

A study on Place Identity of Built Heritage with
respect to Contemporary Urban Expansion

A thesis submitted in partial fulfillment of the requirement
for the degree of Doctor of Philosophy

by

Somya Mishra

Enrolment number- 196105008

Under the supervision of

Professor Debkumar Chakrabarti



Department of Design

Indian Institute of Technology Guwahati

Guwahati- 781039

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To my family

who always picked me up on time and encouraged me to go on every
adventure, especially this one.



Declaration

This is to certify that the project report entitled " A study on Place Identity of Built Heritage with respect to Contemporary Urban Expansion," submitted by me to the Indian Institute of Technology Guwahati in fulfillment of the requirement for the award of the degree of Doctor of Philosophy, is an authentic and original work carried out by me.

Date: 24-01-2022

Place: I.I.T. Guwahati



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Certificate

This is to certify that the work contained in the thesis entitled " A study on Place Identity of Built Heritage with respect to Contemporary Urban Expansion," submitted by Somya Mishra (Enrollment No.: 196105008) for the award of the degree of Doctor of Philosophy, is a record of bonafide research work carried out by her under my direct supervision and guidance. I considered the thesis has reached the standards and fulfilled the requirements of the rules and regulations relating to the nature of the degree. The contents embodied in this thesis have not been submitted to award any other degree or diploma in this or any other university.

Date: 24-01-2022

Place: I.I.T. Guwahati



Prof. Debkumar Chakrabarti

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Preface

In historically important cities with built heritage, the identity of a place is multi-layered and created over time with people's experiences in their physical settings. The interactions of the users and the built environment helps in shaping the place's identity. The study explores the idea that the architecture of a place contributes to identity creation in the minds of its users, and these architectural elements can be used in urban developments to restore and strengthen a place's identity. It is found through literature surveys that architecture influences the place's identity and creates an image of the city. Also, users' perception matters when discussing place identity, and residents and tourists have a different image of the same place. Three site studies are done in two different cultural regions of the country, Assam, and Rajasthan, to test the previously mentioned ideas. We found that people with either of the two cultural backgrounds want to maintain the identity of their city. They prefer an urban expansion plan or a tourism destination that respects their culture and traditions in built form. The architecture of urban public spaces affects the place identity, and the traditional architecture needs to be preserved. Urban designers and architects may use traditional architecture elements in new developments by replicating the complete façade or abstracting through studying minor details. We conclude the findings by saying that when a utilitarian space is created, traditional architectural elements may be crudely replicated, but from an appreciation point of view, the identity may be abstracted.

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I dedicate all my success to my family, including this.

Abstract

India is rich in cultural heritage, and due to its unique identity through the natural and cultural landscape, it can develop as an international tourism destination. Cultural heritage refers to tangible and intangible components that are physical and cultural influences, respectively. The physical elements primarily include historic built environments that need to be preserved to restore a sense of place in the cities and generate tourism. When it comes to conserving historic buildings and structures, the unused, less prominent landmarks also add to the modern space requirements. Not preserving them can erase important information about the identity of old urban streetscapes.

A study is conducted to look into how a picturesque urban streetscape with the lesser-known heritage structures can be collaged to create a modern contemporary space. The study's findings demonstrate that architectural components contribute to a sense of place and help generate a distinct impression of place identity. It is also found that residents of a place desire to keep their architectural identity intact during the expansion of the area. The study investigates the possibility of finding visual architectural features in renowned Indian cities that develop distinct place identities.

Visual elements may be used during urban growth by replicating existing architectural features or abstracting the aspects that contribute to identity creation to enhance the overall experience. This will lead to a more socially acceptable and culturally sustainable urban built space, boastfully branding the city. The two principles of crude replication and smart abstraction were studied and tested through site studies. The site

research is conducted using a questionnaire survey in two distinct regions of the country to include cultural differences in the setting.

The critical point provided in the study is that the architecture of a place contributes to its sense of place identity and that this identity must be preserved during urban development. It is necessary to choose between replicating or abstracting visual aspects to keep this identity, depending on how the residents perceive the features. Among the proposals are suggestions to be incorporated in the bye-laws for future expansion and the Smart City Proposal to preserve the identity of heritage-built environments.

A primary understanding is achieved that for utility-oriented development, various identity elements can be used by a crude application. For pleasure appreciation, an abstracted application of visual elements of architecture is preferred. To make a successful tourist facility, a balance between the two approaches makes it accurate to the place's identity. The people perceive it as the best strategy by supporting urban expansion to meet contemporary needs.

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Chapter 1

Users' perception of Indian Architectural Heritage and Place Identity: A Need for Looking Into

Chapter abstract

Heritage protection can inspire new smart and sustainable development patterns. Most conservation programs focus on well-known monuments, while less-known public structures are ignored. So they are rebuilt or demolished as needed, erasing essential historical urban architecture knowledge. Legislation should promote the integration of urban heritage management into development programs. Heritage management policies must include the user perception towards a city's built heritage to make it socially sustainable. The place identity of a city helps build a strong place brand that can be used in future development. We have identified architectural elements of a built environment that may affect the place identity of a city. This chapter sets the focus of the study to understand historic built environments and user perception towards its place identity.

1.1 The Indian Heritage

Cultural heritage is viewed as an economic lifeline in many communities, and they thrive on it by using heritage tourism. Intangible cultural heritage is an essential component of a region's cultural heritage assets. However, it has long been on the periphery, with little to no consideration paid to it when building frameworks for conserving the heritage assets of ancient cities, towns, and precincts. As a result, it is even more critical to protect the built cultural heritage using the specific urban context as a backdrop. Built heritage is a finite resource that, once destroyed, is lost forever.

Regardless of the motivation, conservation of the historic environment and living culture is vital in today's fast-modernizing world. The urban built heritage can be seen as a boon for tourism business but occupies much-needed cityscape. Many obstacles exist in policymaking and city development planning that frequently obstruct conservation goals. Thus, we need to identify and address heritage identification, management, and maintenance issues without compromising the contemporary space and economic requirements.

Heritage is defined as what society decides to safeguard through legislation and administration, and related decisions may have worldwide ramifications if they affect other countries or communities. (Ray, 2020). In *Hindi*, the heritage is called '*dharohar*,' which can be translated as preserving (Bandyopadhyay et al., 2008; Mukerji & Basu, 2015). The word also connotes the earth's tangible and intangible aspects and their connections with the cultural spaces and features on a large scale (Bahga & Raheja, 2018).

Since the *Hindi* word addresses heritage at a larger scale, it must be translated as 'heritagescapes' to accommodate heritage sites, places, and cities into the realm of built heritage. The heritagescapes in Indian thought can broadly be categorized into four groups (Ahmad, 2006)

- Tangible (visible and static)
- intangible (symbolic expression of the tangible),
- transitory, and
- visual.

India is a home of countless ancient yet constantly evolved cultural practices that originated in the past, flowed down over time while maintaining continuity, manifested superimpositions, and became part of the lives of the community. The most well-preserved practices are those where members of different ethnic groups appreciate their meaning, relevance, and value to their lives or still earn a living from these activities.

Intangible Cultural Heritage elements in the Indian context are unique because of India's geo-cultural existence and historical past. They represent a composite culture that unites us in a common heritage. This has contributed to a repository of Intangible Cultural Heritage elements unique to this region of the world (Chitty, 2016). The vibrancy and regional distinction of India's intangible cultural heritage express the deep heterogeneity of Indian traditions.

The UNESCO Universal Declaration on Cultural Diversity in 2001 and the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions in 2005 acknowledge the significance of cultural diversity in defining the heritage values of a society (Bortolotto, 2021).

Cultural diversity can be defined as the diverse ways in which a community expresses its culture and traditions, transmits them, reproduces them, and conserves them (Leimgruber, 2010; Schmitt, 2008).

The Indian Intangible Cultural Heritage is difficult to interpret and explain due to its complexity arising from various influences on the original state. To understand the intangible aspects of Indian heritage, we can take support from the tangible aspects associated with it (Dasgupta & Garg, 2021). The reason behind it can be that tangible heritage is more readily apparent and relatable.

It's essential to keep in mind that cities with a rich cultural heritage appeal to tourism businesses (Biondi et al., 2020). Promoting sustainable and inclusive economic growth by fostering employment in the arts and creative industries promotes fair pay and working conditions. Cities' economies often depend on cultural branding elements like traditional cuisine, arts and crafts, and theatre that are a part of their intangible heritage. These tangible products and activities play a crucial role in conserving the cultural heritage and revitalizing the economy.

For the Indian context, a link will be revealed by investigating various connections between the intangibility of culture and heritage landscape (Chandan & Kumar, 2019; Garg & Kaur, 2019). This link may allow many different meanings to be expressed, images to be perceived, and opportunities to develop further understandings of heritage. Heritage is a major showcase of the creative expression of history and cultural identity of our society. According to the 2003 UNESCO Convention on Intangible Cultural Heritage (ICH) (Lenzerini, 2011). The Intangible

Cultural Heritage has been divided into five categories by UNESCO, them being (Curin, 2007):

- the traditions, orally conveyed through language and expressions, them being the intangible component;
- performing- theatre and street- arts;
- traditions and customs through festivals and rituals;
- rituals and customs concerning nature and the universe; and
- handicrafts through traditional means.

The Sustainable Development Goals mentioned in Agenda 2030 for culture by UNESCO set heritage conservation targets (UNESCO, 2019). Target 11.4 requires making all cities and settlements socially sustainable by making them inclusive of cultural and natural heritage (Baltà, 2017). "Urban Sustainable Development Goals," set in the meeting, relate to heritage cities and settlements. The Sustainable Development Goals focus on achieving heritage representation in the significant policy papers of Agenda 2030.

Implementing Target 11 has been the new focus of the Sustainable Development Goals. It can be achieved by including the public in policy making and implementation through Public-Private-Partnerships. The targets provide a framework for historic city development and management to promote socially sustainable urban developments with a focus on the culture and heritage of the cities to conserve their identity (Baltà, 2017). The cultural heritage is expected to keep the city rejuvenated and maintain its place identity. The new directive to achieve this includes working together with all stakeholders at a national, regional, and local level, particularly for:

- *Localizing implementation*, by providing critical solutions to problems raised and faced by the stakeholders specific to their context,
- *Monitoring implementation*, to check the progress of the previous stage at a central level,
- *Promote implementation*, to promote the acceptability of more sustainable heritagescapes.

From the standpoint of historic preservation in an ancient culture like India, the goal appears fantastic, and the target is considered excellent. Still, the indicator seems to be short on practicality. Although the Sustainable Development Goals talk about nations being in charge and responsible for implementing the targets, but these must be achieved and checked at city levels (Chandan & Kumar, 2019; Keswani, 2017). The Sustainable Development Goals have a detailed description of what needs to be done but fall short of providing information on methods to achieve it. Their implementation methods and the process will be a true measure of success (Wang & Gu, 2020). In terms of the Goals, each of the following methods represents a clear commitment to heritage conservation:

- Develop vibrant, lively, socially and economically sustainable, and inclusive urban economies based on Intangible Cultural Heritage;
- Enhance the quality of economic development by promoting tourism and branding by heritage conservation activities;
- Promote conservation by preserving or adapting the cultural heritage while vitalizing the city's economy.

Retaining heritage helps people rediscover their sense of self and can inspire new ideas for heritage cities and development, focusing on valuing people's assets in the context of the Sustainable Development Goals (Jagatramka, et al., 2020). A city's ability to maintain its social cohesion relies on its ability to attract both local residents and tourists who share the city's social beliefs, which are preserved as intangible cultural heritage.

Tourism is closely linked to many of the world's most important economic sectors because it is one of the largest industries in the world. The number of tourists who visit these historic cities each year determines their economic success. Historically significant cities contain a variety of interconnected phenomena to which people denote belief systems, faith, and spiritual merits (Munjal & Munjal, 2011). This phenomenon can be found throughout India. This means that tourism can aid in economic and cultural sustainability by promoting, sustaining, and maintaining it.

Cultural centers, museums, libraries, and theatres are just a few of the urban spaces that can host Intangible Cultural Heritage and related transmission and training activities. These buildings can contain the important cultural and traditional information inside and showcase the built heritage from their own structure. A city's physical fabric often influences how Intangible Cultural Heritage is performed, practiced, and enacted. Cultural attributes play a critical role in the development of heritage cities in places like India, where ancient cultural traditions coexist with modernity. These cultural attributes serve as a nexus for regulating the city's life and vitality.

To do this, we must view the world from a universal perspective, see things from a regional one, and act locally. The ICH must play a distinct role in developing and preserving urban/cultural landscapes.

1.2 Indian built heritage and the issue of identity

It can be said that the past has its impressions on our present. It generally happens through:

- i. The memory of narratives and reminiscences that have been enjoyed by people from a community: The folklores sang during festivals exemplify this past manifestation mode. For example, common folklore, 'Alha Udal' sung in central parts of India, celebrates the bravery of Alha and Udal. Alha was a legendary general of the Chandel king Paramardideva in the early 12th Century, and Udal was his younger brother. The folksong is sung in the month of 'Saavan' to remember their bravery and glory to them. It is an example of a recollected narrative by reminiscing elders passed on to younger generations.
- ii. The documented historical events and places through archived archaeological records.
- iii. Traditions, and
- iv. Their physical symbols, like the artifacts, structures, and even sites that, have survived through these years.

This thesis focuses on built environments that have faced the hardships of time and are still surviving and are justified by three arguments.

- i. Buildings are expressions of the past that people can experience even today.
- ii. Those in power often decide the importance of the built structures according to the importance the built structures have to them.
- iii. The historic physical built environments create a dilemma for the present decision-makers where they have to decide whether to protect the historic site or use the space to satisfy contemporary needs.

