



Innovative Utilization of Silk Cocoon Waste in Sericulture Industry for Craft Production

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Sericulture cocoon craft production represents an innovative fusion of traditional silk farming and creative handicrafts, offering sustainable livelihood opportunities and cultural enrichment. This study explores the transformation of discarded or non-releable silk cocoons into value-added craft items such as decorative pieces, jewellery, floral arrangements, and eco-friendly ornaments. By leveraging the natural texture, shape, and biodegradability of cocoons, artisans can create aesthetically appealing products in home decor, fashion, and gifting. The process involves careful selection, cleaning, dyeing, and shaping of cocoons, often incorporating techniques like embroidery, painting, and mixed-media assembly. This craft not only utilizes sericultural by-products but also empowers rural communities especially women through skill development and micro-entrepreneurship. The study highlights the economic viability, environmental benefits, and cultural significance of cocoon crafts, advocating for their integration into rural development programs and sustainable design initiatives.

Keywords: Sericulture, Cocoon Craft, Eco Friendly, Micro entrepreneurship

Introduction to Sericulture

Sericulture comprises cultivation of food plants (Mulberry) of silkworms, rearing of silkworms, reeling of silk and other related activities. Sericulture is an art that encompasses the entire process of silk production in a scientific manner. It is an Argo based rural cottage industry which provides employment and income at regular intervals to the rural people, particularly women. The modern sericulture was introduced in Karnataka by 18th Century during the reign of the Mysore King, Tipu Sultan. In the early 1960's, Sericulture was introduced in Tamil Nadu through the border areas of Karnataka i.e., Hosur and Talavady.

Introduction to Cocoon Crafts

The cut cocoons and defective cocoons generated from grainage industry and cocoon market can be used for making crafts. Handicrafts are handmade products prepared from raw indigenous material using traditional artistic tools or even some simple machinery in its designing/innovation. Handicraft products are catchy, cost-effective objects of gift and decorative value. Crafted items made from cocoons maintains lustre for years with visual appeal. The eye-catching art of cocoon craft is one of the very interesting utility of by-products which will give scope to develop human skills in addition to generate self-employment and revenue.

Generation of Silk Waste

Grainage operations are the backbone of sericulture, serving as controlled breeding facilities where healthy silkworm moths are selected, mated, and encouraged to lay eggs for the next generation of silk production. During this process, several by-products emerge that were once discarded but are now recognized for their commercial value. The primary by-products include **cut-open cocoons** (cocoon that have been opened to examine the pupae for disease), **pierced cocoons** (where moths have naturally emerged, leaving a hole).

Materials Required for Crafting

The basic raw material, cut and pierced cocoons can be procured from government grainage and cocoon markets. These cocoons are cut open from one end and the cap portion thus obtained along with cocoon body can also be utilized for preparation of handmade craft items. The other items *viz.*, scissors, zig-zag scissors, blade, cotton thread, cardboard, drawing sheets, needles, fabric glue, craft paper, glaze paper, velvet paper, adhesive tape, colour tape, stapler, plastic ornamental material, softbinding wire, beads, chemical dyes and dyeing vessel, besides, heater required for cocoon dyeing. Fabric paint and water colour can also be used during cocoon craft fabrication.

Preparation of Flower Vase

- 1. Cleaning of Cut Cocoons:** The outer surface of the Cocoons are covered with thin layer of silk called floss and the removing of floss is called as Deflossing
- 2. Dyeing:** The cut cocoon flower petals are dyed using Fabric dyes. The water is boiled and the required colors is mixed. The cut cocoon flower petals are dipped in the Dye water for half an hour
- 3. Drying:** The Dyed flower petals are dried under shade for one hour
- 4. Petal Making:** The cocoons are cut into different shapes such as rose, Chrysanthemum, Tulip, Lily, Marigold etc.
- 5. Flower Making?** The Dyed flower petals are arranged into different Flowers design. A hole is made on the Centre of the Petals using needle. The petals are arranged in the Strings. The caps are used placed below the flower.
- 6. Vase arrangement:** The flowers are arranged in different sizes and different design according to the vases.



Product Features

1. Eco-Friendly & Sustainable

- Made from **cut or pierced cocoons**, which are typically discarded in sericulture.
- Promotes **zero-waste practices** by converting agricultural by-products into valuable crafts.
- Uses **natural dyes and biodegradable materials**, reducing environmental impact.

2. Aesthetic & Customizable Designs

- Products are **visually appealing**, vibrant, and colourful.
- Designed to cater to **traditional, modern, and festive themes**.
- Can be customized with **local cultural motifs**, names, symbols, or themes (e.g., wedding gifts, temple décor, etc.).

3. Wide Product Range

Includes handcrafted items such as:

- **Jewellery**: Earrings, bangles, pendants, hair clips.
- **Home Décor**: Wall hangings, lamps, garlands, flower bouquets.
- **Religious/Traditional Items**: Idols, garlands for puja, temple crafts.
- **Gift Items**: Keychains, greeting cards, corporate gifts, festival decorations.

4. Lightweight and Durable

- Cocoon crafts are **lightweight yet strong**, making them easy to handle and transport.
- Suitable for **both indoor and outdoor** decorative use with proper coating.

5. Handcrafted with Skill

- Every piece is **handmade by trained rural artisans**, giving it a **personal touch** and high **cultural value**.
- No mass machine production each item is **unique and authentic**.

6. Market-Ready & Giftable

- Attractive **packaging** makes them ready for gifting.
- Suitable for **eco-conscious consumers**, tourists, boutiques, and online markets.
- Appeals to the growing demand for **handmade and sustainable products**.

