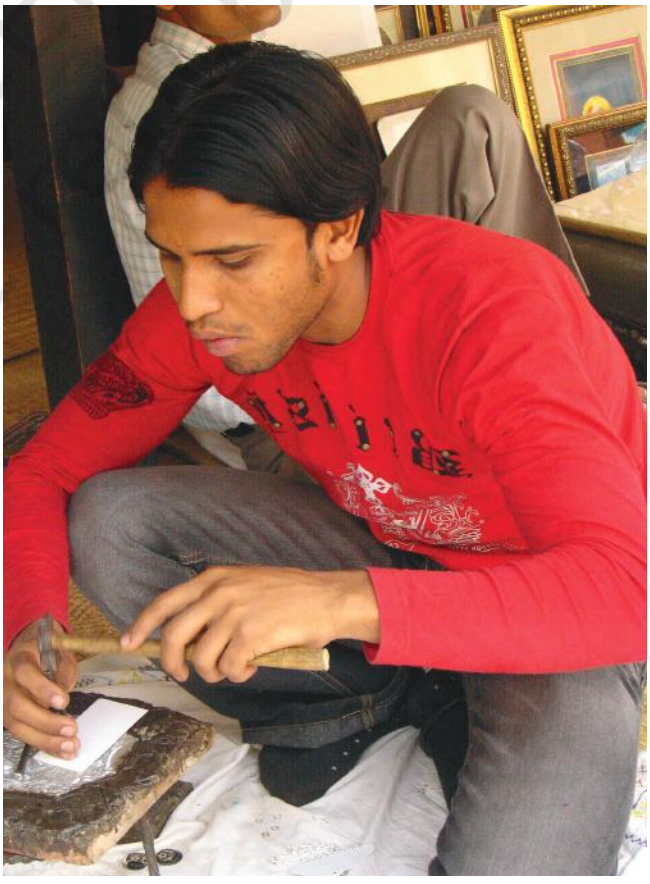
Some ideas are suggested below.

- Create a packaging system for paper kites for export purposes. Ensure that the materials you use are environment-friendly, recycled material.
- How is pottery carried to the market in a bullock cart by the crafts community? What materials are used? Use the same recycled materials to design a packaging system/unit for other delicate, fragile crafts made of glass, papier mache, etc.

Modern packaging of candles, Delhi

Experimenting with Techniques

In Himachal Pradesh, in particular, metalsmiths were commissioned by the king to embellish the silver-plated doors of temples. Mythological and legendary themes were impressed upon the door by using the *repousse* technique. Locally known as *tapai*, the *repousse* technique enables the artisan to raise designs in relief on a metal sheet. The design is first traced onto the sheet with a sharp, pointed chisel. With light hammer strokes, the design outline is stamped in dots. A mixture of hot sealing wax, resin, mustard oil and brick dust is poured onto a piece of wood. It is allowed to cool so that it becomes a hard surface, on which the inverted metal sheet can be placed. The design is worked into the metal object along the dotted line with a hammer. Numerous blunted chisels are used to make the design even more elaborate. When the sheet is taken off the wooden slab, the depressed portions give the impression of being raised from the surface, and the design looks very impressive.



ACTIVITY

- Using the technique of *repousse* try and develop the concept using another material or materials to create the same 'raised design' effect.
- There are many styles of painting. Study one local style of a particular community in your district or state to see if any chemical colours are being used and suggest how natural, non-polluting colours can be made and substituted.
- Create a set of brushes for painting that create textures of different kinds.
- Keeping in mind the inherent qualities of a plant and its fibres, create a new product that you need in your school like a chalk box, door stopper, file covers, etc.

B. Environment and Resource Management

ACTIVITY 9.2

A container crafted from recycled materials, Delhi

RECYCLING MATERIALS

Class : XI
Time : Homework

- Design a paper toy for a blind child using recycled but safe materials.
- Study a product made of natural fibres available in your locality. Describe the availability of resources, and discuss with craftspersons what alternative material can be used. Can you, for example, recycle plastic bags by making rope with them?

ACTIVITY 9.3

REDUCING HAZARDS

Class : XI
Time : Homework

The following passage highlights the hazards of working in a quartz-crushing unit.