Human settlements have always been an answer to the basic human needs of safety from nature and animals. It served the need for storage of food and provided privacy. With the development of transportation services, people have realized that the function and aesthetic of these safety-providing spaces need to be unique. (Seduikyte et al., 2018). The basic and underlying question for the inquiry made in this thesis, and most of the analysis is:

How have the spaces evolved in terms of their aesthetic values, and how do we pay them due respect while acknowledging the contemporary needs in the same spaces?

Identifying a built environment as heritage links the architecture and activities of the space, in the present condition, with the future of the same. Heritage is to be seen as a process that is always dynamic, deteriorating, or developing than its existing conditions. It is a process

that shapes our future and pays homage to the past. The idea of heritage is dynamic and everchanging to address the contemporary space, and aesthetic requirements make it essential to conserve (Vileniske, 2008).

For Indians, law enforcement is much more important. The Ancient Monuments and Archaeological Sites and Remains Act, 1958 declares anything older than 100 years to be part of India's cultural heritage (Sharma, 2018). According to this act, the central government has the authority to declare a monument historically important, and it can be declared a protected building after giving two months' notice. Once a notification is issued, a copy is posted in a prominent location near the monument or site.

People who are concerned about the newly declared monument can use this two-month notice period to file objections if any. After the two months have expired, the Central Government is free to declare the building as a historically significant structure. The declaration is published in the Official Gazette after considering any objections received. After that, the state owns the heritage monument, the heritagescape, and its relics (Majumdar, 2005).

The act also states that the Director General of the Archaeological Survey of India becomes the owner of the heritagescape that has no known owner. Owners who want to keep their monuments must sign an agreement with the federal government that states they cannot alter, remove, or remove portions of them and cannot build on or near them. All ownership rights to the monument or object are forfeited to the donor (Sengupta, 2017). When a temple is designated as a national historical landmark, it improves the reputation of the area, and the

people who live there continue living in the area because the act permits traditional religious practices to continue unhindered.

We know what to do with the tangible cultural heritage, but not with its intangibility. To put them in a category like "heritage" doesn't make sense because they're all over the place. India's heritage policies are primarily concerned with preservation. However, these monuments are frequently well-known 'elite' structures. Rarely is conservation considered for lesser-known structures like old houses, pavements, walls, and alleys that are still in use and occupied. As a result, they undergo renovations or removals depending on the situation, erasing crucial historical information.

It's possible that none of these buildings can be saved due to the demands on land and space that come with urbanization. If they are destroyed or replaced, at the very least, they can be documented, and even a sample of them can be saved for posterity. A law advocating compatibility between urban heritage management programs and development initiatives is needed. Heritage management as a cultural resource should be a part of India's policy.

An example of understanding the intangibility of the tangible cultural heritage is seen in a conservation attempt of the *Gadiya Lohar* community of India. It is claimed by the community to have its *Rajput* origins in *Chittaurgarh* region of Rajasthan.

The *Gaduliya Lohars*, Rajasthan's traditional armorers, used *koftgiri*, the technique of encrusting one metal onto another, until about a century ago to create a variety of weapons and armor for their Rajput customers (Soni, 2013). Many older military weapons have become outdated due to the expansion of the ammunition industry. These artifacts are now

only seen on Dussehra when each family brings its collection of arms to a temple to be consecrated.

The *lohar*-wares are now mostly seen as decorative items and are made to the specifications of antique dealers and interior decorators, even though the region's elite houses still commission the occasional coat of arms and swords for ceremonial display at weddings. It is customary to purchase iron discs from iron factories in Ajmer and Bhilwara, cut them into the desired shapes by hand, and then pattern them using metal wires. In contrast to men, women are in charge of preparing the polishes, finishing the objects, and embroidering the red velvet cases that house them.

The *Gaduliya Lohars* are a Rajasthani tribe with a long history. Before they became blacksmiths, the *Gaduliya Lohars* — so named because of their beautiful bullock carts, or "*gadis*" — were a warrior Rajput tribe. Now, however, they are nomads. They are said to have left *Mewar* because of a promise they made to their 'lord,' Maharana Pratap, who had fled Chittaurgarh after Akbar's conquest. However, after Maharana Pratap was killed in battle, this clan of warring Rajputs vowed to return to the city only after he had won the city back. As shown in figure 1 and 2, the *lohars* live in temporary houses and have outdoor living and working spaces.



Figure 1. A boy from the Gaduliya Lohar community is sitting in the sand outside their temporary dwelling, shaping the iron tools.

To this day, this sense of self-identity still unites them as a group. They've traveled from town to town, repairing and selling farm and household tools for most of their existence. There's a lot of competition and fewer jobs as cities grow and industrialized implements enter the market. There is still an attraction to the city for many *lohars*, and they now camp there for more extended periods and with fewer caravan accessories than they used to, due to the bulk and expense of operating bullock carts in the city (Tehrani, 2015).

Despite this, they continue to be treated as squatters and are considered undesirable in any location where they happen to be. The simple system they have developed offers a potentially powerful model for occupying seasonal and cyclical spaces in dynamic twenty-first-century cities, despite their continued inability to fit into the recognized contemporary country structures.

The *Gaduliya lohar* camp's structure and organization are innovative because they can create a complex social space on any site that meets the bare minimum requirements of being on the side of the road with a wall, tree, or fence in the way (Bandukwala & Smith, 2015). A strong base element—the cart—connects the elements in predefined relationships carefully to some elements and loosely to others. This capacity is built through the simple organizational structure of one long string of carts lined up one after the other. Every time the cart is moved to a new location, it regenerates its spaces of a social and physical organization by unfolding and folding it again.

The *Gadulia Lohars'* work strategies remain largely unchanged despite their altered mobility pattern (Raczek, 2013). They don't make swords, as their culture dictates. They've long since stopped crafting large, heavy, and ornate items like cartwheels or decorative dagger handle but make smaller household items, seen in figures 1 and 2. They only produce small tools and rely almost exclusively on tool repair. They make a pittance compared to what they could be making if they just made tools. They're rapidly eradicating the variety among their available tools.

The *Gadulia Lohars* have no other source of income than the villagers who have already established themselves. The annual *Gadulia Lohar* gatherings are no longer held. Previously, the norms would be revised, and news would be exchanged during meetings with the elders (Misra, 1986).



Figure 2. Various household items are made from iron and stone, with wooden handles. These are the new tools manufactured by the modern Gaduliya Lohar community.

They've stopped wearing a lot of their old-fashioned jewelry and clothing, seen in figure 3. Wearing gold or silver jewelry is becoming less popular these days as people opt for glass or plastic alternatives. The ivory decorations have vanished completely. Plastic bangles have replaced the heavy and expensive ivory bangles worn by married women. Nomadic families are also noticing these changes. Families who have moved into the area have become accustomed to modern clothing and no longer wear traditional clothing for festivals, as seen in figure 3.

The men are often seen wearing pants and shirts, and boys wear t-shirts and jeans. The women wear saree, and girls have moved on to wear salwar suits. The men have stopped wearing the large bright-colored

turbans, and women do not wear the traditional ornaments that the community has exclusively used.



Figure 3. The men and women of the Gaduliya Lohar community have started wearing modern-day clothing like pant-shirt for men and saree-suit for women.

The lifestyles, customs, and occupations of the *Gadulia Lohars* have changed dramatically over the last few years. Many have made a home in cities or towns that provide them opportunities. However, many people do not relocate for several years before doing so for one of two reasons: professional competition or being displaced from their original homeland. There are still only a handful of families who frequently move while adhering to the old ways of life. Their ability to move around rapidly is dwindling, and they are beginning to prefer to settle down in one place like the rest of the settled Lohars. Even if they do move, they won't go very far these days and use motorized vehicles rather than a cart, as shown in figure 3. They only travel to villages that are close by. The new preference of this community is to live in their home village and commute to work to earn a livelihood (Misra, 1977).



Figure 4. A Gaduliya Lohar family, living in a semi-permanent house. They have moved away from their vow to not eat in metal utensils. They are seen using metal utensils in their day-to-day lives.

Many of their promises have been broken, and they have to leave behind some. These individuals make their way to the top of Chittorgarh. Electrical power is used, as is sleeping on the bed. Rapid change occurs, and they increasingly resemble rural people in general, as seen in figure 4. The tribe's uniqueness is slowly eroding, and it concerns their lifestyles, the quality of living spaces, and the nature of their work. Families are becoming more nuclear as younger generations choose to settle in villages rather than cities; only the elderly remain mobile to some extent.

Even among long-established families, there are homes fit for different ages and stages of the family's history. Some families now allow their children to attend schools, which was nearly unheard of in the previous generation. As a result, the Gadulia Lohars no longer use the cart as their family emblem. Many people also don't own any cattle anymore and instead use hired bullocks to get around when the occasion calls for it.

In an attempt to prevent them from extinction, the community was offered permanent housing in Udaipur city. This was done to keep their legacy alive. The bigger question here is what part of their life needs conservation. In an attempt to keep the culture alive, their identity is lost. In the Indian context, preservation and protection do not seem to be addressing the pressing issue of identity. Had this tribe been considered 'heritage,' the options to safeguard their presence would increase manifold. Their existence is vital to the culture of North-western India as they are the physical carriers of the glorious past. They carry the identity of Maharana Pratap on their shoulders.

A question arises from here:

Can a community be considered as a cultural heritage culture of the *Mewar* region, specifically to Udaipur?

An issue of appropriate selection of representative elements comes to force when we talk about heritage expansion. This identity issue is faced by most of the physical components of the intangible heritage. The intangible tradition and culture have a context often defined by physical boundaries and a related built environment. In an attempt to preserve this heritage, one of the physical or cultural attributes is left behind. In this study, we focused on the cultural component of heritage and looked into its manifestation in built environments. Thus the following questions come up with Indian built heritage,

- i. What needs to be conserved?
- ii. For whom do we need to conserve the traditional built environment?
- iii. Who are the beneficiaries of the conservation plan?

- iv. Is it possible to use the existing traditional architectural style of heritage-built environments in the current urban fabric?
- v. Do the common people want to conserve this heritage?
- vi. How can built heritage be conserved respecting contemporary urban needs?
- vii. How can urbanization continue while maintaining the historical identity of a place that the built heritage boasts?

These questions can only be answered by the people who are active users of the heritage and would benefit from heritage protection. If saving the exact form of heritage is essential, then we must conserve what is left of their culture and preserve the built structures to facilitate their lifestyle and customs. Here, the *Gduliya Lohar* community can have a dedicated space in cities, where they can park their carts, have a place to stay on the grounds, and then move on to the next town to the designated space. The carts can be kept permanently at these grounds to symbolize their heritage while using motorized vehicles for transport. This way, their cultural values will be protected by repeating the past, and their identity can be preserved by the abstraction of the physical expressions. This would be a more comprehensive solution to the threat of their extinction.

1.3 Preservation, Conservation, and Heritage paradigm for Indian Built heritage

Each country has a different viewpoint when they address UNESCO's Sustainable Development Goals and look at their heritagescapes through the lens of Target 11. According to researcher Gregory Ashworth, Western Europe was key and first to develop and apply these paradigms describing the process of evolution of the UNESCO guidelines (Ashworth, 2011). The idea of this transition remains unchallenged as it is a widely accepted principle.

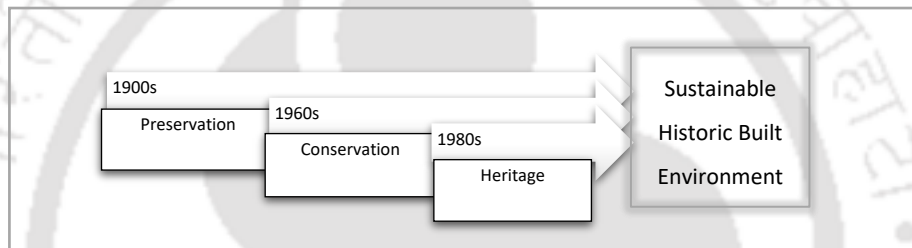


Figure 5. The paradigm shift experienced in the UNESCO guidelines from early 1900s to the recent times, all leading to the objectives of experiencing quality life and looking for scope of ethical urban expansion with respect to the place identity.

1.3.1 Preservation of the Existing Structure

The goal of preservation is to keep things safe from harm, which is as simple as issuing and enforcing a law against doing anything to them. However, the temptation to add a series of positive actions to this inexpensive and straightforward approach of preserving "as found" was logically irresistible from the start. It is important to break the cycle of change and stop the decay of built structures in order to preserve it (Ruiz-Jaramillo et al., 2019). Still, it transforms the object of the action into a fossilized replica of what it was before the action was carried out.

So, as far as can be determined, the subject can be restored to its original condition only by repairing the damage done by time and

replacing the existing structure to its original state through reconstruction and repairs. At its most extreme, this could entail re-creating everything that was previously lost. Many preservationists disagree about how far along the spectrum to intervene, and there is still a fundamental divide between those who want to preserve the ruin and those who want to restore the building (Ashworth, 2011; Gharib & Salama, 2014; Salman, 2019).

It's interesting to note that development hasn't been mentioned except as a possible threat to historic preservation (Ortiz & Ortiz, 2016). The aesthetic pleasure derived from experiencing or simply knowing that the preserved object is still around is the only use of the urban space. There is no point in reusing it in any other way. This was enshrined in the "Venice Charter" of 1964, which states that only uses that do not alter the structure or site are permitted for preserved buildings (Erder, 1977; Menon, 1994).

It was the focus of ICOMOS when it was founded in 1964 and has been rethought and reimplemented in twelve subsequent charters. The only goal is to preserve and leave it to future generations, not to use it. The Venice Charter's preamble states, "It is widely acknowledged that we have a shared responsibility to protect these treasures for future generations. It's our responsibility to pass them on in all their authentic richness" (Jokilehto, 1998). All other uses will either be tolerated as long as they don't interfere with the main goal of existence or will be outright prohibited. Conserved historic artifacts and sites are a hindrance rather than a help when it comes to planning or development. Taking illegal demolition out of the equation, there are three possible outcomes.

