



# From Tradition To Technology: Cad Design Innovation In Handcrafted Organic Water Swim Baskets Of Hyderabad And Its Environs

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## ABSTRACT

Visiting villages evokes joy and nostalgia, where traditional crafts such as baskets, mats, flower baskets, and tents hold a special place in daily life and festive occasions like Dussehra, Sankranti, and summer gatherings. These crafts, once central to household and community life, are now at risk due to declining recognition and lack of digital visibility. Many artisans in Hyderabad, Afzalganj, Nampally, Chadarghat, and surrounding regions struggle because they lack access to modern tools for design and online marketing. Their products remain confined to local markets, limiting both cultural appreciation and livelihood opportunities.

This study highlights the importance of bridging tradition and technology by documenting these crafts and reimagining them through CAD-based design innovation. By creating 10–50 digital design models for traditional products, the initiative seeks to empower artisans, preserve India's cultural legacy, and introduce these organic handmade products to a wider global audience.

The paper also aligns with the Prime Minister of India's call to "Vocal for Local" (launched in May 2020), which supports India's makers from hand woven textiles and Handicrafts, bamboo crafts to swim baskets, handicrafts, and toys while showcasing the rich artisan culture of Andhra Pradesh and Telangana. It examines how artisans navigate challenges, adapt traditional skills to technology, and use computer-aided design to foster employment, empowerment, and sustainability.

**Key words:** Traditional Handicrafts, Swim Baskets, CAD Design Innovation, Cultural Heritage Preservation, Artisan Empowerment, Andhra Pradesh & Telangana Crafts, Craft Technology Integration.

**Abbreviation:** ODOP = One district One product, HSS = Hathkargha Samvardhan Sahayata Yojana (HSS), NHDP = National Handloom Development Programme, FCI = Food Corporation of India, (SHGs) = Self-Help Groups, PMFME = The Pradhan Mantri Formalisation of Micro food processing Enterprises

## Introduction:

A study of the history of traditional natural basket making 10,000 years back. People who used tree bark to make baskets probably built and designed them like a nest by combining many leaves, tree bark, and other

materials for human needs in ancient times. Perhaps this is the word of the ancestors. It can be said through history that these swim and palm baskets are ancient evidences before the manufacture of pottery in ancient Egypt and Central Asia. This is how humans needed a vessel to collect and store food. Therefore, people weaved leaves, grass, palm leaves, reeds, etc. into baskets and made them in various ways with different types of hand skills. This is an example.

**Egypt found :** The oldest baskets found in Egypt during historical excavations are 10,000 to 12,000 years old. They are shaped like hills and were woven before widespread use. They were invented using natural materials such as reeds and grass to make baskets. In addition, as part of the cultural significance and developments, the local ancient civilizations were united in terms of culture. Large leaves, palm leaves, and bark were used extensively. Various forms of creativity and shapes were used, and skills in handicrafts were shown, and these were traditionally used as utility products based on social status.

The paper also aligns with the Prime Minister of India's call to "Vocal for Local" (launched in May 2020), which supports India's makers from hand woven textiles and Handicrafts , bamboo crafts to swim baskets, handicrafts, and toys while showcasing the rich artisan culture of Andhra Pradesh and Telangana.

**Traditional baskets** In the Musi River basin of Hyderabad, chadarghat , Nampalli, shilparamam Medara communities several families continue to sustain their livelihoods by weaving swim and palm and cane and paper craft baskets along the roadside. Their handicrafts craft reflects not only economic necessity but also cultural continuity, as each piece embodies skill, tradition, and dedication. The artisan's averagely 2 dajan families demonstrate remarkable proficiency, using strong weaving techniques and high-quality raw materials to produce durable and aesthetically appealing products. These include utility baskets, kitchenware, home interior accessories, and socially functional designs that serve both practical and cultural purposes. Despite the significance of their artistry, these communities face the threat of decline in the current era of digital engagement, where most individuals are absorbed in mobile technology rather than traditional crafts. As digital platforms reshape consumer behavior, artisans often lack the resources and knowledge to market their products online. Bridging this gap is essential: if their creativity can be integrated with digital tools such as computer-aided design (CAD) and mobile-based online platforms, their weaving traditions and dreams can be preserved. Such integration not only protects intangible cultural heritage but also enables sustainable livelihoods for families dependent on handicrafts.