Such open kilns pose a serious health hazard

Do you know the difference between bio-degradable and non-degradable substances?

Silicosis Silently Killing Hundreds in Madhya Pradesh Villages

Bhil, Bhilala Tribals fall prey to incurable disease after exposure to silica dust in Gujarat quartz-crushing units

BADHGHYAR (DHAR, MP): *Kailash's wife is dead. His elder brother is dead. His two sisters are dead too.* "Woh charon shaant ho gaye hain *(they are all dead),"* he says, rather impassively. *In his mid-twenties, the resident of Badhghyar village in Kukshi block of Dhar district in Madhya Pradesh knows he is next.*

Kailash is dying of the same disease as his family members — silicosis. It is incurable. He too worked with them in the Gujarat quartz crushing factories and breathed in silica dust that now covers the inside of his lungs, slowly choking him. He has watched most of his family die. He doesn't require doctors to tell him about his painful but short life ahead.

His body has already shrivelled up and his muscles have melted. A skeleton of his previous self, he finds it demeaning but lets his mother bathe him. His lungs blocked, breathless and short of oxygen for his blood, self-esteem is the last of his worries as his body refuses to build new cells while the older ones die. Eventually his system will collapse.

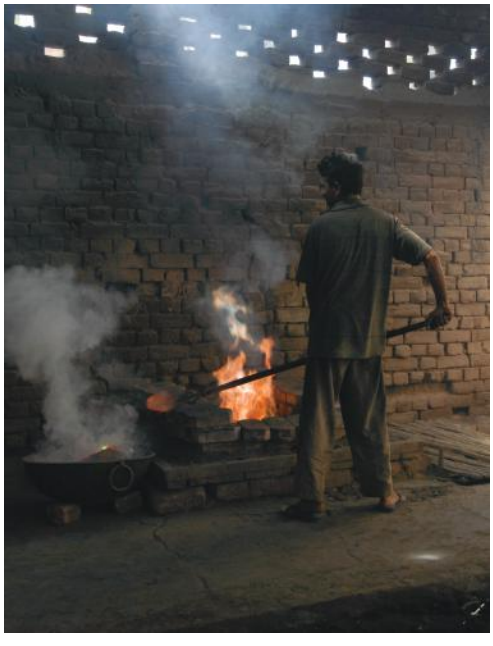
He is one of the hundreds of Bhil and Bhilala tribals in Jhabua and Dhar districts of Madhya Pradesh waiting to die. In a survey conducted in 2007 by a group of doctors in 21 villages of Jhabua, 158 people were found dead of silicosis. "Two hundred and sixty six others, who have been exposed to silica dust and are sick, will also eventually die," the doctors noted.

All of them had gone across the border to work in the quartz-crushing units of Gujarat as unregistered daily wagers. In these factories, quartz stones are first broken by hammer into smaller ones, then crushed and powdered to be used to make glass. Large quantities of dust are generated in the process that the labourers inhale as they breathe deep due to the physically heavy workload involved.

"Initially, the crushing units hired tribals from Gujarat, but when deaths began to hit the tribal region there, the contractors came to Madhya Pradesh in early 2000. Young men and women, jobless in the summers, began to go across the border for what sounded an attractive proposition — Rs 50 to 60 as daily wages for three to four of the worst months of the year," says Magan, a member of the Khedut Mazdoor Chetna Sangathan, a local NGO which helped the doctors carry out the extensive survey.

But when they returned from work, many died with similar symptoms. The Sangathan has filed a case in the Supreme Court. The local administration and the state government have been mostly unsympathetic to the villagers. The National Human Rights Commission is also hearing silicosis cases from across the country. "The disease may not be curable but it is preventable. The factories should be held responsible for exposing the labourers to silica dust," says Magan.

A metal furnace spewing toxic smoke



Munni, a Rordha resident in her mid-30s, has seen 13 members in her extended family die over two years. In all, 28 people have died of silicosis in her village. Those left take care of the orphans and the old. Unable to cope, they find novel ways of resigning to death all around. "Greed is killing my daughter and others," says Anita, who, along with Kailash is one of the two surviving from the 14 that went together to work in Gujarat for that extra ten rupees a day.