- i. The historic spaces and structures are kept untouched in the planning processes. Spatial fossilization occurs as evolution and change are halted at such designated places. The Sanchi Stupa at Sanchi, Madhya Pradesh, is an example of this fossilization. Tourists visit this place for only one reason, to see the ruins of the Buddhist complex and experience the grandeur of their construction through the Sanchi Stupa. The condition of the Stupa and residential complex is preserved as it was found, as seen in figures 6 and 7. A similar example in the international context is of the Leaning Tower of Pisa, Italy, where the lean of the main tower in the whole complex is preserved.

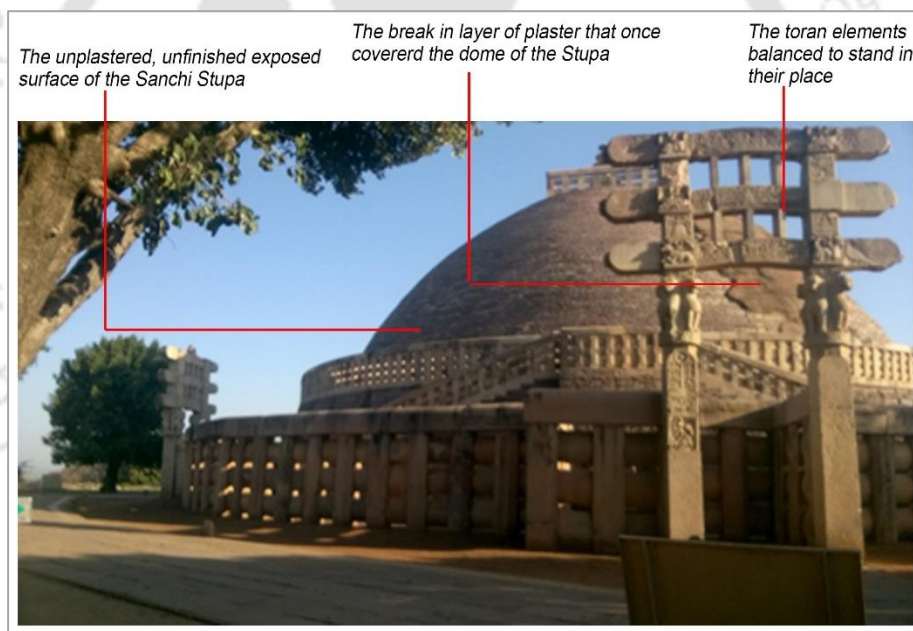


Figure 6. The Sanchi Stupa at Sanchi, Madhya Pradesh, is preserved as a built relic. The structure is preserved exactly as it was found, with minor repairs and structural conservation.



Figure 7. The residential complex of the Sanchi Stupa Heritage Complex has been preserved as it was found. The reservoir is also restored but then maintained and is used only for viewing.

- ii. If the planning process permits and archeological stakeholders agree, the building has developed around it. This way, the heritage structure is better recognized and adds character to the new space.

The designs of such environments can be highly creative and serve as benchmarks. The temple of Bhojpur is an example of this approach. Here the place is developed as a picnic spot for tourists and visitors while the religious value of the temple is restored. When we look at the heritage value of the architecture and built form, minimum consideration is given to it, as seen in figure 8.

- iii. The other approach is by moving the protected structure. It preserves the object while separating it from its original location. The object's structural authenticity is protected at the expense of the ensemble, location, and function's authenticity. This approach is rarely used in India in totality. Instead, the main structure is dismantled into smaller parts and preserved in a

museum. The photographs shown in Figures 9, 10 and 11 were captured while a small temple from a lakeside in Bhopal was documented and moved to a museum.



Figure 8. The Bhojpur Shiva Temple complex near Bhopal, Madhya Pradesh, developed as a picnic destination by creating parks and gardens around the main temple building, yet leaving it untouched by any renovations.

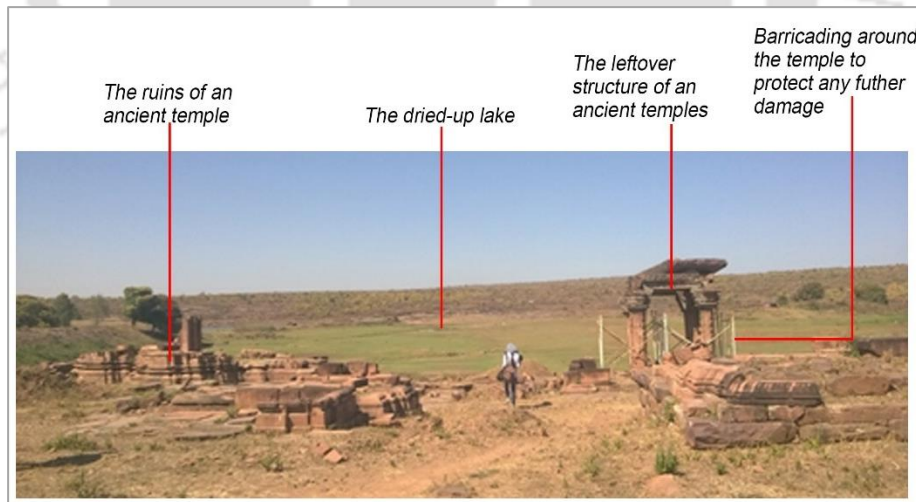


Figure 9. The remains of an ancient temple near Bhopal, Madhya Pradesh, were being taken down and documented for keeping at a local museum.



Figure 10. The remains from the previously mentioned temple, documented and stored at a local museum. The artifacts and structural elements are treated as objects kept in a storeroom.



Figure 11. The main Ganesha idol and other smaller idols from the temple were taken down and stored at the local museum. The idols have been kept open, stored as an object out of context, under neglect.

Soon, it was realized that this process wasn't sustainable in achieving its set goals. The outcome of the preservation approach resulted in protected but dead monuments, which was not the aim of UNESCO. Hence, they slowly transitioned into the conservation approach.

1.3.2 Conservation of the Idea and the Built Form

As a result of the preservation approach in enacting protective legislation, the concept was expanded and modified. Rather than just looking at individual buildings, the emphasis is on entire ensembles. So an interdisciplinary approach was required because one building could be considered an art object, regardless of its purpose, but not a whole historic district. As a result, policymakers have become important to the process. The domain of architects and art historians became intertwined with the policy papers extended far beyond the building or site in question and were instead a component of larger plans for neighborhood renovation, revitalization, renewal, regeneration, and rejuvenation.

Those involved in the methods, attitudes, and goals made the crucial distinction between preservation and conservation. As opposed to the way the term "preservation" is normally used, the term "conservation" here means "preserving purposefully," where contemporary use should be as much a part of the decision to preserve as historical use (Carbonara, 2015; Martokusumo, 2001). In the Indian context, politicians and government officials are becoming increasingly involved in a previously exclusively domain of experts, usually architects (Shah, 2015). The phrase "adaptive reuse" has since become a mantra in local planning departments.

The example of most heritage hotels across the country is an example of the same policy shift. The *havelis* used as homes are now being converted to heritage hotels for an authentic traditional experience. Streets of the Walled city of Udaipur are abundant of such heritage buildings that were either a palace or a *haveli* but are now being used for other purposes.

In figure 12, we see an old *haveli* repurposed into a heritage homestay and an ethnic clothing boutique. Such buildings attract more tourists to experience the built heritage and act as a source of economic generation. Albert Hall Museum in Jaipur is another prime example of the adaptive use approach, seen in figure 13. The old palace building is converted into a museum to maintain the building's exterior and interior structures. The gardens around the palace are now used as major green areas for the public. The initiative has helped generate income for the maintenance of the structure that is an artifact that needs to be protected.

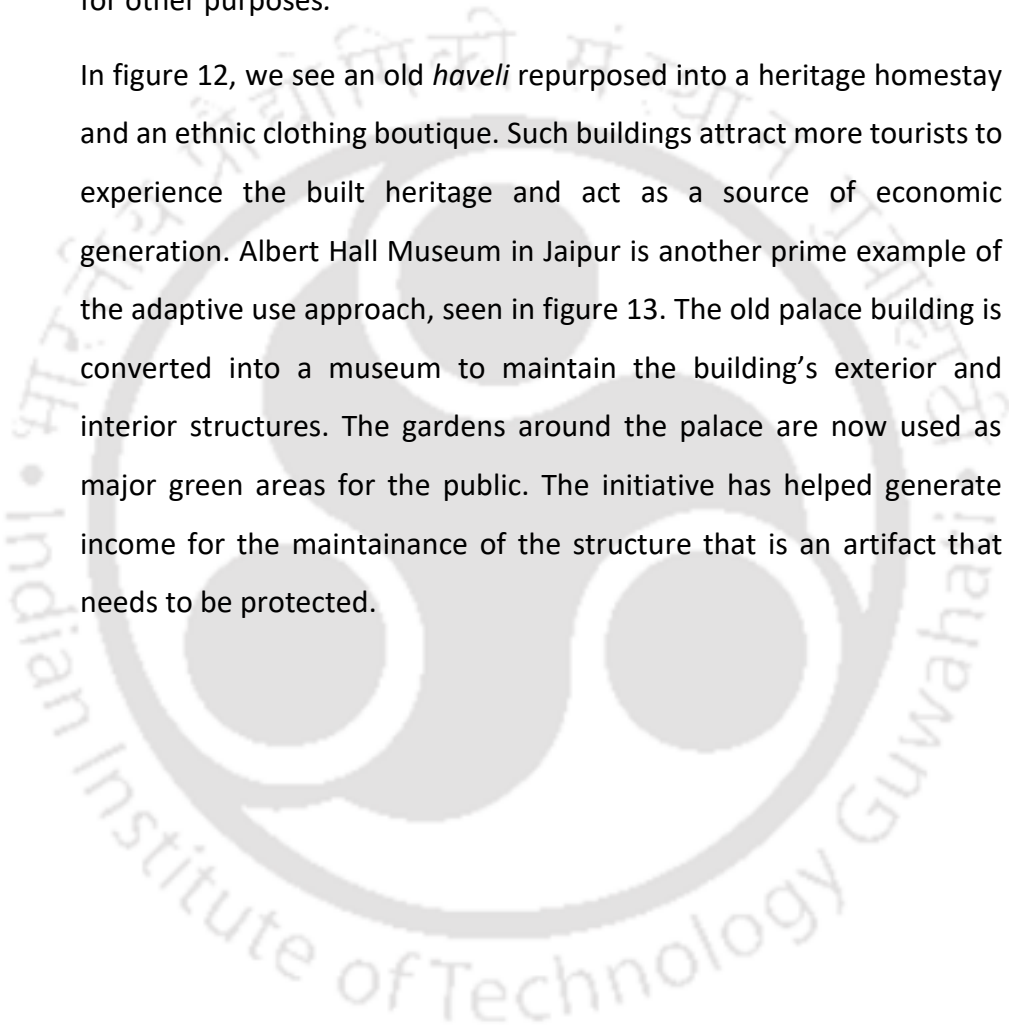




Figure 12. A haveli in Udaipur, Rajasthan, transformed into a boutique in the front for traditional clothing and a heritage homestay at the back.

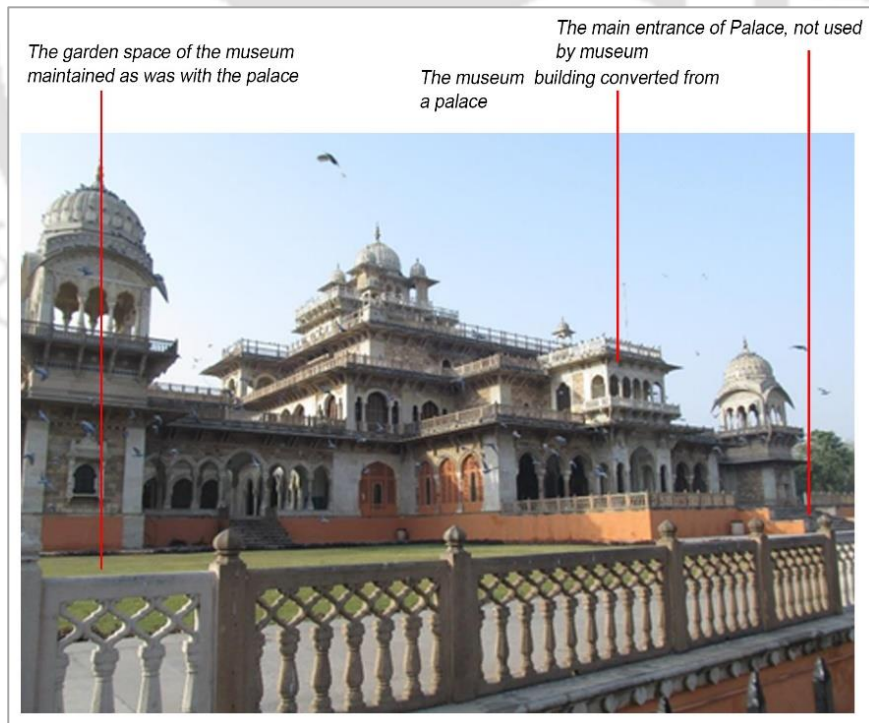


Figure 13. Albert Hall Museum at Jaipur, Rajasthan, was a palace but now is being used as a museum under adaptive reuse.

1.3.3 Heritage Paradigm to Preserve the Essence of Space and Conserve the Built Form

As seen in the conservation and preservation paradigm, the focus is on protecting the structure and the area around it. The preservation paradigm focused on fossilizing the structure while conservation protected it by assigning a more protected use. We observe a shift from object to process and outcome in the two paradigms. Researchers believe that structures and locations promote the transmission of historicity, which helps to meet a wide range of contemporary socioeconomic needs (Elshater et al., 2019; Fibiger, 2011; Fuchs, 2015; Harrington et al., 2017; Leimgruber, 2010; Lu, 2017).

