

Climate Responsive Interior Framework for Wildlife Hospitality in Ranthambore

Arya Jamuar¹, Kashik Gupta², Akshita Agarwal³, Sunakshi Shokeen⁴

^{1,2,3}UG –IAD (SOD), World University of Design, Sonipat, Haryana

⁴Assistant Professor, IAD (SOD), World University of Design, Sonipat, Haryana, India.

Emails: aryajamuar.23@wud.ac.in¹, kashikgupta298@gmail.com², akshita2005agarwal@gmail.com³, sunakshi.shokeen@wud.ac.in⁴

Abstract

Ranthambore is a distinctive wildlife tourism landscape shaped by its climate, ecology, cultural traditions and royal heritage. While its historic architecture demonstrates climate-responsive strategies involving heat management, shade, water, materials and spatial planning, contemporary luxury wildlife resorts do not always reflect these place-specific principles. This study examines the gap between Ranthambore's traditional climate-responsive built environment and the design of contemporary hospitality interiors, particularly in relation to ecological identity, cultural authenticity and guest experience. The research aims to develop a climate-responsive interior design framework for wildlife hospitality in Ranthambore by identifying principles that can be meaningfully reinterpreted within contemporary luxury interiors. A qualitative research methodology is adopted, incorporating historical research, literature review, case studies and comparative analysis. The study examines climate-responsive design strategies, regional materials and crafts, ecological practices, community participation and guest education, while drawing upon traditional ecological knowledge and conservation practices of Rajasthan. The findings indicate that climate responsiveness and sustainability can extend beyond technological interventions to include material selection, spatial experience, local craftsmanship, cultural narratives, community engagement and interpretation of the landscape. Based on these insights, the study proposes a framework integrating climate, ecology, hyperlocal, heritage, craft, community and education within luxury hospitality interiors. The framework positions luxury not merely as visual sophistication, but as an experience rooted in environmental responsibility, cultural authenticity and a meaningful connection to place.

Keywords: Climate Responsive Design, Hyperlocal, Local Cultural Heritage, Luxury Hospitality, Traditional Ecological Knowledge.

1. Introduction

Ranthambore's growing wildlife tourism has increased demand for luxury hospitality spaces, yet contemporary interiors can rely on standardized materials and design languages that disconnect them from the region's climate, culture and ecology. Traditional Rajasthani architecture offers climate responsive strategies such as courtyards, jali, chhajja, shaded spaces, thermal mass, natural ventilation and local materials. These strategies also reflect local craftsmanship, cultural practices and ecological knowledge. However, using such elements merely as

decoration can reduce their functional and cultural significance. Existing research largely focuses on wildlife tourism, conservation, heritage and community development, with limited attention to translating this knowledge into contemporary interior design. Therefore, this research aims to develop a context-responsive interior framework that integrates climate, local materials, craftsmanship, ecology, heritage and community knowledge into contemporary luxury wildlife hospitality, strengthening environmental responsiveness,

regional identity and guest experience. As shown in Figure 1 Hospitality of Ranthambore Source: First image by author second image by google maps



Figure 1 Hospitality of Ranthambore

Source: First image by author second image by google maps

1.1.Aim

It aims to develop a context-responsive, sustainable interior design framework that blends environmental performance, modern comfort and luxury while strengthening regional identity, guest experience and connection with local culture and ecology.

1.2.Objectives

- To study Ranthambore's vernacular spaces, cultural practices and landscape relationships as a basis for contextual hospitality design.
- To examine how regional knowledge can shape contemporary luxury hospitality through comfort, authenticity, guest experience and environmental responsiveness.
- To develop design strategies that translate Ranthambore's regional identity into contemporary, culturally rooted and climate-responsive hospitality interiors.

1.3.Methodology

The methodology of this study combines qualitative research with detailed visual documentation,

allowing both cultural narratives and architectural features. As shown in Figure 2 Sequence of Research.