– *NITIN SETHI*, The Times of India, 19 May 2008

EXERCISE

1. Make a collection of articles from newspapers, magazines and the Internet on occupational health hazards in the crafts sector in India.
2. The smokeless *chulha* reduced health hazards in kitchens without proper ventilation. Similarly, design an appropriate solution to any one of the occupational health hazards found among the crafts sector in your community that you may have studied as part of your long/short assignments.
3. Design an inexpensive method of making pottery without a wheel.
4. Make 10 different products with recycled materials such as plastic bottles.
5. Create two useful items for your home and school using non-hazardous materials.
6. Design a brochure, poster or pamphlet to promote the work of the local craftsperson you have worked with.
7. Write an essay on how waste is disposed of in your locality and suggest a better disposal system.

ACTIVITY 9.4

ECO-FRIENDLY CRAFT

Class : XII
Time : Assignment

In June 2007 the huge multinational company Mattel Inc., the world's biggest toy retailer had to remove 21 million toys from shops around the world. This was after they discovered that the paint used on Chinese-made toys contained poisonous lead in it.

Experts say that Polyvinyl Chloride also known as PVC or vinyl contains phthalates. These can cause many kinds of bodily harm and illness.

Because of the cheap toys being produced in China and exported to all parts of the world the traditional toy-makers of Channapatna in Karnataka had been losing business over the last ten years. Many of the toymakers had migrated to cities in Karnataka in search of employment.

Then the news broke that Chinese toys contained lead and Mattel Inc. were removing the toys from shops and markets around the world. Suddenly there was a world-wide demand for safe, non-toxic toys.

...Channapatna toys are made from pine and cedar wood and painted with mineral, natural paints.

In 2007 Rs 80 lakh worth of toys from Channapatna were exported to the United States of America and the United Kingdom. Many toymakers who had gone to the city in search of work returned to make safe lead-free toys for a new growing market.

—Young INTACH, *Newsletter, 2007*

What are the elements in the creation of an eco-friendly craft?

Images in a market, Madhya Pradesh

SUGGESTED ACTIVITIES

- Identify a local craft and find out if the craft community is using any chemical substance in it. Ask them what natural materials they used originally and why they have stopped using it, if they have. Tell them the story of the Chinese toys.
- Hazardous waste from factories and production centres pollute the soil and water bodies. Write an essay on one such case, describe the situation in your area and suggest what can be done to lessen the problem.
- Study the process of wheel thrown pottery and document the entire process step by step beginning from where the material is found in your area to how objects are fired. What alternatives to wood can you suggest for firing the kiln? Discuss with the craftsman.
- Document natural colours and dyes used in paintings in your area. How are they obtained, made and used?

ACTIVITY 9.5

RESOURCE MANAGEMENT

Class : XI and XII
Time : Assignment

Quake Shatters Gujarat's Artisans

BHUJODI (KUTCH): *There were celebrations here when Punjabhai Vankar came back with a national award for excellence in handicrafts in 1971, putting this little village, 10 km from Bhuj, on the national map.*

Embroidery from Kutch, Gujarat

Three decades later, Bhujodi, which has produced seven more national award winners, and home to the country's finest shawl-makers, hardly has a home standing.

The earthquake of 26 January 2001 brought the houses down, left the looms broken, shattered dreams and affected a tradition Gujarat was proud of. As many as 180 families of weavers were affected by the quake with few looms still running here.

"I had five looms. They were all destroyed when the wall of my workshop collapsed. The 15 persons working on them are now jobless," says Vankar Dayabhai another national award winner. Award winner Devji Vankar, for whom national awards are a family affair now with his father and brother also being awardees, says the earthquake dealt a mortal blow to his craft. "All my 10 looms are now in ruins. Though the season for shawls just got over, this will affect our business severely," says Devji.

Also threatened is a unique training unit set up near Bhujodi to create interest in and train youngsters in the craft of shawl-weaving. With the training centre having crumbled, the 10 students are now uncertain about their future.

The Vankars procure acrylic and pure wool from Ludhiana that they weave into various patterns to form shawls. These shawls are then sent for embroidery work to the Ahir and Rabadi communities. They are also sent to the Banni area for mirror work.