The goal of the heritage paradigm is to use the past by preserving it and using it to satisfy the contemporary space requirements. In this process, relics, memories, and histories are used to create an image of the past that can be seen and used in the present. Heritage is about doing something new, not just preserving what has already been accomplished (Zhu, 2012). The primary time dimensions of the past, present, and future are seen significantly differently by a heritage approach than by a preservation approach. A preservationist believes that the present has the responsibility to select and preserve relics of the past for the benefit of future generations (Ruiz, 2020; Ruiz-Jaramillo et al., 2019).

With the example seen in the last section, questions like how a selection is made, who decides, what criteria are used, and on what authority this selection happens, etc., are raised. A heritage-based approach focuses on the present needs and how heritage from the past can help meet those needs. Future generations will receive the built heritage in its

proper form and modern functions. Researchers believe that the dilemma of preserving or conserving presents a practical challenge (Nor, et al., 2017; Kaur & Garg, 2019; Sen & Nagendra, 2020).

Our built environments are becoming increasingly congested as the attempt to preserve the historic built spaces and monuments has also been going on for past centuries. The increasing population has put pressure on land resources, and we need to rethink our choices of space use and allocation (Alraouf, 2015; Ahmadian et al., 2019; Little, 2014; Parlewar & Fukukawa, 2006; Vardopoulos, 2019). This may seem exaggerated in countries that have not yet developed effective methods for preserving heritage-built environments and the ethos that goes along with them.

If we want to give future generations a choice to make their own decision instead of being bound by the past's preferences, we may have to save historic buildings or districts in a way that the future receives them in a living state. There aren't many precedents for doing this. When a heritage area, district, or city's capacity is exceeded, resource damage, conflicts between users, and reduced user satisfaction occur. These are all consequences of exceeding the resource's capacity for contemporary uses and users.

In all current heritage cities, deliberate decisions are made to make the best use of the existing resources, maintain the historic built environments in their former glory, and provide for current needs (Jain, 2020). As we know that every place on the planet has history, heritage development can also be an option for any so-called non-historic cities, like Chandigarh, India (Chalana & Sprague, 2013; Rodríguez-Lora, et al., 2021; Singla, 2016). Heritage development has been attempted in the

cities that were previously considered non-historic. It suggests that with the heritage paradigm in practice, no location is forced to choose between heritage development and other options because of limited historic built resources.

As a result, heritage planning can be viewed as a response to and a solution to the issues associated with success in urban planning. Aside from the point of cities becoming open-air museums due to fossilization, there is also the issue of cost. Some researchers believe that the price paid to protect a cityscape or architectural masterpiece is inconsequential when we compare it against their revenue (Arnegger & Herz, 2016; Brettmo & Browne, 2020; Hamidi et al., 2020). The heritage is considered a time bomb and refers to the practical and moral commitment to maintaining, repairing, and restoring existing historic structures. It also has an added cost of avoiding alternative development options in the city, which can be of better economic value (Frewen Wuellner, 2011; P. Jones, 2009; Mandeli, 2019). The only way to defuse this is to take a heritage approach that emphasizes reusing the built environment to address modern needs.

In figure 14, we see the historic built environment of the Jaipur, Rajasthan. The place is currently called the Walled City of Jaipur and has mixed land-use. It is primarily a shopping district, with the inner lanes used for residential purposes also. There are some famous religious buildings on the main roads. Here the historic buildings are maintained for active use and also to maintain their original look. This ensures the maintenance of the structures, both visually and structurally.



Figure 14. The Walled City market of Jaipur, Rajasthan, showcasing the built heritage of the historic city and satisfying contemporary shopping and residential needs.

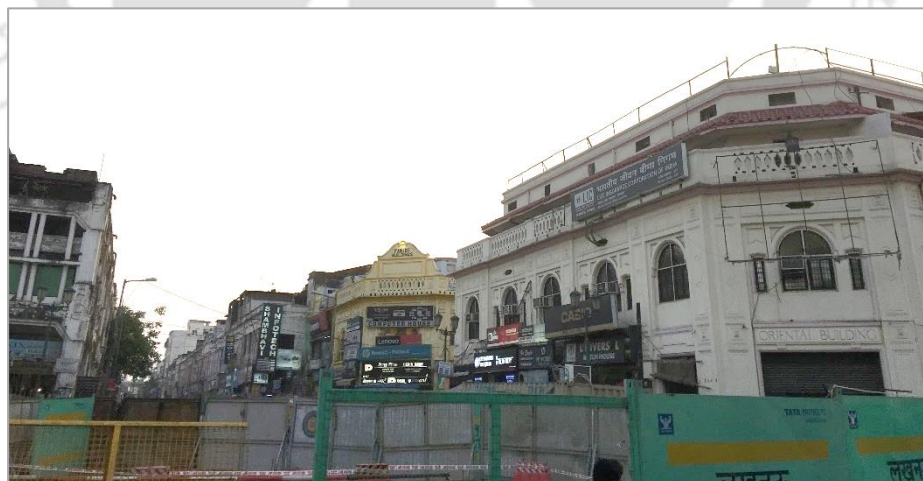


Figure 15. The heritage building in Hazratganj Market of Lucknow, Uttar Pradesh, being used as an office for a bank. The building maintains its outer structure and appearance of a historic building and serves a modern purpose.

Similarly, the marketplaces of Lucknow, Uttar Pradesh, have kept their heritage identity intact and serve the current urban requirements, as seen in figure 15. Three leading marketplaces in the city have developed while maintaining their heritage character (Mishra & Chakrabarti, 2021). The markets are visited by residents of the city and the tourists alike for the heritage and utility value. The built structures do not cover the city land with no role in its development or economy. These spaces address the pressing issue of land scarcity by protecting and maintaining the heritage value of the buildings and generating an economy.

The focus of the preservation, conservation, and heritage paradigm can be interpreted as being on the structure, of the structure and its built environment, and the use and the built environment and its effects on the surrounding, respectively. The major difference in the three approaches is that the first two use structure, but the latter uses its idea. The details of the difference in the approaches have been discussed in table 1.

We see that the idea behind preservation and conservation is to keep the structural integrity of the built form. It is achieved by retention of the structure and replication of the use. In the first strategy, retention happens by renovating and repairing the damages to restore a structure to a stable condition, like the Taj Mahal at Agra and Sanchi Stupa at Sanchi. For the heritage paradigm, the focus is to protect the complete heritage precincts and actively use the built space to satisfy contemporary urban space requirements.

Table 1. Comparison of the three paradigms of UNESCO's approach towards built heritage and the Intangible Cultural Heritage attached.

Focus	Paradigm		
	Preservation	Conservation	Heritage
Goal	<i>Object</i>	<i>Ensemble</i>	<i>Message</i>
Justification	<i>Keep</i>	<i>Adaptive reuse</i>	<i>Use</i>
Time	<i>Value</i>	<i>Value/ Reuse</i>	<i>Utility</i>
Criteria	<i>Past</i>	<i>Past/ Present</i>	<i>Past/Present/ Future</i>
Past	<i>Intrinsic</i>	<i>Preserve</i>	<i>Extrinsic</i>
Focus	<i>Real</i>	<i>Given</i>	<i>Imagined</i>
Authenticity	<i>Complete</i>	<i>Pliable</i>	<i>Experience</i>
Change	<i>Immutable</i>	<i>Adaptable</i>	<i>Flexible</i>
Actors	<i>Experts</i>	<i>Policy markers</i>	<i>Users</i>

In conservation, the identity is replicated in the built form, and the main structure is retained. It is repaired and put to a new use close to the original use, like a *haveli* would be used as a heritage hotel, keeping the same use. In the case of the heritage approach, the built structure and areas around it are restored to the original form, and new uses are assigned to them. The built environment is restored, and the idea behind the actual construction is abstracted for contemporary services.

For example, to appreciate the beauty of the Walled City of Jaipur, seen in figure 14, the market-space concept of the original plan has been

abstracted. High footfall activity has been given to the heritage precinct to increase the appreciating eyes. Corridors in front of shops have been introduced to address user comfort needs of the present times.

Thus, the three paradigms have a different focus on their applications. In the preservation approach, the retention of 'as found' is preferred by securing the built structure in its most stable structural state. For the conservation approach, the utility of space is protected by retaining the 'as found' structure, and the original built form is replicated. The function is restored in a replicated built form and retained built space. The heritage paradigm restores the structure to a usable form and retains its identity by abstracting the built form and uses of the past. The abstraction happens by using the spaces in a creative way and showing appreciation towards the architectural heritage.

1.4 The Elements of Urban Place Identity

From the previous discussion, we understand that the Indian heritage faces extinction. There is a lack of understanding of the heritage components that need to be preserved and conserved. The three paradigms can guide us to protect the built heritage and preserve its essence. We see that both replication and retention have been used as successful tools by UNESCO for conserving the built heritage. This section will discuss the various components of urban design that may help us identify what needs to be protected. The involvement of users in identifying heritage is essential. The parts of built heritage that are important to them can be conserved for a more cohesive heritage identity of built spaces.

To understand the application of the three paradigms discussed in the last section to face the challenges faced by Indian-built heritage and

answer the questions discussed in section 1.1, we need to understand the role of various agents and carriers of heritage identity. The identity of a place can be affected by many external agents generated from political, economic, and social-cultural factors. In urban design, the physical built environment and architectural elements play an important role in the identity creation of the place. The physical elements and user roles influence the experiences of users, which in turn affects identity. In this section, we will discuss these factors in detail.

When we talk about a place, we address our experience of a space with a specific physical form, our interactions with the activities happening there, and the meaning those activities and forms give to the three-dimensional space (Bernardo & Palma-Oliveira, 2013; Proshansky et al., 1983; Qazimi, 2014; Shach-Pinsly & Porat, 2016). Meaning is dependent on a person's understanding, experiences, and psychology. These different types of experiences generate different perceptions. The place identity is determined by studying the physical factors impacting perceptions, and the semantics of it play a vital role in it (Casakin & Bernardo, 2012; Hernández et al., 2010; Qazimi, 2014; Riza et al., 2012). The cultural characteristics of a place impact its user's perceptions. The manner in which a place answers to the functional needs of users directly affects its place identity (Kiruthiga & Thirumaran, 2017; Salvia & Morello, 2020). The physical and psychological components in the user's experiences in a space deeply affect their assessment of a place and, in turn, its place identity (Comstock et al., 2010; Lara-Hernandez & Melis, 2018; Lewicka, 2011; Rollero & De Piccoli, 2010b; Tsaour et al., 2014).

Place attachment is an emotion experienced by users of a place with their immediate surroundings. People feel attached to the place when the users have a strong bond with their surroundings, and the place can satisfy their functional needs. The users identify themselves with the place, and it is significant for their social processes (Ramkissoon et al., 2013; Rollero & De Piccoli, 2010b; Shaykh-Baygloo, 2020).

When we talk about the imageability of a place, the cultural context of a space user becomes the primary factor. Other factors that also affect imageability are the activities, meanings, and level of place attachment. Several researchers agree that a place's image impacts the people's identity and supports the community's socio-cultural values (von Wirth et al., 2016; Xu & Zhang, 2016; Zia et al., 2014). The tendency to find place attachment, a sense of belonging, association with the activities, and interpreting the meaning of the immediate built environment form the identity of a place.

1.4.1 The Elements of Urban Design

All cities have a public image that is always overlapped by individual images of the residents (Lynch, 1960; Brown, 2010; de Groot & Steg, 2010; Hall, 2008). A place likely has groups of people or communities that carry a unified image of the city that is different from other groups. These groups make people experience a sense of belonging and give them a sense of place. (Arnegger & Herz, 2016; Carta, 2013; Colombo et al., 2015; Frewen Wuellner, 2011; Gilboa et al., 2015; Heidari & Mirzaii, 2013; Kopf et al., 2010). Each individual has a unique picture in their mind that approximates the public image, which is similar according to the environment and different through experiences.

The analysis of the image of the city by Kevin Lynch shows that the researcher has studied only the physical components of an urban environment (Lynch, 1960). Other factors that influence the image are the social demarcation of a place, associated activities, history, name, etc. (Heidari & Mirzaii, 2013; Kiruthiga & Thirumaran, 2017; Lopes, 2010). The old debate of 'Form Follows Function' or 'Function Follows Form' applies here. According to Kevin Lynch, the physical identifiers for an urban built environment can be experienced at these five elements: paths, edges, districts, nodes, and landmarks.

These elements may be defined as follows:

- i. Paths- Paths are the movement trails a user usually follows while navigating in an urban area. They may be streets, walkways, transit lines, canals, or railroads. For many people, the architectural elements lined in these paths dominate their image of the place. For example, figure 16 shows a well-used road along the lake Fatehsagar in Udaipur, Rajasthan. It is a motorized traffic road, and people mostly use it for site-seeing. This path is also very popular with cyclists and joggers and acts as a hub for the morning workout location for the city residents.



Figure 16. A road in Udaipur, showing vehicular and bicycle movement, along the lake Fatehsagar. It is a frequently traveled path for those who come here site-seeing and morning exercise.

- ii. **Edges-** Edges are also similar to the paths in physical form. They may often be confused with the path users use to transit and observe a place. The difference lies in the purpose of their existence. Paths are a linear mode of observation and movement, whereas the edges are made to block the same. Edges are boundaries between two phases, like shores, rail routes, edges of development, walls, ring roads, etc. Such edges close one region off from another, or they may be seams, lines along which two activity districts are related and joined together.

The boundary wall seen along the road in figure 17 acts as an edge for the road users. It separates the activities happening inside the built complex and the road. The boundary wall segregates the activity and ownership of the spaces visible in the photograph.

