International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Sustainable Interior Design for Cultural Centres: A Qualitative Study

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Abstract

This qualitative study investigates the intersection of sustainability and cultural representation in the interior design of cultural centers in India. As environmental concerns intensify globally, the integration of sustainable materials and design practices has become essential. At the same time, cultural centres serve as important repositories of tradition, heritage, and community identity. Through detailed case studies and expert interviews, this research explores how interior design can support environmental goals while preserving cultural values. The study identifies key design strategies, material preferences, and the role of local artisanship in creating spaces that are both eco-friendly and culturally resonant. Findings suggest that culturally rooted sustainable interiors enhance user experience, strengthen community connection, and offer models for future public architecture in India.

This research seeks to understand how the interiors of such centers can simultaneously reflect environmental responsibility and cultural authenticity. Drawing upon an interpretivist paradigm, the study employs a qualitative methodology comprising in-depth case studies of selected cultural centers, including Bharat Bhavan (Bhopal), Shilpgram (Udaipur), and the Tribal Museum (Bhopal), along with semi-structured interviews with architects, interior designers, cultural scholars, and artisans. These sources offer insights into both design intent and user perception.

The study concludes that culturally grounded sustainable interiors go beyond environmental efficiency. They play a crucial role in reinforcing cultural continuity, improving user comfort, and strengthening the emotional connection between space and community. These findings underscore the potential of culturally responsive design to serve as a replicable model for future public architecture in India and other culturally rich contexts. By aligning ecological ethics with cultural expression, such interiors represent a holistic approach to design—one that is as emotionally resonant as it is environmentally conscious.

Keywords: Sustainable interiors, cultural centres, qualitative design research, green materials, Indian heritage, cultural preservation.

Introduction

Interior design for cultural centers is an inherently multidisciplinary and socially embedded practice. It operates at the intersection of spatial aesthetics, user experience, historical continuity, and emotional resonance, all while increasingly needing to meet the demands of environmental sustainability (Julier, 2005; Caan, 2011). Cultural centres are not merely physical enclosures—they are cultural agents. These institutions serve as repositories and reflectors of a community's collective identity, history, language, and artistic expression (Rapoport, 1990). In the Indian context, where cultural diversity is vast and deeply

rooted, cultural centres represent living narratives that must be preserved, celebrated, and made accessible across generations (Niranjana, 1997; Jain, 2012).

Amid global environmental crises—such as climate change, deforestation, and material scarcity—the built environment faces growing scrutiny (UNEP, 2022). Interior design, as a discipline, plays a significant role in material consumption, energy use, and waste generation (Kang & Guerin, 2009). As such, cultural centres, especially those funded or supported by public institutions, must now be conceived not only as spaces of cultural dissemination but also as models of ecological responsibility (Ravetz, 2000). Sustainability in design must extend beyond energy-efficient systems to include conscious material selection, waste reduction, low-emission interiors, and locally relevant eco-conscious construction techniques (Edwards, 2010).

This dual responsibility—to culture and to nature—presents a complex but promising design challenge: Can cultural storytelling and environmental sustainability be integrated within a singular design language? If so, how can materials and spatial expressions simultaneously evoke heritage and support regenerative environmental practices (Guy & Farmer, 2001)?

This research seeks to explore precisely that intersection. It proposes that sustainable interior design in Indian cultural centres should not be a technical afterthought or aesthetic compromise but rather an intentional, context-sensitive practice (Mazumdar & Mazumdar, 2009). Through this lens, sustainable materials such as bamboo, lime plaster, clay, jute, reclaimed wood, and cow dung are not merely alternatives to synthetic finishes—they are symbolic carriers of traditional wisdom, indigenous knowledge systems, and regional aesthetics (Agarwal & Srivastava, 2019; Jain, 2021). They offer a pathway toward a design practice that is deeply local and environmentally sound.