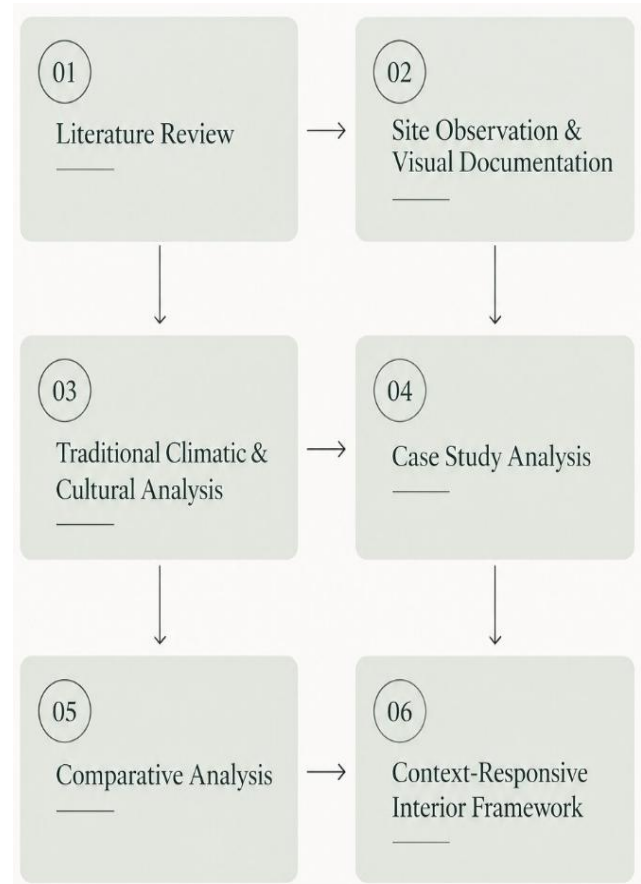


Figure 2 Sequence of Research

1.4.Need to Study

Ranthambore's hospitality experience is shaped by its wildlife, landscape, local culture, climate and community, yet these qualities are often reduced to decorative themes within hospitality spaces. There is a need to explore how architectural and interior design can work together through courtyards, shading, natural ventilation, spatial transitions, local materials, craftsmanship and connections with the landscape. This can create environments that are climatically comfortable, culturally authentic and experientially meaningful. The study also considers local artisans and community participation as part of the design process. It therefore investigates how luxury can be redefined through place, comfort, craftsmanship and experience, rather than relying primarily on expensive finishes and conventional five-star standards. As shown in Figure 3 Loss of

Local Heritage in Hospitality Source: Author and AI.