The earthquake has affected about 500 families of weavers in villages like Bhujodi, Kotai, Kukma, Bhimarao Nagar and Mota Bandra.

– RAJA BOSE, The Times of India News Service

SUGGESTED ACTIVITIES

- Tsunamis, floods, droughts, landslides, earthquakes, epidemics, all greatly affect crafts people, their supply of raw materials, and their markets. With the help of the Internet document one case study from any other country in the world to highlight how natural calamities have affected a crafts community.
- Develop a story from any country in the world including India, of how a crafts community was rehabilitated after a natural calmity, man-made disaster or conflict and war.

ACTIVITY 9.6

CONSERVATION OF NATURAL RESOURCES

Class : XII
Time : Assignment

Scarcity and Loss of a Tradition

Few humans have interacted so imaginatively, so intensely and yet, so gently, with a single creation of nature as have Koya tribals with bamboo. The Koya in Orissa are mainly in

What are the special properties of bamboo?

Malkangiri — one of India's poorest districts. Some live next door to Andhra Pradesh. From childhood, members of this unique tribe, says the Sarpanch *of Pitaghata, "…learn the Koya ethic. We teach them to cut the bamboo in such a way that it grows again. We never destroy the forests because our lives depend on them."*

In Kambheda village, a Koya man proudly shows us the many things he has made from bamboo. These are not for sale in the market but for use by his family. They include: eram *— umbrella,* guta *– basket for vegetables,* jaugula *— mini basket used as a measuring unit for rice,* osod *— flute,* tekrom *— big fish trap, and* kiki kadog *— a bag to carry the fish in. There are also eighteen types and sizes of baskets. Besides, the Koyas use bamboo shoots in their food and medicinal preparations.*

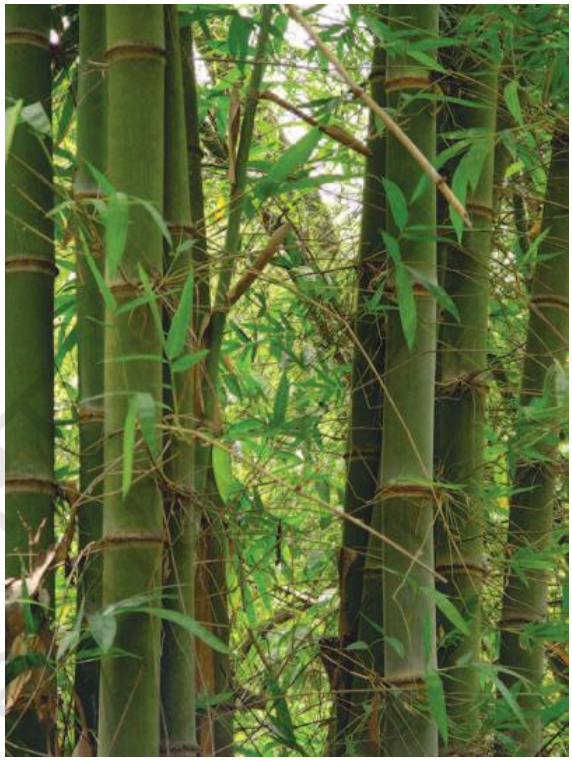
From regeneration to phased and planned felling, it is all there in the Koya ethic. Their relationship with bamboo, far from being a conquest of nature, is a romance with nature.

Yet bamboo is also the social and economic oxygen of the Koya. In recent years, forest laws removing their access to that material have denied them this oxygen. However, big corporates have gained mostly unchecked access to this. They seek large quantities of bamboo for paper. Their imprint is now all over the place in huge patches of barren land where dense forests once stood. Ironically, the companies and their middlemen often hire the Koya on a casual basis — to fell their own forests.

But why cut off the Koyas from bamboo while allowing private companies to access it?

It isn't the first time the Koyas have lost a home, The district Gazetteer *says the Koya tradition is that they were driven from the plateau in Bastar by famine and disputes about 200 years ago. Now it's a new form of displacement. One in which, says a Koya in Suplur village, "We have our houses but no home. What are the Koya without bamboo?"*

— P. SAINATH, Everybody Loves a Good Drought



Bamboo, West Bengal

SUGGESTED ACTIVITIES

- Search and record from the Internet or a library two case studies of how crafts communities have also served as guardians of the natural resources that they use in their craft.
- Interview any one local craftsperson and find out if there is a scarcity of natural materials that is affecting production. What does the crafts community feel can be done to remedy the situation.