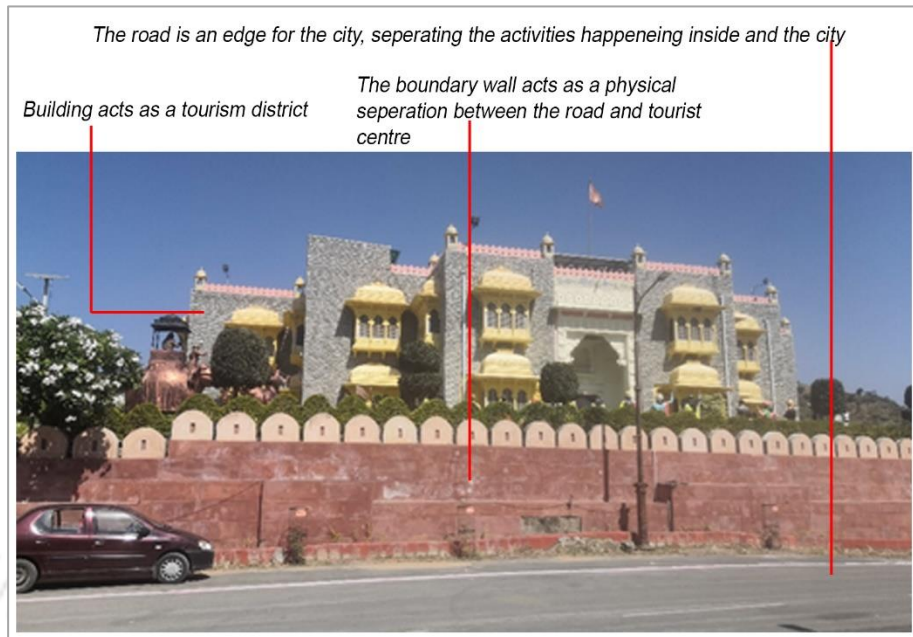


Figure 17. Pratap Gaurav Kendra at Udaipur, Rajasthan, is a tourist destination spot with an indoor and outdoor facility to educate the tourists about the golden history of Maharana Pratap. The boundary wall acts as an agent for the segregation of tourist activities inside the building complex and the access road.

- iii. **Districts-** Districts are the activity sections of a city where the edges demarcate the end of an activity and the start of another. They are always identifiable from the inside and used for external reference from the outside.

The campus of the Indian Institute of Technology Roorkee is an educational district. The main gate of the campus, shown in figure 18, acts as a threshold point for the segregation of the city and the campus activities. The 'restricted entry' board maintains the right to limited access into this educational district. It shows that the activities happening inside this closed campus are different from the ones happening outside its boundaries.

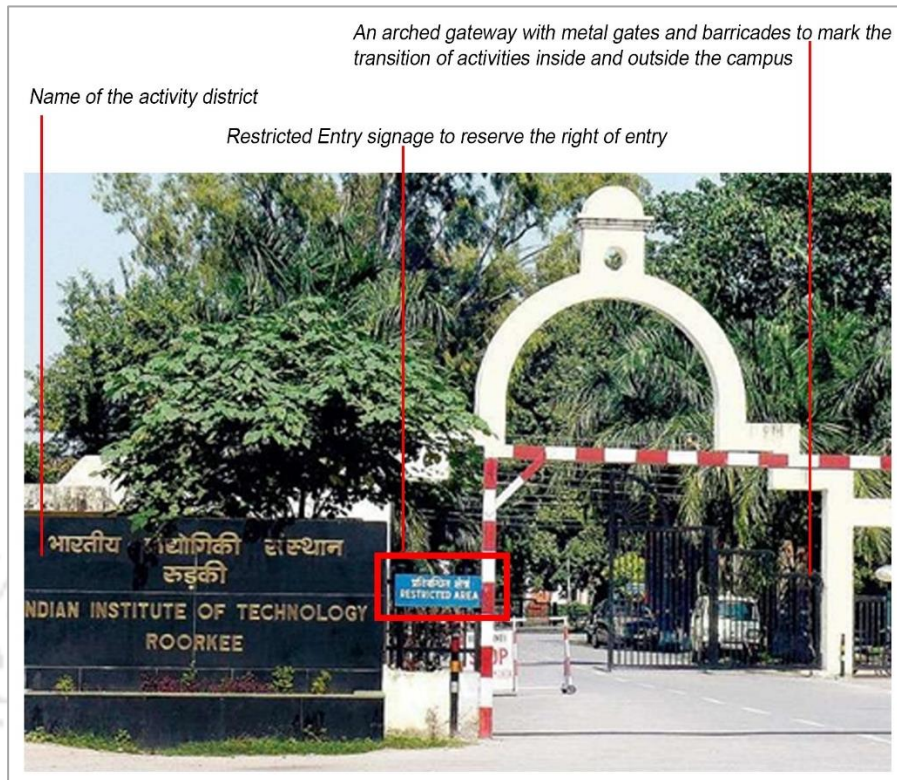


Figure 18. The entrance gate of IIT Roorkee segregates the Institute campus from the rest of Roorkee city. The institute campus is an education district, and the gate marks segregation of activity beyond this point. The 'restricted entry' board characterized the limited right to entry.

- iv. Nodes- Nodes are strategic spots in a city that allow users to observe the place from a vantage point.

The Statue Circle of Jaipur, Rajasthan, is an example of a node that serves all of the aforementioned purposes. In figure 19, we see the statue of Sawai Jai Singh II, the founder of Jaipur. The statue is at a road intersection and surrounded by lawn and garden space for the public. It is a transit point for the public transport users and a hangout place with eateries and food stalls that come up during evening hours.

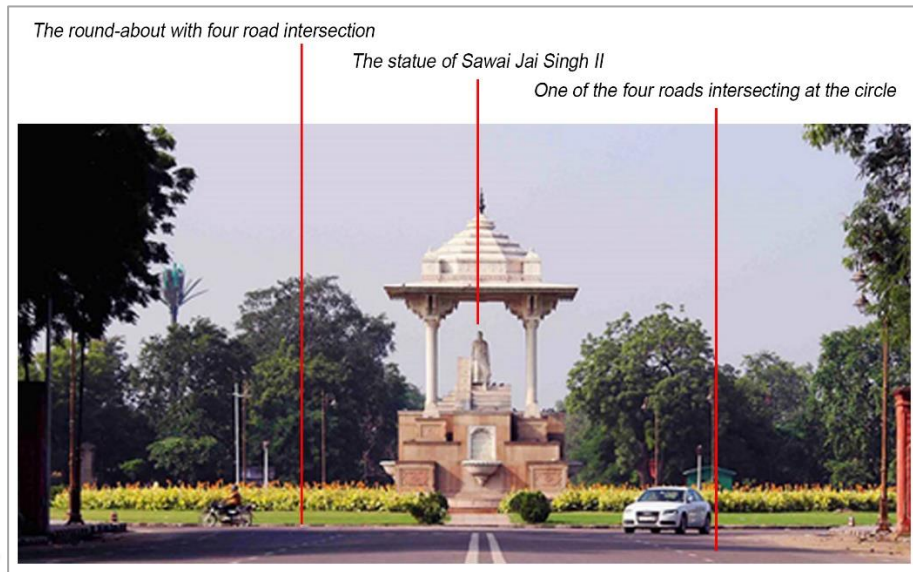


Figure 19. The Statue Circle of Jaipur is a node of the intersection of four roads. It has a statue of Sawai Jai Singh II.

- v. Landmarks- Landmarks are external reference points for a user to interact with the city visually only. The user does not have a physical interaction with the landmarks. Some examples may be: buildings used to orient oneself, signs, stores, or mountains. For example, in figure 20, we see Our Lady of Lourdes Church from Tiruchirapalli, Tamil Nadu. It is situated near Thayumanavar Swamy Temple Teppakulam on St. Joseph College Road. The church acts as a major landmark for the city and is a busy bus stop. The people who intend to visit the temple or the nearby market get off from their means of public transport at the Church. They do not enter the church but use it as a landmark for their commute.

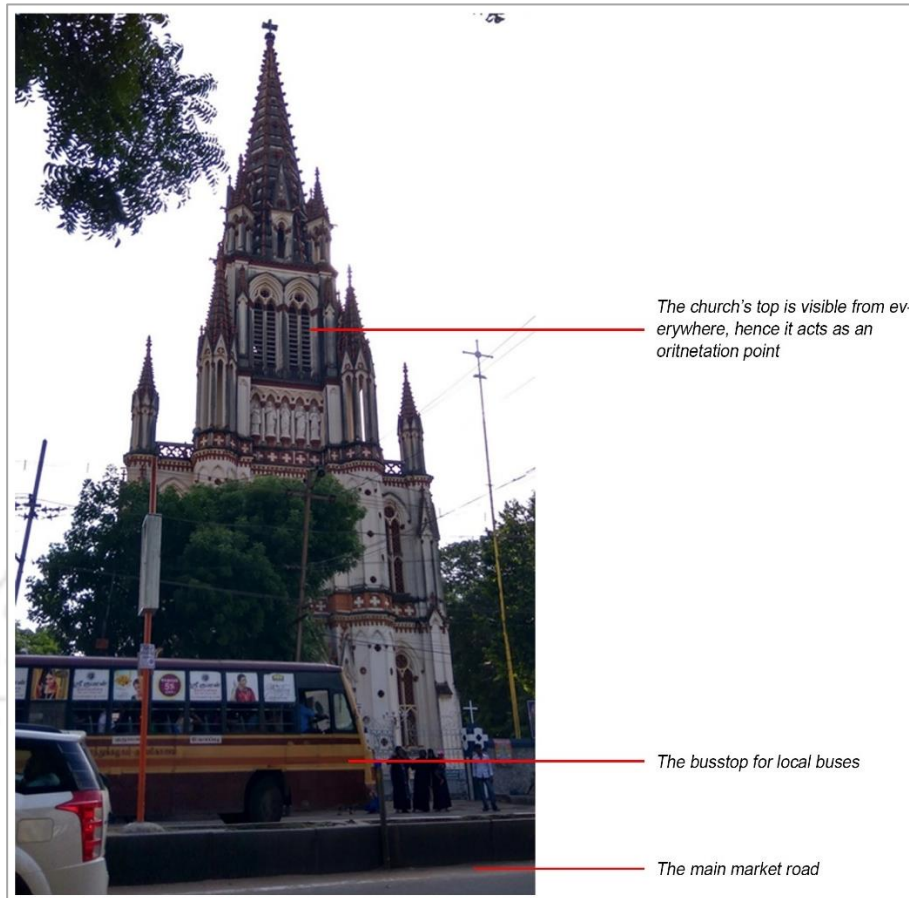


Figure 20. Our Lady of Lourdes Church from Tiruchirapalli, Tamil Nadu, is a popular tourist destination. People often use it to orient and identify themselves while commuting in the area.

1.4.2 Architectural Elements that affect the Place Identity of a City.

The success of a sustainable urban built environment is affected by the creativity that addresses its users' emotional, physical and psychological needs while being aesthetically pleasing. The creativity with which a city represents its identity affects its place identity. The identity-creating elements may be the main structures of the city, the circulation and transportation systems, the open green space, or the punctures between them (Hemmati, 2016; Herazo & Lizarralde, 2016). To create a holistic urban streetscape design, researchers consider the city as a living system, with a complex intertwined fabric of the structures, activities, and service flows (He et al., 2019; Jones, 2007; Montgomery, 1998; Rehan, 2014).

Various components of the built environment affect the mental image of a place. The users can interact with these elements at any path, edge, district, node, or landmark (Oktay, 2002; Parkinson et al., 2017). Cliff Moughtin, in his book 'Urban design: street and square,' has discussed these elements (Moughtin, 2007). They range from street furniture to the buildings to the land-use pattern of the area. The same author in his book 'Urban Design: Ornament and Decoration' has divided talked about these elements in depth (Moughtin, et al., 1999; Biddulph, 1996). He has divided these elements based on their locations and usage.

The architectural features that help create identity are listed below in table 2. These elements are seen in almost all types of streets in every city district, irrespective of the activities happening there. The elements are a part of the architectural façade that users interact with, consciously or subconsciously, and create an image of the city.

Table 2. The architectural elements in a built environment, seen in an urban setting, can create identity in the mind of users.

S. No.	Element	S. No.	Element
1	Bay of windows	2	Balcony/ decks
3	Porch / veranda	4	Roof decks
5	Canopies	6	Roof Form
7	Roof Shape	8	Material
9	Roof Material	10	Trim Style
11	Wall Texture	12	Trim Material
13	Siding Style	14	Fenestration
15	Railings	16	Windows Style
17	Foundation	18	Window Material
19	Storefront	20	Window Shape
21	Colour Scheme	22	Door Style
23	Landscape and Site Works	24	Door Material
25	Trees and Shrubs	26	Door Shape
27	Fences and Rails	28	Retaining or Boundary Walls

The theory of urban design can be developed by using these elements. Informed use of these architectural elements in urban space can shape a strong identity of the place. The pattern and distribution of these major elements in the city enhance the overall experience of the spaces and create an everlasting impact on the people of the place. The

elements mentioned above can be used together or in some combination while urban expansion to maintain the place identity.

The features have their purpose on the building façade either structurally or for ornamentation. The architectural elements make a building stand out from its environment or make them look like a part of a system. The image shown in figure 21 depicts a residential building that has abstracted the architectural elements from the long list of façade elements discussed in table 2, recreating the identity of Udaipur city in Rajasthan. The inspiration of this exterior is taken from the traditional-style buildings of Udaipur, the most famous being the Lake Palace in lake Pichhola, shown in figure 22.



Figure 21. A house in Transport Nagar Extension, Udaipur, Rajasthan built using traditional architectural elements on the exteriors and white color to depict Udaipur.