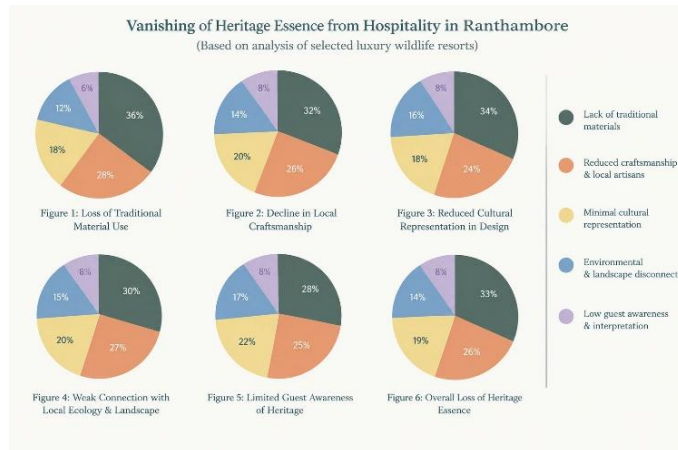


Figure 3 Loss of Local Heritage in Hospitality
Source: Author and AI

1.5.Scope and Limitation

The study explores how interior design can create a context-responsive luxury experience in Ranthambore's wildlife hospitality through climate-responsive strategies, local materials, regional craftsmanship, cultural narratives, wildlife and landscape. It examines authenticity, comfort, sensory experience, sustainability and community participation to understand luxury beyond conventional high-end hospitality. The study is limited to the interior, spatial and experiential aspects and does not cover structural engineering, urban planning or detailed building-performance analysis. Findings are context-specific to Ranthambore, while limited access to hotels, guests and artisans may affect primary data. Cost and commercial feasibility are considered conceptually. Scope for it is that these strategies are well documented individually in traditional architecture, but their combined application within contemporary wildlife hospitality interiors in Ranthambore remains underexplored. The research can explore how these principles can create comfortable, energy-conscious spaces while strengthening the connection between guests and the local landscape.

1.6.Research Gap

Ranthambore mainly focuses on wildlife tourism, conservation and heritage, while the role of interior design in creating climate-responsive and culturally

rooted hospitality remains underexplored. Traditional Rajasthani strategies and local knowledge are often reduced to surface-level aesthetics rather than integrated into contemporary hospitality design. Limited research connects climate, culture, local materials, community practices and guest experience within one framework. This research addresses this gap by developing a context-responsive interior design framework for luxury wildlife hospitality in Ranthambore.

1.7.Research Questions

How can Ranthambore's traditional practices inform contemporary luxury hospitality interiors?

Traditional practices can be translated through their spatial intelligence rather than their visual appearance. Indigenous responses to heat, privacy, movement and gathering can inspire contemporary zoning, thresholds, sensory transitions and spatial hierarchy. This reinterpretation can create luxury interiors that feel regionally authentic without reproducing stereotypical Rajasthani decorative styles.

How can climate, culture, ecology and craftsmanship be integrated into a context-responsive hospitality framework?

Integration can occur through a place-specific design matrix where each design decision responds to multiple contextual factors simultaneously. Material selection, spatial planning, lighting, resource consumption and guest interaction can be evaluated for environmental impact, cultural relevance and local value creation, producing a hospitality framework that is both regenerative and experiential.

2. Literature Review

(Karanth, K. K., DeFries, R., Srivathsa, A. & Sankaraman, V., 2012)

Previous studies show that wildlife tourism can support employment, livelihoods and conservation, but Rao and Saksena's study of 224 households around Ranthambore found limited direct income improvement and concerns over outside ownership, seasonal employment, inequality, rising prices, pollution and wildlife disturbance. Existing research largely focuses on economic, social and environmental impacts, with limited attention to interior design. Rising disposable incomes have

increased wildlife tourism, yet local economic benefits and eco-hospitality practices remain limited. This research addresses the gap by exploring climate-responsive, locally rooted interiors that strengthen community participation, cultural identity, conservation awareness and equitable, sustainable tourism[1 – 8].

(Rao, A. & Saksena, S., 2021) Wildlife tourism and local communities:

Evidence from India Previous studies show wildlife tourism drives hospitality expansion, yet local interior design lacks community integration. Sustainable hospitality relies on authentic, locally sourced architecture to foster eco-cultural connections. Existing lodge designs prioritize tourist luxury while ignoring indigenous spatial needs. Unsolved gaps remain in creating eco-lodges that reflect local heritage. This research guides interior designers to craft culturally immersive, sustainable spaces. Few study also tells that previous studies show wildlife tourism drives hospitality expansion , yet local interior design lacks community integration. Sustainable hospitality relies on authentic, locally sourced architecture to foster eco-cultural connections. Existing lodge designs prioritize tourist luxury while ignoring indigenous spatial needs. Unsolved gaps remain in creating eco-lodges that reflect local heritage. This research guides interior designers to craft culturally immersive, sustainable spaces.

(Alho, C. & Pina, J.C., 2023)

Alho and Pina's research presents sustainability as an integrated design approach, combining climate, local resources, environmental performance and user comfort. For Ranthambore, this suggests that luxury can emerge through natural cooling, landscape connection, sensory comfort and reduced technological dependence. It supports using local materials, traditional knowledge and ecology as functional design resources. However, further research is needed to translate these principles into interior experiences shaped by wildlife, crafts, cultural narratives and community participation.