To investigate this, the study adopts a qualitative, interpretive methodology. It includes in-depth interviews with interior designers, architects, and artisans; material studies; and the analysis of selected Indian cultural centres where sustainability and cultural identity intersect meaningfully. These case examples help uncover how materials are chosen, adapted, and celebrated not just for their environmental benefits but also for their ability to tell stories, invoke memory, and uphold legacy (Papanek, 1985; Saini, 2020).

By bridging design theory, environmental science, and cultural studies, this paper aims to contribute to a new paradigm in interior design—one that sees ecological ethics and cultural expression not as opposing goals but as mutually reinforcing principles (Manzini, 2015). The intention is to offer a grounded and applicable framework for sustainable interior design that is culturally authentic and environmentally regenerative.

In doing so, this research responds to a broader global discourse: how to decolonize and localize sustainability, moving away from one-size-fits-all Western green design strategies toward regionally embedded, culturally rich, and community-driven design approaches (Escobar, 2018; Sharma & Jain, 2023). The Indian cultural centre, in this context, emerges not only as a site of cultural engagement but as a model for holistic, sustainable design thinking that the world can learn from.

Case Studies: Study of Sustainable Methods

1. The Crafts Museum in New Delhi

- **Utilizing Biodegradable, Regional Materials for Interior Components**

Examples of materials include terracotta floor tiles, lime plaster finishes, jute wall panels, and bamboo dividers.

How this is beneficial:

Minimizes processing and transportation to lessen carbon emissions. increases local authenticity and identity through tangible symbolism enhances indoor air quality because of non-toxic, breathable coatings. sources from local craft clusters to support local economies.

- **Including Lighting and Passive Cooling Strategies in Spatial Planning**

Technique examples include the positioning of a courtyard, light shelves, jali screens, high ceilings, and thermal mass walls.

How this is beneficial:

Reduces energy consumption by minimizing reliance on artificial HVAC systems. uses conventional techniques that have been shown to work in local regions to create thermal comfort. Natural ventilation and dappled light improve the spatial experience. refers to vernacular architectural forms to illustrate cultural continuity.

- **Modular Interior Installations Based on Craft**

For instance, handwoven acoustic panels, seasonal textile displays, and movable wall art created by regional artists.

How this is beneficial:

Maintains the interior's versatility and adaptability without requiring expensive upgrades. promotes ongoing interaction with regional craftspeople and customs uses adaptable, reusable design systems to cut waste. highlights the cultural narrative as a dynamic, ever-changing identity.

Key Sustainable Strategies:

1. Use of biodegradable and regional materials (terracotta, lime, bamboo)
2. Passive cooling and lighting design (courtyards, jali screens)
3. Modular craft-based interior installations

Inference:

The Crafts Museum in New Delhi, designed by architect Charles Correa, stands as a compelling example of how sustainability and cultural identity can be seamlessly interwoven within interior and architectural design. The museum successfully integrates ecological consciousness by employing natural, breathable, and non-toxic materials—such as mud plaster, lime, stone, bamboo, and terracotta—that are inherently low-impact and regionally sourced. These materials not only regulate indoor temperature and humidity naturally, reducing the need for artificial climate control, but also create tactile and visual connections to India's diverse vernacular building traditions.

One of the most notable features of the museum's interior design is the incorporation of modular craft panels, which serve multiple functions. Aesthetically, they display the richness of India's traditional arts—embroidery, weaving, pottery, metalwork, and wood carving—while structurally, they allow adaptability in spatial configuration. These panels are often interchangeable and reconfigurable, offering flexibility in how exhibitions are presented. This modularity supports the dynamic nature of cultural representation, allowing the museum to evolve without compromising its architectural ethos.

The Crafts Museum exemplifies how sustainability and regional aesthetics are not only compatible but fundamentally interdependent in the context of cultural architecture. The use of sustainable materials enhances the sensorial and symbolic authenticity of the space, while cultural specificity gives those materials relevance and identity. In this sense, sustainability goes beyond its technical function—it becomes a mode of storytelling, a method of preservation, and an ethical design stance.