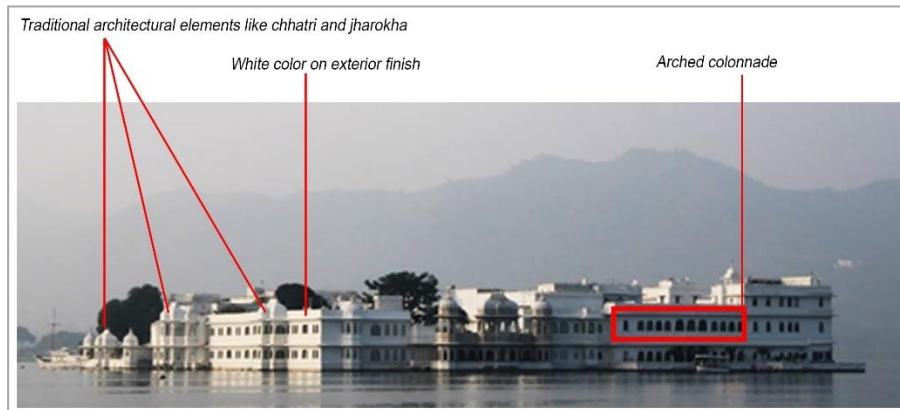


Figure 22. The Taj Lake Palace of Udaipur, Rajasthan, in lake Pichhola, has a white exterior with arched fenestrations on the exterior.

1.4.3 The User Roles and Cultural Impact on Place Identity

We have discussed previously that physical features and appearance play an important role in influencing the sense of place. A clear image of the city makes it more legible for the users and organized overall (Alvarez et al., 2017; Bar, 2004; Gomez & Gonzalez, 2001; K. Liu et al., 2020; W. Liu et al., 2020). The elements of urban design influence the legibility and imageability of the place (Cooper et al., 2010; Lynch, 2005; Zia et al., 2014).

The Indian cities are multicultural with layers of architectural influences, and this layering affects how users perceive places. A responsive space can accommodate human activities and allow positive interaction between the user and its built environment (Colombo et al., 2015; Liu et al., 2020; Martinelli et al., 2015; Torabi et al., 2020). In this regard, the activities associated with a built environment strongly influence the people's perception of it. In the context of Indian built heritage, the activities happening in an area can influence the image of the city. For example, from the previous examples of retention as a

monument, replication as a museum, or being treated as heritage and abstracted to living urban public space.

The best urban spaces are physically, economically, and socially diverse and self-sustaining (Marinero, 2019; Marinero & Solimene, 2020; Kopnina, 2014; Little, 2014; Ojeda & Pino, 2019; Perrone, 2019; Talen & Jeong, 2019). These places have a constant dialogue between the architecture of the space and its users. The positive dialogue between a space user and the built environment encourages safer public image. While we plan these urban heritage spaces in the modern context, the user's perception needs to be considered. Authorities can utilize the positive public image for the destination branding of the city and use it for tourism.

Placemaking is successful if people feel comfortable in it, emotionally, physically, and psychologically (El Asmar & Taki, 2014; Hermida et al., 2019; Ruggiero et al., 2009). Just like legibility and imageability, comfort in an urban environment can also affect the image of a place (Hamidi et al., 2020). The users of a space feel safer and more secure in the presence of other people and open spaces (Comstock et al., 2010). If a street is not safe and comfortable, it creates a negative image of the place and negatively impacts the place's identity. Using the concept of 'eyes on the streets,' given by Jane Jacobs, the built environment can positively impact safety and comfort issues (Wekerle, 2000).

Users are an important part of urban space, and their activities and experiences collectively impact the image of a place (Raymond et al., 2010, 2011; von Wirth et al., 2016; Xu & Zhang, 2016). The socio-cultural backgrounds of users affect their ability to use a space and to perceive it, which is a big player in the place's identity (Lewicka, 2013).

Thus we can safely assume that the different types of place users will have a separate place identity in their minds. The users may be frequent visitors of the space or the people dependent on the place for income. They can be the people who rarely use the area or people who visit the place for leisure. The idea of replicating the heritage structures or abstracting the heritage identity will be influenced by the purpose of engagement and level of attachment with the place.

Their cultural and heritage sensitivity hugely influences the user's reaction towards heritage. Also, research has shown that it involves the cultural significance heritage has for society as a whole (Alharbi et al., 2015; Alitajer & Molavi Nojourni, 2016; Burcher, 2005; Cervero & Bosselmann, 1998; Dawodu et al., 2017; De Luca et al., 2011). In a case of a multicultural society such as in India, it is understood that cultural significance varies as per cultural and traditional groups, and thus, the place identity also varies (Bandyopadhyay, 2008; Bandyopadhyay et al., 2008; D'Mello & Sahay, 2007; (Saeverin, 2005)).

The focus of a successful approach towards the heritage is on the influence of affective and functional aspects of the historic built space on the current urban space. It is affected by users' individual experiences and perceptions, and the society and community have significance in shaping place identity.

1.5 The User's Perception Towards the Architecture of the Place

With rapid urbanization and space crunch faced by cities, an individual's experience and affective bonds with places have a renewed interest, as reflected in place attachment research (Beery & Wolf-Watz, 2014; De

Dominicis et al., 2015; Rollero & De Piccoli, 2010a; Smith et al., 2011; von Wirth et al., 2016). The relationship between people and the built heritage may be affected by tangible and intangible dimensions. The issue of social action that is local participation and policy decisions has often been connected to the successful operation of a heritage-built environment (Bibri, 2018). A strong attachment with the built space would imply higher motivation to preserve it in the best possible way (Hély & Antoni, 2019; Martin et al., 2019; Nam & Pardo, 2011).

The users of a place experience their environment both as individuals and as a social group of inhabitants (Halpenny, 2010; Hernández et al., 2010; Lewicka, 2011; Najafi, 2011; Raymond et al., 2010; von Wirth et al., 2016). In other words, place attachment and identity creation are emotional and cognitive processes that contribute to the individuals' bonding to their environment. The physical features of a built environment and its mental image for the users contribute to a user's place attachment (Cherfaoui & Djelal, 2019). In a historic built environment, the mixture of old and new buildings, historic building façades, and traditional space maintains the heritage's essence (Pendlebury et al., 2004; Reshetnikova, 2019).

A city is experienced by its residents and visitors (Devine-Wright & Howes, 2010). The residents can be permanent or temporary, depending upon their birthplace. The temporary residents are the ones that come to the city, generally for employment, and choose to settle there permanently. The permanent residents were born in the city and have lived there. The visitors are the tourists that come to a place to appreciate and experience the beauty of the city's heritage.

The level of attachment to the city of each type of user is different, and hence the mental image will be different (Ilbeigi et al., 2019; Smith et

al., 2011). This can be explained by the use of heritage precincts for all different types of users. While the permanent residents experience a strong sense of identity and dependency on the heritage of the historic cities and towns, the visitors or tourists are attached to the functional attributes of a heritage city, like tourism and shopping that serve their purpose of livelihood and entertainment (Ujang, 2012). This section will discuss the different perceptions and their application in the tourism industry.

The attributes and features of a built environment reflect in our experience of places that govern our identity of these places (Pratiwi, et al., 2021). Researches agree that the traditional streets successfully sustain their popularity for visitors and tourists, but the residents are often unhappy with the current preservation plans (Bibri & Krogstie, 2017a; Dadashpoor & Ghazaie, 2019; Dall'O' et al., 2017; X. Gu et al., 2020). Some residents have growing complaints about the loss of heritage place identity due to the failure to identify the actual identity-creating elements and restore them by beautification and space improvement projects like the Smart City Programmes (Bibri & Krogstie, 2017b; Bunders & Varró, 2019; Edge et al., 2020).

However, traditional tourist spots in a city are perceived as more unique for a heritage city than a modern tourist spot (Bandyopadhyay et al., 2008; H. Gu & Ryan, 2008). In this way, we understand that the popularity of a historic city as a tourism destination to sustain itself is possible, but we must consider the user perception while developing. The user perception will vary with the user groups and their level of attachment and engagement with the place.

The length of association, a user, has with their built environment and the familiarity with which they navigate a place can influence the

degree of comfort, which decides the level of interventions they are ready to accept in a heritage precinct (Cai et al., 2019). All the psychological and physical discomfort that arises due to the lack of public facilities fades, and the residents feel psychologically comfortable in the streets of their hometown, a place they feel attached to (Ruggiero et al., 2009; Seduikyte et al., 2018). This might be due to familiarity with the streets and the immediate surroundings (Ujang, 2012). The permanent residents experience higher comfort levels than the temporary residents. The visitors feel major discomfort due to the lack of facilities. The permanent residents show a higher level of connectedness to a city than the temporary. The level of connectedness for the tourists ends with the heritage precincts (Devine-Wright & Clayton, 2010; O'Brien et al., 2014; Smith et al., 2011; Spartz & Shaw, 2011; Williams, 2020).

In a historic town, the permanent residents are more attached to a place and tend to resist change in the built environment (Horgan & Dimitrijević, 2019). The heritage precincts must be restored for the public but must be in constant use to answer the needs of the residents (Akande et al., 2019). The space is more valuable as a living tradition and culture than a dead tourist spot (Hamidi et al., 2020). The quality of the physical environment affects the physical and psychological well-being of regular users.

The significant differences in the image of the place and its identity between the three groups can be understood by looking into the types of identities. Place identity is formed by three dimensions referring to social identities' cognitive, affective, and evaluative components (Belanche, et al., 2017). The cognitive place identity for a city with strong historical and cultural background is very strong for the residents

but lower for the tourists (Anton & Lawrence, 2016) (Belanche, et al., 2016).

The tourists primarily relate to the physical attributes of the historic districts of the place, and hence the affective and evaluative place identity is higher (Dixon & Durrheim, 2010). We understand that the permanent users would focus on revitalizing the whole area for a heritage tourism district rather than preserving the structure. By restoring the historical built form and developing the whole place as a business district, the whole city would benefit (Gomez & Gonzalez, 2001). This is a successful way to attract tourism in a historic town and maintain its heritage value.

1.6 The queries related to the effects of architectural heritage and its user perception on place identity

From the previous sections, we learned that a place's architecture influences its image in the minds of its users. Depending upon their experiences and involvement with a built space, users have different perceptions of the place. The collective image of a place for the community represents its place identity. The built heritage of a place combined with its intangible heritage can be used to restore the sense of place and reinstall a sense of belonging in the users' minds.

Three paradigms have been discussed as solutions to protect a city's built heritage while keeping its essence intact. The identity-creating architectural elements from the built environment can be either replicated or abstracted with their cultural significance to restore the place's identity. But with all the discussion in the previous sections, the following five questions come to mind.

1.6.1 What is people's perception of architectural heritage while expanding?

The first question is related to users' perception of a place and if they would like to maintain a city's identity during urban expansion. It is necessary to understand that the users need to feel connected to a place by appreciating its built heritage. They must be willing to conserve cultural heritage's tangible and intangible aspects while addressing contemporary space needs.

1.6.2 What may be elements of the heritage-built environment that generate an identity?

When we talk about the place identity, we focus on the relation between the users of a space and their physical environment. The activities in a built space affect the user experiences, which create an image of the place. If we look at the built area and focus only on the tangible aspects of the built space, the architecture becomes a significant player. If we can identify the elements that help create a strong mental image, we can maintain the identity in future developments.

1.6.3 What strategy must be used during new development, crude replication of the built environment, or abstraction of the architectural elements?

This is an important question that needs to be answered as it is the user perspective that would decide whether we replicate or abstract the place identity in future development. The study will look into the two concepts of abstraction and replication to clear out the confusion.

1.6.4 Would replication or abstraction give the same feeling as the original heritage-built environment?

The concept of replication and abstraction are new to this area of study and need to be explored in depth. But the bigger question is whether replication of the built environments that were created centuries ago is an intelligent decision or not. It may be possible that the repetition of architectural elements from historic built environments makes the city monotonous and suffocating for the daily users. Abstraction can be viewed as a modern approach to historic towns and seems out-of-context. Thus, the decision-makers need to inquire into the common perception of people towards the two concepts and decide on a better fit.

1.7 The identified niche in research to answer research questions: Research Gap

A literature review is done following the S.R.A.M. model given by Dr. Hiren Patel, a doctorate in education and a B.E. in mechanical engineering. The name S.R.A.M. stands for Sourcing, Reviewing, Articulating, and Manuscripting of the review document. The major steps involved with sourcing start from top high-end journals like Cities, Sustainable Urban Development, et cetera. After identifying the most cited paper, the title was copy-pasted in Google Scholar Website, which led to Google Scholar suggestions for identifying the relevant articles to begin. The process was repeated multiple times unless fifty percent of the relevant papers shown by Google Scholar suggestions were already shortlisted. The same process was repeated on the Web of Science, I.E.E.E., and Scopus websites. The following two pie charts, shown in

figures 23 and 24, are generated from the Scopus website showing the trends for keyword search of place identity, and architecture and urban design.

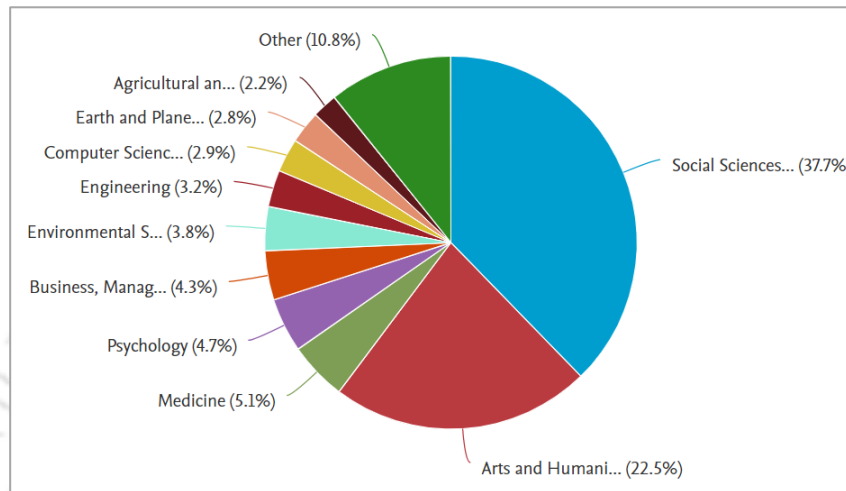


Figure 23. Data trends pie chart generated from Scopus website, showing the contribution of various fields in Place Identity research.