Existing research emphasizes wildlife tourism and sustainability, but overlooks interior design, cultural identity and community participation. This study explores hospitality interiors that merge local

knowledge, ecology and materials with contemporary luxury.

2.1.Wildlife Tourism and Local Communities

Previous research indicates that wildlife tourism can support employment, livelihoods, local income and conservation, but these benefits are not always equitably distributed. Rao and Saksena's study of 224 households around Ranthambore identified concerns including outside ownership, seasonal employment, inequality, rising prices, pollution and wildlife disturbance. This suggests that tourism growth alone does not ensure meaningful community participation. For interior design, there is an opportunity to integrate local knowledge, craftsmanship, materials and community practices as active components of hospitality environments rather than using local culture merely as a visual reference as shown in Figure 4 Wildlife & Textiles.



Figure 4 Wildlife & Textiles

Source: First image by Author second image by google images

2.2.Sustainable Wildlife Hospitality

Sustainable wildlife hospitality in Ranthambore requires balancing tourism development with the conservation of its sensitive ecological and cultural environment. Eco-hospitality involves designing and operating resorts and lodges that minimize environmental impact through climate-responsive planning, passive cooling, renewable energy, water conservation and the use of locally available materials. In terms of resource use, hospitality establishments can reduce dependence on energy and freshwater by incorporating shaded spaces, natural ventilation, efficient lighting, rainwater harvesting, wastewater treatment and responsible material sourcing. Conservation is particularly important because Ranthambore's hospitality sector operates

within a landscape closely associated with wildlife habitats and protected forest areas. Responsible tourism practices can support biodiversity protection while reducing pressure on natural resources. However, increasing tourist arrivals can also create tourism impacts, including water consumption, waste generation, energy demand, habitat disturbance and increased construction. Therefore, sustainable hospitality should move beyond operational efficiency towards context-responsive interior design that integrates local materials, traditional climatic strategies, ecological practices and community participation while maintaining guest comfort and experience.

2.3.Traditional Climate Responsive Architecture

Ranthambore's hot, dry to semi-arid climate makes thermal comfort, shading and ventilation important considerations for hospitality interiors. Traditional Rajasthani architecture offers passive strategies that can be adapted to contemporary wildlife hospitality. Courtyards provide shaded transitional spaces, daylight and air movement, while jalis filter sunlight, reduce glare and support ventilation. Chhajjas and deep overhangs reduce solar heat gain, while stone and lime provide thermal mass and help regulate indoor temperatures. Water elements can support evaporative cooling and create a sensory connection with the landscape when suited to local conditions. Vegetation, screens, covered passages and strategically placed openings further reduce solar exposure and encourage natural ventilation. Thus, materials, shading, ventilation and spatial planning can function as practical design tools rather than merely traditional aesthetic references, supporting authentic and context-responsive luxury hospitality.

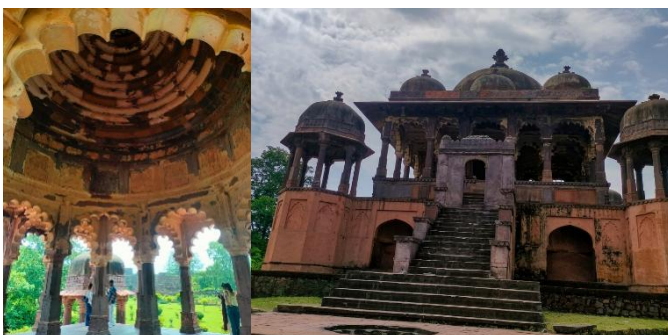


Figure 5 Traditional Architecture of

Ranthambore

Source: Author

2.4.Local Material and Craft Exploration in Interiors

Local materials and regional craftsmanship can create hospitality interiors rooted in Ranthambore's identity rather than standardized luxury aesthetics. Stone, lime, wood and textiles offer thermal comfort, durability, warmth and cultural character, while handmade carving, weaving and metalwork strengthen connections with local artisans. Their contemporary reinterpretation can preserve traditional knowledge while supporting regional livelihoods. However, durability, maintenance, cost and performance must be considered. The research gap lies in integrating these elements with climate-responsive design and contemporary hospitality needs to create accessible, authentic and experiential luxury. As shown in Figure 6 Craft and Textiles