7. Affordable and High Value

- Uses **low-cost raw materials** (waste cocoons) but offers **high perceived value**.
- Competitive pricing compared to mass-produced plastic or synthetic decorative items.

Product Differentiation

The **Cocoon Crafts** stand apart from conventional handicrafts and mass-produced decorative items through the following **key differentiators**:

1. Made from Sericulture Waste (Upcycled Cocoons)

- Unlike ordinary crafts made from paper, plastic, or synthetic materials, Cocoon Crafts are created using **non-reelable silkworm cocoons**—a by-product that is usually discarded.
- This **waste-to-wealth approach** makes your products eco-conscious and sustainable.

2. Unique Natural Texture & Finish

- The **natural texture** of cocoon silk gives each product a **soft, organic appearance** that cannot be replicated by artificial materials.
- Each item has a **distinct handmade look** and feel, enhancing its aesthetic value.

3. Handcrafted by Rural Artisans

- All products are **carefully handcrafted** by trained rural women and youth.
- Unlike machine-made or factory-line products, each item reflects **local skill, cultural heritage**, and personal effort.

4. Supports Livelihoods in Sericulture Villages

- Buying a Cocoon Craft directly supports **sericulture-based rural livelihoods**, especially **women's self-help groups (SHGs)** and **unemployed youth**.
- This strong **social impact** story makes the product more meaningful to conscious buyers.

5. Lightweight, Non-Breakable, and Easy to Handle

- Compared to fragile ceramic or glass handicrafts, cocoon-based products are **lightweight, flexible, and more durable**, making them **travel-friendly and safe**.

6. Vibrant Colours with Natural Dyes

- Your products use **natural or non-toxic dyes**, giving them a **bright yet earthy tone**—a safer and more sustainable option than chemical-painted items.

7. Ideal for Eco-Gifting and Festivals

- Perfect for **eco-friendly gifts**, return gifts, festive décor, and tourism souvenirs—areas where people look for **handmade, biodegradable alternatives** to synthetic products.

8. Unique Market Positioning

- While other craft items often compete in a crowded marketplace, cocoon-based crafts offer **limited competition** and **high novelty**, giving them an edge in:

- ✓ **Handicraft exhibitions**
- ✓ **Online marketplaces (Amazon, Instagram)**
- ✓ **Boutique and gift stores**

Market Opportunity

Tamil Nadu is a major silk-producing state with a strong base of sericulture farmers, reeling units, and cocoon markets, particularly in Krishnagiri, Dharmapuri, Salem, Erode, and Coimbatore districts. The abundance of unreelable or cut-open cocoons makes raw material easily available.

- Tourism & Eco-tourism Market:** Tamil Nadu attracts millions of tourists yearly. Eco-friendly crafts from cocoons can be sold at heritage sites, forest tourism centres and temple towns.
- Urban Handicraft Demand:** Cities like Chennai, Coimbatore, and Madurai have a growing demand for sustainable home décor and artisan products.
- Export Potential:** Tamil Nadu has access to export infrastructure (ports and airports) and has a tradition of exporting handicrafts. Cocoon crafts can enter international gift and craft markets.
- Supportive Government Schemes:** Various state and central schemes under MSME, Handicrafts, and Sericulture Departments support training, machinery, and marketing of such enterprises.
- E-Commerce & Online Retail:** The rise of platforms like Amazon, Flipkart, and regional platforms enables easy sale and promotion of cocoon crafts globally.

Economics

Cocoon Crafts Business Plan – ₹1 Lakh Investment

Component	Cost / Unit (₹)	Qty / Month	Total Monthly (₹)	Remarks
Initial Setup Costs (one-time)			₹1,00,000	
Tools & Materials (basic set)	₹4,000	3 artisans	₹12,000	One-time cost for scissors, glue gun, brushes, etc.
Starter Raw Materials (cut cocoons, dyes, beads)	₹10,000	–	₹10,000	For 1st month, bulk purchase
Packaging & branding (labels, boxes)	₹3,000	–	₹3,000	Basic eco-friendly packaging
Training & skill support	–	–	₹10,000	One-time artisan training
Promotion (printing, samples, local stalls)	–	–	₹5,000	Local promotion
Contingency fund	–	–	₹5,000	For unexpected costs
Working Capital reserve	–	–	₹55,000	For next 3 months of production & operations

Monthly Production & Profit Estimate (After Setup)

Product	Qty / Month	Selling Price (₹)	Sales Value (₹)	Raw Material Cost (₹)	Net Monthly Profit
Jewelry (earrings, pendants)	200	₹100	₹20,000	₹4,000	₹16,000
Decorative items (wall hangings, dolls)	120	₹150	₹18,000	₹4,000	₹14,000
Gift packs & festival sets	50	₹250	₹12,500	₹3,000	₹9,500
Total	–	–	₹50,500	₹11,000	₹39,500

Summary

Particulars	Value (₹)
Monthly Revenue	₹50,500
Monthly Expenses (materials + marketing + incentives)	₹11,000
Net Monthly Profit	₹39,500
Annual Net Profit (12 months)	₹4,74,000
Investment Recovery Time	Less than 3 months

Conclusion

The innovative use of silk cocoon waste for craft production is a sustainable and profitable “waste-to-wealth” approach in the sericulture industry. Discarded cut and pierced cocoons can be converted into attractive value-added products like jewellery, decorative items, eco-gifts, and festival ornaments, reducing environmental waste while promoting biodegradable alternatives. This activity requires low investment and simple tools, yet offers good market demand and high returns showing a monthly profit of around ₹39,500 with ₹1 lakh investment and payback within three months. Overall, cocoon craft enterprises can strengthen rural livelihoods, especially for women and youth, and enhance the sericulture value chain through eco-friendly entrepreneurship.

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