It is seen that when we search for place identity, most of the work is done in social sciences and arts and humanities. In architecture and urban design, most work is done under engineering, followed by computer science and social sciences fields. We did not find much research on place identity and architecture together. Similarly, architecture and place identity and urban design combined are the fields with limited research publications. It may be interpreted that these fields are lacking in integrated research that contributes to the factors from the physical built environment that create place identity.

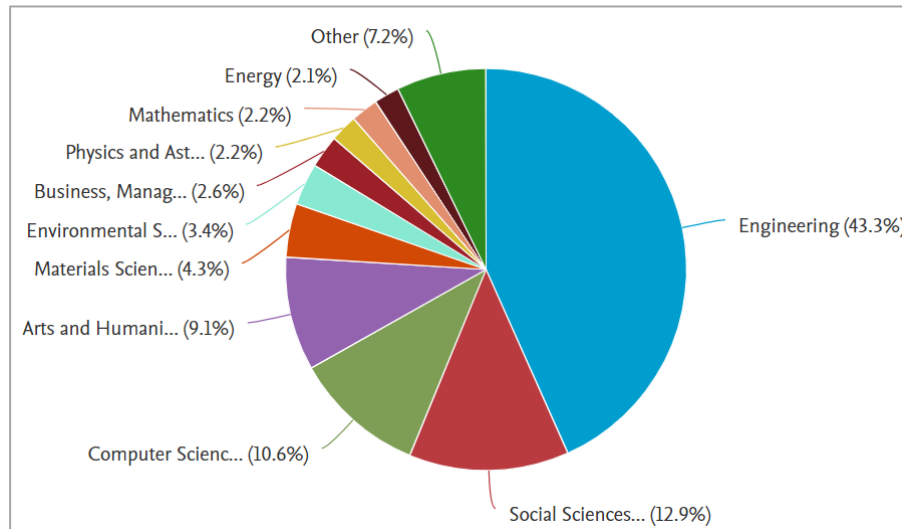


Figure 24. Data trends pie chart generated from Scopus website, showing the contribution of various fields in Architecture and Urban Design research.

The previous discussions show a need to look into the physical elements of a historic built environment to maintain the identity of a heritage town. But we did not find research on the architecture of a heritage city that considers user perceptions and identifies the place identity. Thus, we shortlisted the fields for research articles in urban design, sustainable built environment, identity design, place identity, sense of belonging, architecture, the heritage of Indian cities, etc. From the above-mentioned key areas, almost 4500 papers were downloaded and categorized according to their fields.

The matrix of the fields is discussed in table 3. From the matrix, after first shortlisting fields such as computational intelligence, biomedical, healthcare, transportation management, computer science, etc., were removed as they did not fit the context of the study. The papers from these fields were also discarded. The table shows the different areas and their rejection and acceptance for this study.

Table 3. The fields of study related to architectural place identity of Indian heritage cities and their acceptance/ rejection status.

S. No.	Field	Accepted	Rejected
1	Architecture and Planning	✓	
2	Urban Design	✓	
3	Branding		✓
4	Law		✓
5	Tourism Studies	✓	
6	Psychology	✓	
7	Business Studies		✓
8	Economics		✓
9	Culture Studies	✓	
10	Humanities	✓	
11	Tribal Studies		✓
12	Computer Science		✓
13	Information Technology		✓
14	Geography		✓
15	Earth Sciences		✓
16	Political Science		✓
17	Environmental Science	✓	
18	Business Administration		✓
19	Performing and Visual Arts	✓	
20	Public Management		✓
21	Language		✓

22	Education		✓
23	Computational Intelligence		✓
24	Bio-medical		✓
25	Healthcare		✓
26	Renewable energy		✓
27	Transportation management		✓

This led to almost 1500 papers being short-listed, and the rest were removed. The keywords from these papers were taken out and categorized according to the field of study. Keywords included place, home, identity, image, city branding, urban branding, livability and indicators, place identity theories, architectural identity, public spaces, urban design approaches, architectural heritage, city image, the contemporary role of historic areas, etc.

Upon careful examination, these keywords were again categorized under heads such as place, identity, cultural identity, the image of a city, architectural heritage, architectural identity, etc. The number of papers that went under the different categories is shown in table 4. totaling up to 880 papers. The following matrix shows the number of papers from each category and the journals focused on each of them.

Table 4. The total number of papers shortlisted in each category, their percentage contribution to the total, and their journals.

S. No.	Field	No. of papers	Percentage contribution to the total (approx.)	Journal focused
1	Architecture	172	21%	Frontiers of Architectural Research
2	Culture and Heritage	170	21%	International Journal of Heritage Studies
3	Identity	91	10%	Journal of Environmental Psychology
4	Place	72	8%	Cities (Elsevier)
5	Smart City	66	8%	Sustainable Cities and Society
6	Sustainable Urban Development	175	20%	Sustainable Cities and Society
7	Tourism	51	6%	Cities
8	Test and review	48	6%	Frontiers of Architectural Research

The second step for using the SRAM model is Reviewing. It starts with organizing the downloaded papers by renaming them and putting them into folders. It is followed by reading and classifying them into

appropriate fields. A single-line summary is written for each paper, and based on the summary. The articles are re-sorted. This leads to the preparation of a list for prioritizing the documents of maximum importance to this study. According to this list, papers are reread a second time to identify the research gap. Here, the identified research gap is mainly because architecture and urban design are still not linked with place identity from an architect's perspective.

The next step of the SRAM model is articulating the literature research. It starts with organizing the literature and summarizing the work on paper, leading to creating the first draft. This first draft is read again to articulate and rewrite it more meaningfully. From here, the last stage of this model is achieved: manuscript. A comprehensive document to illustrate the key findings from the literature is created.

By following the SRAM model of literature review, we concluded that the most significant research gap in this area of study exists due to a lack of research in the field. Thus, we have addressed the issue of identity loss in historic towns of India. The built heritage of these cities might be replicated or abstracted during urban expansion or revitalization. The users' perspective for these projects is identified to be a key component in identity creation and needs to be considered when proposing new developments. To answer the research questions raised in section 1.5 and address the identified research gap, we made a study plan that started with hypothesis generation, which is discussed in the next section.

1.8 Research hypothesis

To answer the research questions mentioned in section 1.6, we did a literature review that suggested the research gap discussed in section 1.7. To address the research gap, we have to make certain assumptions. From the literature, we found that a city's residents crave a sense of place and a sense of belonging. It makes them feel connected to the city. At the same time, the tourists also want to visit places with a strong place identity, as it is more attractive to them.

Thus, we understand that a place of reputation has a stronger place identity and has a strong image. Also, we can safely assume that when new development happens as a part of an urban expansion or as a tourism facility development, the people would like to maintain the city identity. The users might want to replicate the heritage-built environment completely in the new development or abstract its elements for application.

The choice is in the hands of the decision-makers to address the issue of identity crisis by following any three of the heritage protection paradigms discussed earlier. To strengthen the place identity, architects, urban planners, and designers can either use the concept of replication or abstraction. The built heritage may be preserved by restoration, subjected to adaptive reuse for conservation, or revitalized using the heritage paradigm. This generates the following hypothesis, which is the base of this study:

While attempting thematic expansion of a place, identity creating architectural elements of the original can be used either by crude replication for the utilitarian experience or abstracted to appreciate its essence to reinforce the place identity.

1.9 Aim and objectives

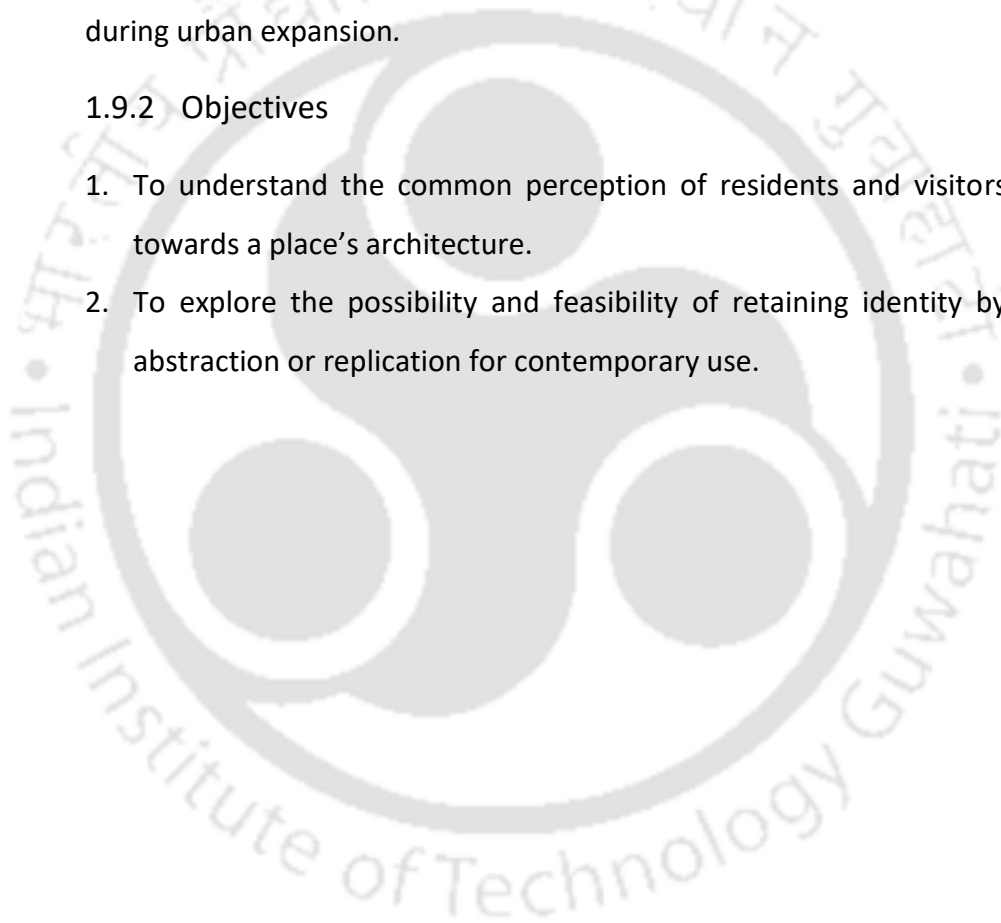
This study was conducted to answer the research questions and check the validity of the hypothesis. The aim and objectives of the study are discussed.

1.9.1 Aim

The study looks at the common perception of visual architectural elements that create place identity for a heritage city and maintain it during urban expansion.

1.9.2 Objectives

1. To understand the common perception of residents and visitors towards a place's architecture.
2. To explore the possibility and feasibility of retaining identity by abstraction or replication for contemporary use.



1.10 Study approach

This study is a qualitative inquiry into the fields of architecture, urban design, and place identity to converge the research gap between these fields. Qualitative research approaches the subject matter according to the researcher's interpretation and relies on the ability of the researcher to study topics and subjects in their natural environment. It considers the semantics and semiotics behind the responses given by respondents and tries to analyze them (Denzin & Lincoln, 2011). This study takes into account the user perspective in the cities under investigation.

We have used purposive convenience sampling for the user surveys. Convenience sampling provides ease for the selection of target population members. The selection of respondents from a chosen target population is based on the researcher's feasibility, such as language, easy accessibility, geographical proximity, availability at a given time, or willingness to participate. This makes it a non-probability or non-random sampling method (Etikan, et al., 2016). Purposive sampling can be considered a subset of convenience sampling where the respondents are chosen subjectively (Valerio, et al., 2016).

Either of the two methods can be chosen for observational research but they include the researchers' biases while shortlisting (Klar & Leeper, 2019). For experimental research on small identity groups, the purposive samples are a better option because they provide design-based representativeness against a large sample size that represents the universe effectively (Oppong, 2013). Purposive and convenience sampling are two methods commonly used for urban studies that require user interaction but with limitations (Moroke et al., 2019; Ribeiro & Gonçalves, 2019; Tang & Lai, 2019; Zhang et al., 2019).

The study method is derived from other urban studies done focusing on user behavior. The inspiration is also taken from Kevin Lynch's book 'The Image of The City', where he explored the image in terms of urban design principles (Lynch, 1960). The methodology followed by researchers in urban studies includes background research, questionnaire design, site study, and survey followed by synthesis and analysis of results. (Alharbi et al., 2015; Donald et al., 2014; Lynch, 2005; Ribeiro & Gonçalves, 2019). The flow of the study is discussed in the next section, 1.9.1, and the analysis methods are discussed in section 1.9.2.

1.10.1 Study Design

The study is an inquiry into the possible options of maintaining the identity of a heritage city during urban expansion. The flowchart discussed in figure 25 shows the process flow of the complete study. It started with a curious look into the Indian-built heritage with respect to its tangible and intangible components. The cultural heritage of India can also be seen as a combination of tangible and intangible elements, which are studied in light the UNESCO's heritage protection paradigms. This led to the discussion on the problems with heritage identification and management in India.

The challenges faced by Indian heritage raise questions related to its identity in the modern context, which need to be answered. To answer those questions, we reviewed the State of the Art literature in urban design, sustainable built environment, identity design, place identity, sense of belonging, architecture, the heritage of Indian cities, etc. We found that the fields have advanced research in their respective areas

but lack interdisciplinary research. We found little combined research in identity and urban design and Indian-built heritage. But we could not locate research articles on the place identity of Indian heritage, the architecture of built environments, and user perspectives that answer the questions raised in the preliminary study. Thus, we found a gap in research and realized that an interdisciplinary study is required in the fields.