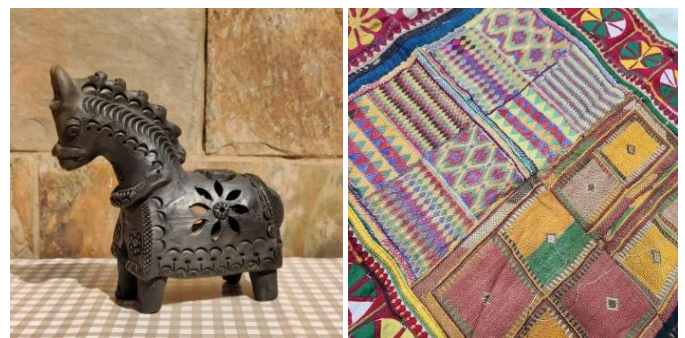


Figure 6 Craft and Textiles

Source: Google Images

2.5.Cultural Identity and Guest Experience

Cultural identity can shape meaningful hospitality experiences by connecting Ranthambore's wildlife, landscape, heritage and community with interior design. Regional materials, crafts, storytelling and local knowledge can create authentic spaces beyond decorative Rajasthani motifs. Involving artisans and incorporating subtle interpretation can strengthen community connection and guest understanding. Luxury can therefore be expressed through authenticity, craftsmanship, comfort and sense of place. However, limited research integrates cultural identity, experiential design, climate responsiveness and community participation within a single

hospitality framework.

3. Case Studies

3.1.Primary Study

As a researcher, the resort immediately created a strong sense of arrival through its Rajputana-inspired architecture, jharokhas, arches, greenery and natural material palette. The spatial experience gradually established a connection with Rajasthan and its wildlife setting, making the destination feel distinct rather than like a generic luxury resort. However, I observed that this sense of place was created largely through visual and atmospheric cues. The experience raises a deeper question for hospitality design: can the identity of Ranthambore be experienced through how a space performs, feels and responds to its context, rather than only through how it looks? This highlights the potential for climate, local materials, craftsmanship and ecological knowledge to become active parts of the guest experience. As shown in Figure 7 Exploration of Hospitality.