THE BAMBOO IN INDIA

Bamboo house, Assam

Bamboo forest, West Bengal

Basket on cart, Andhra Pradesh

Modern tourist resort, Assam

What qualities of bamboo are used in the applications shown here?

Chinese fishing nets, Kerala

Bamboo chicken carrier, Bihar

What can be done to prevent the loss of natural resources?

Pappad carriers, Rajasthan

Baskets, Manipur

Bamboo fishing baskets, Karnataka

C. Economy and Marketing

ACTIVITY 9.7

MICRO-ENTERPRISES

Class : XI

Time : Homework

In rural areas most non-food items are brought from urban areas. The production of these consumer goods is taken up by large-scale industries and the products are marketed in rural areas. Producing these consumer goods in rural areas would have a two-fold effect on the livelihoods of the villagers. First of all, the production process would generate employment locally and thus strengthen the livelihoods of people. Secondly, the products would become available in the local market for lower prices, because there would be no middle men involved, and no transportation and marketing costs. The profits of the production and selling would remain within the community, which will stimulate further development of micro-enterprises in village. An advantage of selling in the urban market on the other hand is that higher prices can be fetched.

Read the case study given below.

Leaf Plates and Cups

Introduction

In forested areas the production of cups and plates made of leaves is a livelihood option. The technique is simple, fewer equipments are required and in this way additional value is given to Non-timber Forest Produce. The market for these cups and plates can be the village and its surroundings, urban areas and special festivals. Market linkages and adequate planning (for example increased production in the period before festivals and events) can increase the market value.

Leaf plate

Details and Cost of Production

Leaves collected from forest trees like Khakhro (Butea monosperma), Badam (Terminalia catappa) *and Teak (*Tectona grandis*) can be used.*

If the agricultural land has a boundary of fruit and timber trees, then these leaves can be used. This saves time required for collecting the leaves and will guarantee a supply.

The collected leaves should be big, without thorns or holes and round in shape. Leaves that still have some moisture and are not completely dry are easier to process.

Arrange the leaves in such a way that there will be no holes in the plate. Fix the leaves with small sticks.

For making leaf cups a machine is required. The Rural Technology Institute in Gandhinagar has developed a low-cost, manually operated cup-making machine. This machine is portable and costs between Rs 5,800 and Rs 6,000. Leaf cups are coated with a thin layer of plastic to hold liquids. The machine heats up a layer of plastic between the leaves so that the materials will stick. An additional advantage of this heating process is that it kills bacteria.

Production Estimates

- *Twenty plates and forty cups can be produced in one hour.*
- *The cups and plates are usually packed hundred per packet. While packing and storing one should make sure that the plates and cups do not break.*
- *Store the cups and plates in a dry place to ensure their preservation.*

Benefits

- *For a set of hundred cups and plates the market rate is Rs 60.*
- *The input costs are minimal, because the leaves are collected from the forest.*
- *A women's group or self-help group can take up the activity.*
- *If the women sit together to produce the plates it also becomes a social activity that gives them some time together.*
- *The plates are bio-degradable.*
- *The usages of leaves can stimulate the growth and protection of forest trees.*

– SMALL STEPS, BIG LEAP, *Centre for Environment Education*

SUGGESTED ACTIVITIES

Develop a micro-enterprise for a craft of your region, as has been done in the case study given above, on the following points.

– Details and the cost of products
– Production estimates
– Benefits

ACTIVITY 9.8

COSTING AND PRICING

Class : XII

Time : One period

Interview a local toymaker and discuss:

- cost of production
- cost of raw materials
- consumer needs/behaviour, and
- inform the craftsperson of changing trends.

How do artists price their creations?

Brick making, Orissa

Create a poster for an exhibition of community art like Madhubani of Bihar. Highlight its special values and unique qualities.

Interview a local artisan on the following points and make a pricing structure for a craft, e.g. a pot/brick/broom.