### Objectives

- To be support swim baskets online products how to prepare for product photography and uploading them products to online marketing to support
- To be design for CAD / CAM support for present products and old products crafting and documentation support.
- To be motivating them by making them aware of your schemes government schemes and ODOP and vocal to local PM Vishwa karma and MSME schemes.

### Research methodology:

This study is based on qualitative field research conducted in the Chadarghat and Nampally mandals of Hyderabad, Telangana. Primary data was collected through field visits, direct interactions, and structured interviews with basket-weaving artisans. The methodology also included participant observation of the production processes to gain insights into raw material selection, weaving techniques, and product finishing. In addition, design works were documented to record both traditional practices and contemporary adaptations. Secondary data was drawn from academic literature; accessories design references, and published reports on handicrafts and artisan livelihoods. The combination of field-based inquiry and literature review provided a comprehensive understanding of the challenges, opportunities, and potential of integrating CAD/CAM design with traditional basket craft.



Image 1: Swim basket Triple inspection of products manufactured by basket makers.<sup>1</sup>

**Basket Raw materials:**

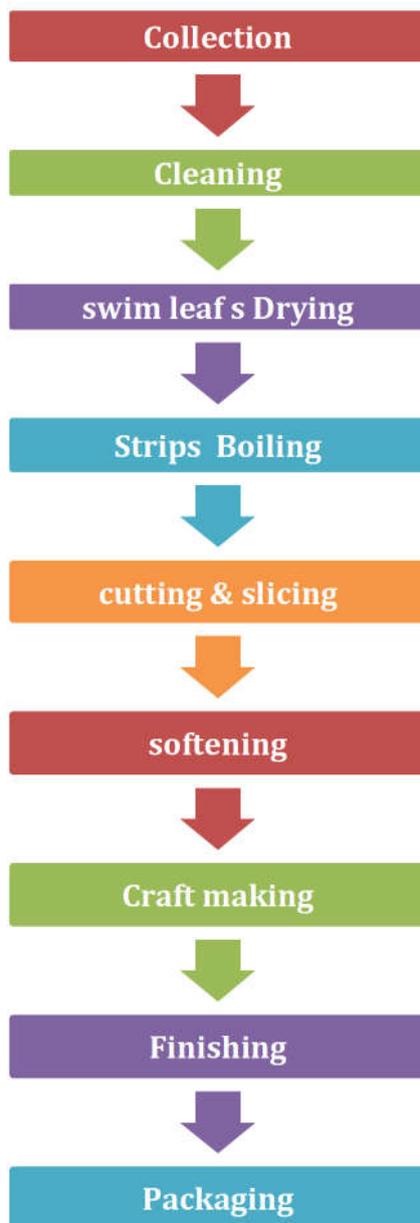
Sl	List of Material	Uses/ Measurements / etc.
1	Swim leaf	Main raw material for weaving baskets.
2	cutter	For cutting Swim leaf leaves into required sizes.
3	Swim leaf split knife	To Swim leafs into strips.
4	measurement Tape	For accurate measurements.
5	Scissors	For cutting leaves, lace, or cloth
6	Water	For soaking and boiling leaves.
7	Knife case	For shaping and trimming.
8	cane and bamboo wood peace	For strengthening structure