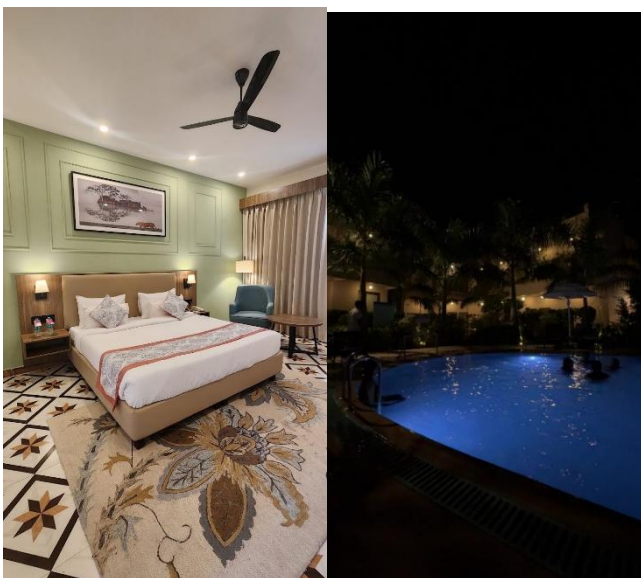


Figure 7 Exploration of Hospitality

Source: Google and author

3.2.Secondary Study

The Earth at Ranthambore is a sustainable luxury hospitality project where architecture, interiors and landscape work together as an integrated system. The resort uses mud, lime, straw, stone and wood, with earth-based construction providing thermal mass and natural insulation suitable for the local climate. Verandahs, open spaces, gardens and water features create a gradual connection between indoor and outdoor environments, while the earthy material palette reflects the regional character of Rajasthan. The project works particularly well in combining climate-responsive design, local materials, passive environmental strategies and experiential hospitality, creating a strong sense of place. However, earth construction requires specialized workmanship and regular maintenance, and its construction approach may be difficult to replicate directly in different climatic or site conditions. Overall, the case study demonstrates how sustainability, local identity, climate responsiveness and luxury can be integrated into wildlife hospitality. As shown in Figure 8 Exploration of Hospitality.

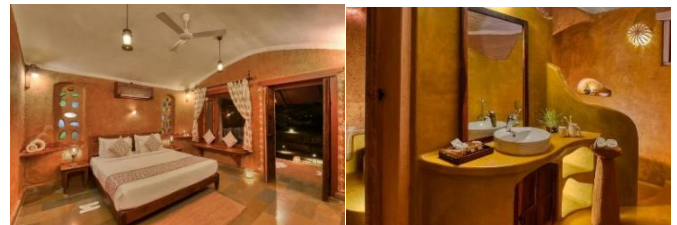


Figure 8 Exploration of Hospitality

Source: Google images

4. Contemporaryluxury Hospitality

In the context of Ranthambore, luxury hospitality needs to be understood beyond expensive materials, visual aesthetics and conventional five-star standards. Luxury can instead be defined through privacy, personalized experience, craftsmanship, exclusivity, sensory engagement, connection to landscape, authenticity and sustainability. Privacy can be achieved through well-planned spatial zoning, locally informed activities, craft interactions and spaces designed around different guest needs. Craftsmanship can become a form of luxury by incorporating handmade furniture, textiles,

stonework and regional crafts, creating uniqueness that mass-produced finishes cannot provide. Exclusivity can be created through distinctive spatial experiences and a strong sense of place rather than simply through high cost. Sensory experiences involving natural materials, filtered light, sound, landscape views and local scents can strengthen the emotional connection with Ranthambore. context.

5. Design Proposal/Prototype

The proposal reimagines luxury wildlife hospitality as a sensory ecosystem, where the interior responds to Ranthambore's climate, landscape, culture and local knowledge rather than simply reproducing Rajasthani aesthetics. Climate, terrain, wildlife, craft and community become key design generators through courtyards, jali, chhajja, shaded transitions, thermal-mass materials, framed views, light, shadow and natural textures. Local stone, lime, wood, terracotta and textiles are integrated as functional elements, while artisans contribute to screens, furniture and tactile surfaces. Threshold spaces such as verandas, sit-outs and courtyards connect interiors with the landscape. Thus, luxury is expressed through environmental intimacy, comfort, craftsmanship, sensory experience and connection to place, making Ranthambore's ecological and cultural systems the foundation of contemporary interior design.

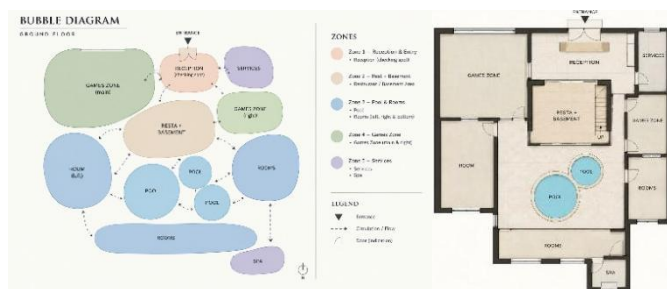


Figure 7 Research-Based Spatial Proposal

Source: Author and AI

Field observations in Ranthambore revealed that its hospitality identity is shaped by wildlife, landscape, heritage and climate. Authenticity comes from meaningful use of local knowledge, culture and 6 materials rather than superficial traditional decoration. The historic Hathi Pol (Elephant Gate) demonstrates how architecture can carry cultural narratives and strengthen a sense of place. At Sterling