Figure 1 Sustainable Materials at Craft Museum, New Delhi

2. The Tribal Museum in Bhopal

- **Utilizing locally sourced, organic interior materials (thatch, clay, and bamboo)**

How this is beneficial:

Reduces the impact on the environment by cutting back on industrial processing and transportation. increases visual and tactile authenticity while encouraging cultural absorption. naturally controls the temperature inside because of the thermal characteristics of thatch and clay. demonstrates tribal construction methods to strengthen cultural identity.

- **Using Interior Design and Spatial Zoning to Tell Stories**

Design Concept: Construct interior spaces with a theme that tells the story of various aspects of a culture, such as festivals, crafts, and rituals.

How this is beneficial:

Promotes emotional involvement and hands-on learning encourages cultural continuity by incorporating narratives into physical spaces. allows arrangement and symbolism to convey a message without the requirement for extensive material utilization. encourages low-waste and modular interior design.

- **Local Artists' Handcrafted Panels and Wall Murals**

Design Concept: Apply murals or handcrafted panels depicting tribal mythology, history, or traditional symbols to interior wall surfaces.

How this is beneficial:

Provides a low-carbon substitute for wall cladding made of plastic, vinyl, or synthetic materials. promotes the employment of local artisans and the preservation of culture. gives the space depth and individuality without the need for more furniture or materials. Easily changeable or renewable, allowing for flexible interior upkeep.

- **Optimizing Natural Daylight with Courtyards and Skylights**

Design Concept: Incorporate filtered skylights or little open-to-sky courtyards to let natural light into hallways and galleries.

How this benefits the interior:

It creates dynamic experiences through shifting daylight conditions. It lessens the need for artificial lighting during the day. It improves the visibility and ambience of natural materials like mud, thatch, and

stone. It symbolically reflects tribal values of living in harmony with nature.

Key Sustainable Strategies:

1. Locally sourced organic materials (thatch, clay, bamboo)
2. Spatial storytelling through interior zoning
3. Tribal murals and daylighting through courtyards and skylights.

Inference:

The Tribal Museum in Bhopal, Madhya Pradesh, is a compelling example of how interior design can transcend conventional exhibit formats to become a living, immersive cultural landscape. Rather than relying solely on static displays behind glass, the museum adopts an experiential design philosophy where the entire built environment functions as a narrative medium. It reflects the everyday lives, belief systems, and rituals of tribal communities in Madhya Pradesh through a spatial language that is both ecologically responsible and emotionally evocative.

The museum's interiors are constructed using sustainable, low-carbon materials such as mud, bamboo, clay, and locally sourced timber. These materials are not only environmentally sound due to their low embodied energy and biodegradability but also deeply rooted in the building traditions of the tribal communities represented. By using indigenous materials and techniques, the design reinforces the authenticity of the spatial narrative, aligning the physical form of the museum with the cultural content it seeks to preserve and celebrate.

One of the most powerful aspects of the museum's design is its symbolic spatial arrangements. The layout is not hierarchical or linear as in most conventional museums, but rather organic and circular, reflecting the communal and nature-centric worldviews of tribal societies. Spatial transitions mimic the progression of tribal rituals—birth, life, celebration, death—giving visitors a sensorial journey that fosters deeper understanding and empathy. The museum becomes a space not just for viewing artifacts, but for participating in a story—a story that is told through walls of mud, floors of stone, and ceilings that let in dappled sunlight filtered through bamboo lattices.

From an educational perspective, the Tribal Museum sets a precedent for how interior design can foster cultural literacy and emotional connection without compromising on environmental ethics. Visitors—especially younger generations—do not just "learn" about tribal communities; they feel, sense, and inhabit the cultural landscape through the museum's design. The space becomes a tool for inclusive education, where empathy is built not through didactic information, but through spatial storytelling.

In conclusion, the Tribal Museum exemplifies how low-carbon, culturally embedded design can elevate the role of interior spaces in public institutions. It challenges the binary between ecological functionality and aesthetic/cultural depth by demonstrating that sustainable interiors can also be emotionally rich, educationally powerful, and symbolically profound. It presents a model for future cultural architecture, where materials, light, form, and meaning are inextricably linked—reinforcing that to design sustainably is not only to save energy, but to honor the stories, people, and places that make the design meaningful.