Table 1: Materials & Tools.<sup>2</sup>**Basket Products with example:**

SL	Product Example	Size( Inches)	Uses
1	Swim mats	2 x 15 x18	Perfect for organizing wet and dry items during swimming or travel.
2	Small Basket & Big baskets	10x 10 x 2 15 x 10 x 5	Carrying swimwear, towels, and personal items. Decorative use in homes, resorts, spas etc.
3	Pooja Basket (with handle)	7 x 3.5 x 7	Pooja Basket (with handle) – beautifully handcrafted for temple offerings, festivals, and daily rituals. Easy to carry, eco-friendly, and ideal for flowers, fruits, or pooja essentials.
4	Flower baskets	10 x 10 x 3	“Flower baskets are useful for marketing and sale as they attract customers with their aesthetic appeal and can be used for decoration, gifting, and event displays.
5	Short Swim Basket.	5 x5 x 3	Swim Basket – lightweight, durable, and perfect for beach or pool essentials.
6	Lemon baskets	10 x 12x15	a lightweight, hand woven basket traditionally used for collecting, storing, and displaying lemons. Crafted from bamboo, palm leaves, or cane, it provides natural ventilation that keeps fruits fresh and prevents damage during transport.
7	Goat baskets	30 x15 x 12	a traditional handcrafted basket used for carrying small goats, fodder, or farm produce. Made from sturdy bamboo, cane, or palm leaves, it offers durability, ventilation, and ease of handling for rural and livestock use.
8	Rice chatalu	18 x2x8	It plays an important role in the winnowing process, where grains are tossed using a chat to separate impurities and then collected and poured into a vessel as part of traditional farming practices.
9	Gampala	30 x18x 16	It is very useful for keeping chickens, storing rice, storing various items, and storing clothes.
10	Fruit baskets	18 x18x 16	The container serves as an effective storage solution for fruits and vegetables, particularly for items like bananas, guavas, mangoes, lemons, and similar perishables.

Table: 2 They manufacture and produce over 150 different types of products. There is a great need for you to check out the products locally and promote them.<sup>3</sup>**Gallery:**Image – 2: The design collection presented above features a beautiful range of basket products, reflecting both functionality and aesthetic craftsmanship.<sup>4</sup>**Swim baskets making process:**

Swim baskets are traditionally handcrafted using natural materials like bamboo, cane, or palm leaves. The process begins with selecting mature bamboo, which is cut into thin, flexible strips and soaked in water for easy weaving. Artisans create a circular base by crossing strips, then weave the sides in an upward spiral pattern to form the body. A firm rim and a curved handle are added for strength and portability. After weaving, the basket is sun-dried and polished for a smooth finish. Lightweight and durable, the swim basket is ideal for carrying clothes, towels, and swim essentials, blending craft and utility.

**Flow chart Design process:****Flow chart 1: Eco friendly swim leaf products making process.<sup>5</sup>****Review of literature:**

**Support of Scheme for One district one product:** For these, the government has specially designed an important program to encourage local artisans swim basket makers to export their manufactured products and to promote them with the principle of One District One Product. This is an important program that is designed to identify a unique swim basket craft formula for each district and collect input on it. Focusing on the manufacturing sector of that product, strengthening the financial support for that swim basket product, and providing investment assistance to micro and small enterprises through MSME for material.<sup>1</sup>

The Central Government has launched a special scheme to promote handicrafts, under which selected districts from various states have been identified for focused development. In particular, four districts in Andhra Pradesh and Telangana have been chosen, where local artisans and craftspeople are being supported through this initiative. As part of the program, around 300 representatives from Amazon India have been engaged to facilitate e-commerce opportunities, enabling artisans to sell their products online and expand their market reach. This scheme encourages local businesses and provides a platform for crafts to gain visibility at the national and international levels. The government has announced that thousands of weavers and artisans from handloom and handicraft clusters across different states will benefit from this initiative. By identifying and supporting craft-rich districts, the scheme aims to ensure sustainable development, empower artisans, and preserve India's cultural heritage.<sup>2</sup>