Bagh, wildlife artwork, earthy colors and natural looking materials created a visual connection with the destination, although deeper spatial integration was limited. Hospitality observations highlighted the potential of shaded spaces, courtyards, natural materials, landscape views and local crafts to improve climatic comfort and guest experience. Sustainability can be supported through climate responsive planning, passive cooling, durable local materials, reduced resource consumption and community participation. The research gap lies in exploring how climate, ecology, heritage, craft and storytelling can work together to redefine luxury in Ranthambore. This positions luxury as comfort, authenticity, connection and meaningful experience, allowing smaller and mid-range hospitality spaces to create distinctive, locally rooted experiences.



Figure 8 Derived Spatial Insights

Source: Author

6. Discussion

The findings suggest that Ranthambore's key hospitality challenge is the fragmented integration of climate, local materials, crafts, wildlife and cultural narratives. Interior design can connect these elements into a unified spatial experience linking environmental conditions with cultural identity. Luxury can therefore be defined through climatic comfort, material authenticity, craftsmanship, privacy, sensory quality and landscape connection, rather than expensive finishes alone. This approach can also involve local artisans and communities as active contributors, treating climate, culture, ecology, craft and guest experience as interconnected design parameters.

Conclusion

Ranthambore's hospitality potential lies not in reproducing stereotypical Rajasthani aesthetics, but in translating the character of the place into spatial experience. Climate, wildlife, landscape, heritage, craftsmanship and community knowledge can work as interconnected design factors. Courtyards, shaded transitions, natural materials and passive strategies provide comfort, while local crafts, wildlife narratives and landscape connections create identity. This shifts luxury from visual grandeur towards authenticity, comfort, craftsmanship and meaningful experience, positioning interior design as a mediator between visitors and Ranthambore's climate, culture, ecology and character.

References

- [1].A Study on Ranthambore National Park, Rajasthan, India." Community Based Tourism in India, edited by Ganapati B. Sinor and Mallikarjun V. Alagawadi, 1st ed., Excel India Publishers, 2019, pp. 3–11..
- [2].Alho, Carlos, and J. C. Pina. "Sustainable Eco-Resorts." Faculdade de Arquitectura da Universidade Técnica de Lisboa, 2011.
- [3].Rao, Aruna, and Shalini Saksena. "Wildlife Tourism and Local Communities: Evidence from India." *Annals of Tourism Research Empirical Insights*, vol. 2, no. 1, 2021, p. 100016.
<https://doi.org/10.1016/j.annale.2021.100016> [cite: 3].
- [4].Karanth, Krithi K., Ruth DeFries, Arjun Srivathsa, and Vishnupriya Sankaraman. "Wildlife Tourists in India's Emerging Economy: Potential for a Conservation Constituency?" *Oryx*, vol. 46, no. 3, 2012, pp. 382–390.
<https://doi.org/10.1017/S003060531100086> X [cite: 4].
- [5].Dodds, R., Ali, A., & Galaski, K. (2018). Mobilizing community capability: Local empowerment through community-based tourism. *Journal of Sustainable Tourism*, 26(9), 1600–1619.
<https://doi.org/10.1080/09669582.2018.1470659>
- [6].Sharma, M., & Jain, R. (2022). Climate-responsive spatial layouts and passive cooling in traditional structures of Hadoti and Mewar regions. *Journal of Heritage Conservation and Architecture*, 14(2), 112–128.
- [7].UNESCO World Heritage Centre. (2013). Hill Forts of Rajasthan (Property ID 247rev-005: Ranthambore Fort). UNESCO World Heritage List.
- [8].Karanth, K. K., DeFries, R., Srivathsa, A., & Sankaraman, V. (2012). Wildlife tourism in India: A baseline assessment. *Environmental Management*, 50(6), 1057–1066.
<https://doi.org/10.1007/s00267-012-9938-0>