Figure 2 Tribal Museum sustainable design

3. Bharat Bhavan in Bhopal

- **Including Crafts Particular to a Region as Useful Components.**

Design Suggestion: Make use of textile walls, terracotta latticework, or carved wooden screens that have both ornamental and practical uses.

How this helps:

Promotes local workmanship and supports artisan economies; Lessens dependency on synthetic finishes by utilizing biodegradable, handcrafted materials; Strengthens spatial identity by incorporating cultural aesthetics into functional forms (such as light fixtures, storage, and jali dividers). Uses breathable craft-based structures (such as clay jaalis) to provide passive cooling.

- **Courtyard-Centric Open Interior Design**

Design Concept:

To provide light, ventilation, and cultural events, interior spaces are arranged around internal courtyards. This reduces energy consumption by encouraging natural ventilation and daylighting; it creates multipurpose spaces for workshops, storytelling, or exhibits; it evokes traditional home layouts, which fosters a sense of cultural familiarity; and it lessens the need for artificial lighting and air conditioning.

- **Utilizing and Reusing Conventional Materials and Designs.**

Design Concept:

Use repurposed architectural elements (doors, columns), recovered tiles, or salvaged wood beams within.

How this helps:

Promotes a cyclical approach to material usage, which lowers waste; Enhances the place with layers of historical significance and meaning; Lowers the cost of new materials and advances sustainability objectives; Honors heritage conservation through obvious reuse.

- **Using Textiles in Wall, Floor, and Ceiling Treatments.**

Design Idea:

Make wall hangings, ceiling drapes, or floor cushions out of handwoven or block-printed textiles.

How this helps:

Enhances thermal comfort and acoustics without the need for industrial interventions; Provides seasonal flexibility and ease of maintenance; Adds coziness and warmth to the area, improving user comfort; En-

courages lesser-known regional weaving and craft traditions.

Key Sustainable Strategies:

1. Functional use of regional crafts (textiles, terracotta, carved screens)
2. Courtyard-centric design for ventilation and light
3. Reuse of conventional materials (columns, wood beams)
4. Textile-based surface treatments for thermal and acoustic comfort.

Inference:

Bharat Bhavan, located in Bhopal and designed by renowned architect Charles Correa, serves as a landmark in India's architectural landscape—not merely for its form, but for its philosophical and sustainable approach to cultural space-making. The building exemplifies cyclical design thinking, where sustainability is interpreted not as a checklist of technical parameters, but as an ethos grounded in longevity, contextual relevance, and cultural depth. Through its adaptive reuse of materials, integration of traditional crafts, and sensitive spatial interventions, Bharat Bhavan stands as a living dialogue between the past, present, and future of Indian design.

The project incorporates repurposed materials—stone from local quarries, reused bricks, lime plasters, and handmade tiles—not only for their low environmental impact but also for their aesthetic and symbolic resonance. These materials are drawn from the region's architectural memory, embedding the structure within its cultural and geological context. In doing so, Bharat Bhavan resists the visual language of polished, globalized "monumentality" in favor of a humbler, place-based aesthetic that reflects the site's identity and climate.

The interior spaces extend this sustainable logic through the use of regional textiles, handcrafted furniture, and tactile surfaces that echo traditional Madhya Pradesh artistry. These are not merely decorative inclusions; they serve to reaffirm the value of human labor, continuity of craft traditions, and emotional familiarity. Woven textiles, local stone benches, earth-colored wall finishes, and handmade lights create a sensorial atmosphere that is warm, inviting, and grounded in the rhythms of indigenous material culture.