**Provides holistic development of the handloom sector:** raw materials, design inputs, technology up gradation, marketing support, cluster development etc. This is a scheme set up to meet the financial needs of handloom workers. Which scheme was launched from 2017 to 2018 to 2019 - 2020 September 2015 for the development of handloom weavers and to have a strong policy? Its main objective is to provide financial assistance through skill improvement, uniform allowance and Weavers' Stamp Scheme, providing loans to the weavers to facilitate them to get financial assistance in a single day manner.<sup>3</sup>

**Raw material support:** Hathkargha Samvardhan Sahayata Yojana (HSS): The Government supports handloom weavers through the National Handloom Development Programme (NHDP). Key components include Hathkargha Samvardhan Sahayata Yojana (HSS) for raw material and loom support, Handloom Marketing Assistance for direct sales platforms, the Weaver MUDRAScheme for concessional loans, Education schemes for weavers' children and skill training, and the Indian Handloom Brand & Urban Haats for product certification and market exposure. Together, these initiatives strengthen livelihoods and preserve India's handloom heritage.<sup>4</sup>

**Rural Supporting godowns In India:** The Food Corporation of India (FCI) has increased its stock of wheat, as reported in the *Indian Journal of Agricultural Economics (2023)*. Alongside FCI, several private companies have also begun similar initiatives. Additionally, the Government's Rural Honor Scheme is being implemented from the village to the town level, strengthening rural food security and distribution.<sup>5</sup>

Preserving basket making is vital for sustaining traditional skills, empowering women through education, and promoting cultural tourism. The media plays a key role in creating awareness and highlighting the value of these crafts. Hence, there is a strong need to protect and promote basket-making centers as hubs of cultural heritage and livelihood.<sup>6</sup>

The government supports rural livelihoods by providing micro-finance assistance through Self-Help Groups (SHGs). These groups, usually comprising 10–20 poor members, enable access to bank loans and encourage small savings. Part of the income is reinvested in productive activities. Members also receive training in the Skill Development sector to enhance their livelihoods through tailoring, vegetable cultivation, mushroom farming, basket weaving, handicrafts, and toy making.<sup>7</sup>

#### **Artisan interaction & Voices of the Swim Basket Artisans:**

**Mr. Venkatayya, Artisan:** Our entire family is engaged in this craft. We usually have sufficient work during the Dussehra festival celebrations and the Bathukamma festival, and we receive fair remuneration for our efforts. It gives us great joy to create these products together as a family. The only challenge we face is sourcing raw materials they have to be brought from distant places. If we could access raw materials locally, we would be able to produce even more baskets and expand our work.<sup>8</sup>

**Mr. Guravayya, Senior Artisan:** The popularity of handmade crafts created by traditional artisans is declining day by day. Our wish is that this art form does not end with our generation but continues into the future. We are ready to teach anyone who wishes to learn this craft. Though we are not familiar with computers or modern technology, we sincerely hope that our work and tradition will be recognized and passed on to younger generations.<sup>9</sup>

**Mr. Anjaneyulu, Artisan:** Our baskets are often ordered for weddings. Traditionally, they are used to carry the bride in a palanquin. Customers usually request beautifully designed baskets made with colorful papers, fabrics, and decorations. For such occasions, we prepare large baskets, typically sized 21 x 21 inches. Because of their aesthetic appeal, our baskets are in good demand, though the work slows down during the off-season.<sup>10</sup>

#### **Measurement of Different design swims baskets:**

SL	Design Type / Basket Name	Diameter top x bottom x Height / cm/inches	Function/use
1	Traditional Round Swim Basket	45 x 45 x 28 cm	Used for collecting and carrying grains
2	Conical Water Swim Basket	40 x 28 cm 35 cm	Used for drawing and draining water
3	Rectangular Storage Basket	50x35x25 cm	Ideal for storing vegetables and fruits
4	Flat-Base Boat Shape Basket	42x 38x20 cm	Used in fishing and drying grains
5	Mini Decorative Swim Basket	25 x 18x15 cm	Used for display or household décor
6	Double Handle Utility Basket	48x28x27 cm	Suitable for carrying goods and market items
7	Flower baskets & floating tray	12x7x4 inches	Used for flower decoration, offerings, and floating arrangements during festivals and rituals.
8	Large baskets	17x17x15 inches	Ideal for carrying grains, vegetables, or farm produces; used in household and market activities.