- Material cost
- Infrastructure costs (electricity/water)
- Tools
- Payment to other workers
- Transport cost
- Total price
- How many objects does the craftsman make in one month?
- How many objects does the craftsman sell in one month?
- Does the craftsperson add any monetary value to the price for his skill, labour, time?

Calculate the cost of the monthly requirements of the crafts family taking into consideration the following factors.

What are the problems faced by the brick -making community in India?

- Number of persons to be supported
- Animals
- Food
- Shelter
- Clothing
- Travel and transport
- Education
- Health

Is the monthly production and sales meeting the needs and requirements of the family?

If the craftsperson is not able to make ends meet, what advice would you give?

Craftspersons selling their products in a mela, *Madhya Pradesh*

ACTIVITY 9.9

DEVELOPING A RESEARCH PROJECT

Class : XII
Time : Assignment

Status of the Craftsperson and Changing Trends

In traditional Indian society there was no sharp distinction between art and craft. The Sanskrit word shilpa *meant skill, craft, work of art or architecture, design or decoration.*

Within the traditional Indian social structure, the status of an artisan was elevated when he made a religious object which was seen as a form of devotion and therefore as a means of upward social mobility. The craftsman is described as the descendant of Vishvakarma, Maker of the Universe. He is said to have fashioned divine images. The craftsmen who made the simple mortar and pestle and those who designed magnificent temples and palaces came from the same rural stock. They organised themselves into guilds, with the intention of protecting their socio-economic and technical interests and undertook large projects on a collective basis wherein they served the specialised interests of their clients...

Its more important function for major ritual events such as birth, initiation, marriage, death, annual and seasonal festivals and such like often surpasses the function of craft as a livelihood. On all these occasions a paraphernalia of textiles and garments, vessels and utensils, toys and games, props and furniture are used. Objects used for everyday purposes attain a ritual value, a sacrosanctity, which then elevates the craft and consequently its maker, to the realm of the sacred. These are, therefore, not merely items created for the elementary purpose of marketing, but form an integral part of the socio-religious order of traditional and contemporary village and tribal life of India.

– JYOTINDRA JAIN

Painted walls of a rural hut, Orissa

SUGGESTED ACTIVITIES

1. Read the above extract and develop a research project:
   - Study local craft communities who create objects for ritual purposes
   - Document their caste, language, how they are paid, what they make and the occasions on which they make them.
   - Apart from ritual objects do they perform any rituals/services for other communities?
   - Are there any organisations/craft community guilds to protect their interests/their children?
2. Design a scheme for an NGO to protect the interests of a craft community.

D. Global Uses and Trends

ACTIVITY 9.10

CONTEMPORARY USE OF *BANDHINI* IN INDIA AND ABROAD

Class : XII
Time : Homework

Bandhini, *Rajasthan*

Tie-dye is yet another way of embellishing cloth — primarily in Gujarat and Rajasthan. Fabric is pinched over the nail of the craftsperson, and tied with waxed cotton thread to make a patterned sequence of fine knots. When the cloth is later dyed in successive deepening shades of different colours, the waxed knots resist the dye, and when untied later produce a delicate but striking design of white dots on the coloured surface. As in many Indian crafts, *bandhini* is a family activity. Women tie the cloth; men do the designing and dyeing. In the *laheria bandhini* of Udaipur, the cloth is tied to make fine diagonal stripes rather than dots.

When the Prince Regent's passion for snuff in the late eighteenth century made snuff-taking a European fashion and coloured handkerchiefs were needed to hide the ugly brown stains, it was the *bandanna*, the spotted kerchief that came to the rescue of the Regency Buck!

SUGGESTED TOPICS

- On the Internet search for new uses of clay in industry, in homes, in science, in space travel.
- Make a scrap book of *mehndi* designs — describe the meaning of the symbols, motifs and designs wherever possible. Add your own contemporary designs.
- Observe the motifs and sayings painted on trucks and scooters and make a record of them.
- Look at cinema hoardings and relate this popular Indian culture to an older heritage.
- Look for examples of a traditional craft that has found a contemporary function.
- Write an essay on an Indian craft that has gained popularity abroad and explain why.