Figure 3 Courtyard-Centric Open Interior Design

Literature Review

Sustainable interior design is an evolving and interdisciplinary practice that integrates ecological responsibility into the very fabric of spatial creation. It aims to minimize the environmental footprint of

buildings by optimizing the use of natural resources, reducing energy demands, minimizing waste, and ensuring long-term durability (UNEP, 2020; Kibert, 2016). It also emphasizes user health and comfort by advocating for biophilic design elements, indoor air quality enhancement, and the use of non-toxic, low-VOC materials (Lechner, 2014; Gissen, 2002). Core strategies within this approach include the use of renewable, recycled, and regionally sourced materials; passive lighting and ventilation systems; flexible design layouts; and finishes that do not harm the environment or occupants (Edwards, 2010; Kwok & Grondzik, 2018).

However, in the context of cultural buildings, especially those in countries with rich and diverse heritage like India, sustainable interior design cannot be restricted to technical performance or environmental metrics alone. It must encompass a deeper cultural dimension that accounts for symbolic, historical, and community-rooted values. Cultural centers, in particular, are not just spaces for functional activity—they are narrative environments imbued with meaning. These interiors tell stories, express communal rituals, and serve as vessels of collective memory (Rapoport, 1982; Tuan, 1977). As such, interior designers are increasingly required to balance ecological sensibilities with cultural storytelling, translating both into tangible and emotionally resonant spatial experiences.

This necessitates an understanding of indigenous knowledge systems, regional aesthetics, and artisanal practices that have evolved over centuries. It also demands a sensitivity to how materials, textures, motifs, and layouts communicate identity, belief systems, and social values (Oliver, 2006; Mazumdar & Mazumdar, 2001). For example, the symbolism of colors like turmeric yellow or vermillion red in certain Indian communities reflects spiritual and ecological associations. The layout of community halls or performance spaces often echoes traditional spatial hierarchies and social customs.

Scholars such as Asif (2016) have emphasized the environmental and symbolic relevance of materials like bamboo, rammed earth, laterite stone, and reclaimed wood. These materials are regionally abundant, require low energy for processing, and exhibit excellent thermal and acoustic properties. Moreover, they are deeply embedded in the architectural heritage of many Indian communities, with bamboo being central to the traditional dwellings of the North-East and rammed earth used in vernacular architecture in parts of Karnataka and Tamil Nadu.

Similarly, Jain (2014) investigated how interior spaces in Indian cultural institutions can become vehicles of cultural continuity by incorporating handcrafted elements such as Madhubani paintings, Dhokra sculptures, and block-printed textiles. These craft forms are not only sustainable due to their natural material bases and hand-production methods, but they also function as cultural signifiers that link modern interiors to ancestral knowledge and artistic legacy. Jain argues that such inclusions elevate user engagement and foster emotional resonance, making the space a lived cultural artifact rather than a neutral container.

Material	**Source**	**Ecological Benefit**	**Cultural Significance**
Terracotta Tiles	Local kilns in Rajasthan and Uttar Pradesh	Low-energy production, biodegradable	Used in vernacular flooring traditions
Lime Plaster	Lime mines in Gujarat and MP	Breathable, VOC-free, reduces dampness	Traditional finishing in many Indian regions

Bamboo	North-East India, West Bengal	Fast-growing, renewable, carbon sequestration	Integral to Assamese and tribal structures
Jute Panels	Bengal region	Biodegradable, supports regional farming economy	Folk craft base material (rugs, screens, textiles)
Reclaimed Wood	Local demolition sites or wood markets	Minimizes deforestation, promotes reuse	Adds historical depth, visual warmth
Clay	Indigenous clay pits (e.g., in Madhya Pradesh)	Locally abundant, thermally stable	Core material in tribal homes
Handwoven Textiles	Artisan clusters in Gujarat and Odisha	Natural fibers, supports slow-fashion & craft economy	Includes block print, mirror work, tribal patterns
Thatch	Rural Madhya Pradesh and coastal zones	Fully biodegradable, thermally insulating	Used in tribal housing and rituals
Cow Dung Mix	Local rural sources	Anti-bacterial, thermal insulation, sustainable binder	Common in tribal wall and floor finishes

More recent studies support this integrated approach. For example, Banerjee and De (2021) examine the role of vernacular materials in creating identity-rich, environmentally conscious spaces in rural museums and heritage centres in Eastern India. Similarly, Mahapatra (2022) explores how tribal architectural languages can inform contemporary design frameworks in community buildings through material reuse, symbolic design, and collaborative construction practices.