9	Small baskets	7×7×6 inches	Handy basket used for fruits, dry flowers, or small craft storage.
10	Marrage baskets	36x24x24 inches	Traditionally used for wedding gifts, carrying ceremonial items, and decorative displays.
11	Square baskets	24x18x36 inches	Used for storage, grain collection, and decorative purposes; sturdy and spacious.
12	Rectangular hamper tray baskets	8x12x18 inches	Used as a hamper tray for fruits, gifts, or household organization.
13	Round baskets	17x16 x24 inches	Multi-purpose basket for carrying goods, drying grains, or decorative storage.

### Traditional palm leaf baskets importance and making process Methods :

Traditionally, these baskets were used during auspicious occasions such as weddings, housewarmings, and family gatherings, symbolizing blessings and prosperity for the household. They not only hold cultural significance but also contribute to a healthy environment by promoting natural air circulation and providing oxygen. Crafted from organic materials, these baskets embody a harmonious blend of functionality, tradition, and cultural heritage, helping communities maintain their rituals through natural and sustainable methods.<sup>11</sup>

### Recommendations:

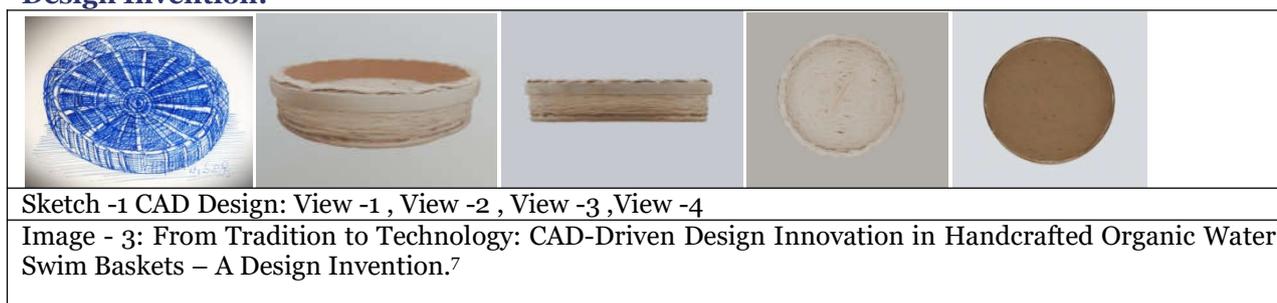
**Online Marketing Support for Swim Baskets:** Assist artisans in preparing product photography and uploading swim basket products to online platforms, enabling wider visibility and sales. Give to support online marketing support.<sup>12</sup>

**Artisan Awareness & Support:** The Commissioner of Industries and Handicrafts provides a help desk for grassroots artisans, including basket makers, toy makers, painters, and weavers. Through training programs, subsidized loans, and marketing assistance for fiber and grass-based products, artisans can enhance skills, improve production quality, and expand market opportunities. Give to support online marketing support.<sup>13</sup>

### CAD/CAM Design & Documentation Support:

This CAD /CAM design provides digital design support for traditional and existing swim basket products, enabling accurate documentation, innovation, and preservation of handicraft techniques. Using modern tools such as CAD/CAM software and CMC machines, artisans can create 2D and 3D designs, test prototypes, and optimize raw materials. Fieldwork, video tutorials, and hands-on training programs enhance practical skills, while online courses in local languages improve design understanding and digital literacy. By integrating technology with traditional craftsmanship, artisans are empowered to confidently develop and innovate their products, expand market reach, and sustain their cultural heritage while embracing modern production methods.

### Design Invention:



### Conclusion

Promoting basket making through Self-Help Groups (SHGs) helps preserve traditional skills, empower women with education, and encourage cultural tourism. The media has an important role in spreading awareness, and there is a strong need to protect and strengthen basket-making centers as sustainable livelihood hubs. Handicraftsmen can leverage their skills to expand and develop their businesses. By setting up workshops and investing in new equipment and machinery, artisans can improve production efficiency, enhance product quality, and increase market competitiveness.

### Reference:

1. Sarita Devi, "Digital embroidery: An imagination" Journal of Pharmacognosy and Phytochemistry, 8(3) 2019, E-ISSN: 2278-4136 , pp.124-127.

2. Lata Bajpai Singh, "odop scheme for local craft governance: 'chikankari' entrepreneur's perspective" Corporate Governance Insight, Volume:2, Number:1, June 2020, eISSN: 2582-0834 pp.136.
3. Priyanka, Impact of National Handloom Development Programme (NHDP) – Adoration to GI Tagged Kuthampully Sarees, Journal of Intellectual Property Rights Vol 26, July 2021, pp 235-239.
4. Priyanka Udayan , Annual report , Chapter 1 , Ministry of textiles government of india report based , pp 8.
5. Vishwa karma , Estimation of harvest and post-harvest losses of cereals and effect of mechanization in different agro-climatic zones of India, Indian Journal of Agricultural Economics Vol.75, No.3, July-September 2020 Indian Journal of Agricultural Economics, issn 0019-5014, pp21, 2020.
6. Joseph E, Prospects of basket production in promoting sustainable rural livelihoods in the Okavango Delta, Botswana, 09 July 2004.
7. Vasantha , challenges of self help group members towards income generation activity, international journal of accounting and financial management research (ijafmr) issn(p): 2249-6882; issn(e): 2249-7994 vol. 4, issue 2, apr 2014, 1-8 © tjprc pvt. ltd.

Artisan interviews :

8. Mr. Venkatayya, Swim basket artisan, chadar ghat Telangana , Hyderabad, date july, 2024.
9. Mr. Guravayya, Swim basket artisan, chadar ghat Telangana , Hyderabad, date july, 2024.
10. Mr. Anjaneyulu, Swim basket artisan, chadar ghat Telangana , Hyderabad, date july, 2024.

**Web link:**

11. <https://pmfme.mofpi.gov.in/newsletters/enews2.html>
12. <https://handicrafts.nic.in/CraftsofIndia.aspx>
13. [https://handicrafts.nic.in/crafts/All\\_Crafts/According\\_to\\_list\\_of\\_crafts/Craft\\_Category/Natural\\_Fiber.html](https://handicrafts.nic.in/crafts/All_Crafts/According_to_list_of_crafts/Craft_Category/Natural_Fiber.html)
14. Web: chrome  
[extension://efaidnbmnnnibpcajpcgiclfndmkaj/https://ministryoftextiles.gov.in/sites/default/files/AR\\_MoT\\_2019-20\\_English.pdf?utm\\_source=chatgpt.com](https://efaidnbmnnnibpcajpcgiclfndmkaj/https://ministryoftextiles.gov.in/sites/default/files/AR_MoT_2019-20_English.pdf?utm_source=chatgpt.com)

**Table / Flowcharts/Images:**

15. Table 1: Materials & Tools
16. Table: 2 They manufacture and produce over 150 different types of products. There is a great need for you to check out the products locally and promote them.
17. Flow chart 1: Eco friendly swim leaf products making process.
18. Table - 3: Standard dimensions: 16.5×8.2×4.3 16.5 cross 8.2 cross 4.3 and 16.5×8.2×4.3 inches.
19. Image - 1: Swim basket Triple inspection of products manufactured by basket makers.
20. Image – 2: The design collection presented above features a beautiful range of basket products, reflecting both functionality and aesthetic craftsmanship.
21. Image - 3: From Tradition to Technology: CAD-Driven Design Innovation in Handcrafted Organic Water Swim Baskets – A Design Invention.