Despite these insights, the literature still presents a gap when it comes to the systematic synthesis of sustainability and cultural identity in interior design, especially within the Indian context. Much of the academic discourse remains fragmented—either focused on environmental strategies or on cultural aesthetics—without a cohesive framework that unites both under a common design philosophy. This fragmentation limits the potential for culturally and environmentally integrative design solutions, particularly in the interiors of cultural centres, which are uniquely poised to embody both.

This research seeks to address that gap by investigating how sustainable interior design practices can be strategically aligned with cultural representation. It proposes that materials should not only be judged on ecological metrics but also on their cultural embeddedness, narrative value, and emotional meaning to the communities they serve. Through case studies and expert interviews, this study aims to build a comprehensive framework that supports holistic, locally grounded, and future-forward design for cultural spaces in India.

Conclusion

This qualitative study reinforces the emerging understanding that sustainable interior design, when approached with cultural sensitivity and contextual awareness, holds the potential to enhance both environmental and cultural value within Indian cultural centres. Rather than treating ecological sustainability and cultural expression as divergent or competing priorities, this research demonstrates that the two can coexist—and even thrive—within a unified design strategy. Through detailed case studies and in-depth interviews with practitioners and experts, it becomes evident that the thoughtful use of locally available, low-impact materials such as bamboo, lime plaster, clay, jute, cow dung, and reclaimed wood serves a dual purpose. These materials not only reduce the ecological footprint of interior spaces but also embody the tactile memories, visual languages, and traditional wisdom of the regions they come from.

The study highlights that the inclusion of artisanal craft traditions—such as handwoven textiles, tribal painting, wood carving, and clay modeling—further strengthens the relationship between space and narrative. These design choices are not merely decorative; they function as active cultural signifiers that communicate history, identity, and belonging. Symbolic motifs, spiritual geometries, and the spatial rhythms of traditional architecture contribute to an immersive storytelling environment where users can intuitively connect with the space, not just visually but emotionally and spiritually as well. In this way, interior spaces become living narratives that embody the continuity of culture while actively responding to the environmental challenges of the present day.

Furthermore, the research underscores the importance of context-sensitive and ethically grounded design decisions—ones that align with regional practices, respond to local climate conditions, and engage the communities they serve. Environmental responsibility in this context does not dilute cultural authenticity; rather, it reinforces it by embracing indigenous knowledge systems, honoring vernacular wisdom, and promoting community-based collaboration. This convergence of ecological ethics and cultural depth leads to interiors that are not only sustainable but also emotionally resonant, socially inclusive, and intellectually meaningful.

By bridging sustainability with heritage, this research advocates for a new paradigm in interior design practice—one that moves away from homogenized, market-driven aesthetics toward locally rooted, culturally informed, and environmentally regenerative solutions. These findings suggest that cultural centres designed through this lens become more than just architectural enclosures—they transform into pedagogical spaces that educate, inspire, and instill pride while modeling responsible stewardship of natural and cultural resources.

The study offers a foundational framework that can inform future architectural and interior design projects in similar cultural contexts. It also opens up critical pathways for integration in three key areas:

1. **Design Education:** By incorporating modules on vernacular materials, eco-conscious craft integration, and cultural semiotics in design curricula, institutions can better prepare students for culturally sensitive and environmentally ethical practice.
2. **Policy-Making and Governance:** Public institutions, municipal bodies, and cultural boards can reference this framework to set new guidelines for sustainable cultural infrastructure development, prioritizing both green metrics and local engagement.
3. **Professional Practice:** Architects, interior designers, and project managers can use these insights to adopt a more holistic approach in their work—engaging local artisans, selecting regionally appropriate materials, and designing with empathy for both ecological systems and cultural narratives.

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