The hypothesis of the study is generated based on the urban design studies that accept city identity is a part of intangible features of a successful city (Alraouf, 2015; Casakin & Bernardo, 2012; Capela & Marquez, 2019; Hernandez & Melis, 2018; Wu et al., 2020). Also, the studies on built heritage show that user perception is important for a better city image (O'Brien et al., 2014; Samany, 2019; Sanguinetti, 2014; Smith et al., 2011; Spartz & Shaw, 2011). The hypothesis generated aim and objectives to answer the research questions and fill the research gap.

The first objective focuses on understanding the common perception people have towards the heritage of a city and their views for protecting it against rapid modernization. The second objective focuses on identifying the architectural elements used to maintain a city's identity in future development. A literature review was done to address these issues to determine the urban design and architectural elements from the built environment that may contribute to the identity creation of a city. The perception of different types of users of a space and the creation of those perceptions were also studied.

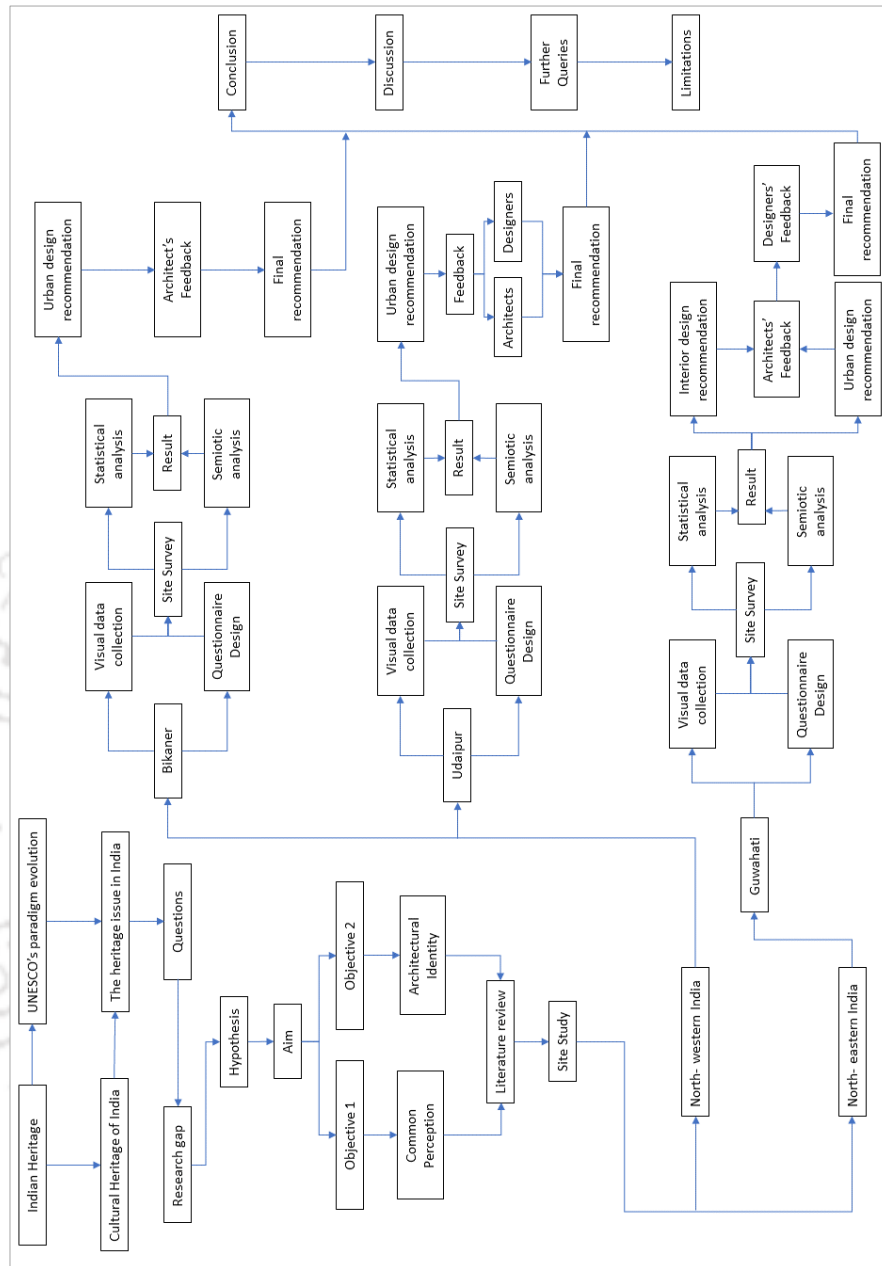


Figure 25. The flow of process followed for the study, starting from the Indian heritage to gap identification to the literature review to site study and finally the results and discussions.

We moved on to the site study with this background, which is divided into two parts, Assam and Rajasthan, one from north-eastern India and one from northwestern India, respectively, were studied. The two states showcase two different cultural and traditional heritage styles of

India and have different environmental settings. Assam has a hot-humid climate while Rajasthan has a hot arid, making the construction styles and built spaces very different. Guwahati city is a growing city under the Smart City Mission and can be a cultural hub. Hence in Assam, we studied Guwahati as a representation of the culture of the north-eastern states where the rapid urbanization poses a threat to cultural identity.

In the case of Rajasthan, the state is famous for its desert, yet Udaipur city is renowned worldwide as the 'City of Lakes' and 'Venice of the East.' Thus we studied two places, Bikaner and Udaipur, both under the Smart City Mission, to encompass both the identities for North-western India.

The study begins with a visual survey to identify the cultural and built heritage district for each city. A questionnaire is developed to inquire about the place's identity and is followed by a survey. The data collected from the survey is analyzed, and results are used to generate design recommendations. Architects and designers gave feedback on these recommendations, and we concluded that the people of these cities want to maintain their cultural and built heritage.

The respondents welcomed the idea of protecting heritage by replicating and preserving the heritage structures or abstracting their essence. This supports the inferences drawn from the literature review, and a discussion on the inferences is done in the last part of the study. It raised future queries that may be taken up in future research.

1.10.2 Analysis Method

The results from the site survey are analyzed based on a quantitative and a qualitative method. The analyzed results are used to check the validity of the inferences of the literature study. The relative importance index method is often used when the defining aspects of the analysis variables are of interest. The relative importance is understood as the proportionate contribution each variable makes to the final result, considering both the unique contribution of each predictor by itself and its relative contribution when combined with the other variables. (Johnson & Lebreton, 2004). The relative importance index is being widely used in accessing the sustainability of urban spaces due to its ability to find each variable's absolute and relative dependency (Ameen, et al., 2015; Mahmoudi, et al., 2019; Logan, et al., 2020).

The second method used for the visual assessment of facades of heritage precincts is the semiotic assessment. In semiotic assessment, a building façade is considered two-dimensional visual composition. It can thus be analyzed using semiotic assessment methods that are generally applicable to art pieces (Broadbent, 1980; Gawlikowska, n.d.; Kruger, 1991; Lopes, n.d.; Marotta et al., 2017; Medway, 1994). The semiotic assessment uses the tools of semiotic study for linguistics and applies them to two-dimensional art forms (Woodman & Brace-Govan, 2008; Friedman & Smiraglia, 2013; Munro, 1987; Oyama, n.d.; Sargazi, 2013). The two methods are discussed below in detail.

1.10.2.1 Relative Importance Index

We analyzed the results from user feedback and survey using the Microsoft Excel Application. We divided the analysis in two sections, based on the questionnaire design. The first part covered the demographic study and the second is architectural identity study. The second part of survey results were analyzed by applying the relative index analysis. Relative Importance Index enables us to rank the criteria for identity creation according to their relative importance. The following formula is used to determine the relative index

$$RI = \frac{\sum w}{A \times N}$$

where w is the weighting as assigned by each respondent on a scale of one and zero with one implying yes and zero no.

A is the highest weight, and N is the total number of samples.

The weighted average for the three responses is determined based on the ranking (R) of relative indices (RI). Various researchers (Rooshdi, et al., 2018; Holt, 2014) have acknowledged five important levels transformed from RI values:

- high (H) ($0.8 \leq RI \leq 1$),
- high-medium (H-M) ($0.6 \leq RI \leq 0.8$),
- medium (M) ($0.4 \leq RI \leq 0.6$),
- medium-low (M-L) ($0.2 \leq RI \leq 0.4$), and
- low (L) ($0 \leq RI \leq 0.2$).

1.10.2.2 Semiotic Analysis

The users of urban space are not a homogenous group, and their interactions and perception of the architecture of the same built environment will differ. This concept is supported by scholars like Stuart Hall, who believe that different people interpret environments differently based on their perceptions and experiences (Bell & Milic, 2002). This means that other people will perceive architectural heritage differently and address its issues from different perspectives (Dlaske, 2014). The involvement of intellect by a user while using an urban built space is limited when they watch it intuitively and react to it emotionally rather than rationally. It can be concluded that the stakeholders from various fields and societies will have varying opinions (Solík, 2014).

It can be understood from the discussion before that not all people want to protect the heritage, and not all want to experience it the same way. Their user experience might be different from others. Activities related to the space try to form or relive this experience. (Lynch, 1960). Thus we need to identify the correct stimuli that provide identity to the existing heritage but are not mixed with elements that spoil the whole space experience (Gawlikowska, 2019).

Heritage-built environments still include many such stimuli through architectural principles or their space planning ideas, as seen in Bikaner. Researchers, scholars, and professionals agree on one thing: these heritage spaces have been a success in attracting visitors and serve a higher goal of being artistic preservation of culture (Juodinytė-Kuznetsova, 2011).

In his book 'Tools for Text and Image Analysis: An Introduction to Applied Semiotics,' Louis Herbert gave tools for the semiotic analysis of texts and images (Hébert, 2020). The study considers a façade as one composition and thus transforms it into an image. This way, the architecture of the street façade qualifies for the semiotic analysis. This study uses the semiotic assessment tool used for assessing the relation between smaller elements of the architectural façade for a heritage city in India (Mishra & Kolay, 2019).

The semiotic square analysis tool starts from element selection, breaks it into meta-elements, establishes the relations between them, makes design iterations under the step of operations, makes observations, and finally, the classification. The relations and characterizations of visual architectural elements are used for analysis.

The details for each step have been explained below.

Step 1—Element selection. The same street façade is selected for analysis.

Step 2—Meta-elements identification. The meta-elements are the elements generated by the disintegration of the façade into smaller elements.

Step 3—Expression of relations. The relations between each of these meta elements are explored and expressed. The possible relations amongst elements on façade are colors, shapes, and ornamentations.

Step 4—Operation. The iterations are done in the relations between the meta and main elements.

Step 5—Observation. This step has also been used for validation of results from the previous step, where results are shown to experts for feedback.

Step 6—Classification. The relations established from previous tools were used and tested for classification and then validated through feedback.

Thus, the elements can be classified as ornamentation, color, traditional elements, and signage design, etc.



1.11 Thesis Layout

The study has one aim and two objectives discussed in section 1.8. This thesis report is divided into chapters 1-3 to discuss the literature and site survey results. Chapter one talks about the general introduction of the topic and introduces the study. It discusses the literature review, with a focus on achieving objective one. It also establishes a base for the next chapter with theory and background for a survey. Chapter two contains on-site experiments in three cities, their results, and inferences. The conclusions drawn from the studies and experiments in chapters one and two are discussed in the next chapter, chapter three. The details of each chapter are as follows.

Chapter 1: Residents' perception of Indian Architectural Heritage and Place Identity: A Need for Looking Into

Historic conservation renews a sense of identity, and we can see through the literature that it inspires new, smart, and socially sustainable development patterns. The focal point of conservation programs is mostly well-known monuments, whereas the lesser-known built structures under public ownership get overlooked for conservation. As a result, they are rebuilt or demolished as needed, erasing essential knowledge about historical urban architecture. There should be legislation that promotes the compatibility of urban heritage management with development programs. Government agencies are constantly making interventions to conserve the built heritage to serve contemporary needs while leaving a legacy for the future. This chapter intends to understand historic built environments and the evolution of the treatment styles from decision-making agencies.

The physical form, activity, and meaning contribute to place creation. Visual elements of the built environment play an essential role in influencing the sense of place. Indian cities are multicultural, with layers of architectural styles affected by historical events, which may have influenced how the users perceive places and create a visual identity. A responsive place can accommodate contemporary human activities and create a positive experience in the built environment. Place branding is the concept of discovering or creating something distinctive that sets one location apart from others to gain a competitive brand value. We explored the concepts in this chapter, and a methodology is derived to check peoples' perceptions of the architecture of the cities under study.

Chapter 2: Experiments with Place Identity and architecture

Users of a place create a place identity in their minds that can be used for future developments during urban expansion or tourism facilities. We did site studies of the residents, the visitors, and daily users of a place to understand the user perception in three cities. In the Indian context, we see a variation in the cultural and physical environment as we move from one place to another. For the site study, we have chosen two different Indian regions, Northwestern and Northeastern, with diverse physical, economic, and social backgrounds to accommodate this change. Two studies are done in Bikaner and Udaipur of Rajasthan, a Northwestern state with a hot-arid climate and a significant architectural style. The third study is done in Guwahati of Assam, the Northeastern state with a hot-humid climate, to see the applications of place identity. The three studies are done with a questionnaire survey, and results are analyzed using the semiotic analysis and relative importance index. It is found that the people have two main governing

ideas of identity restoration, abstraction, and repetition. For utility expansion, people prefer crude replication of identity creating architectural elements, but for admiration of the cultural and architectural heritage, abstraction seems to be the choice.

Chapter 3: Discussions and Concluding Remarks

The identity of a place is created by many physical, emotional, cultural, experiential, and behavioral factors. The image of a place is carried through the physical built environments and is reinforced in the minds of its residents and visitors through various interactions of user and space. We have seen from the previous chapters that perception plays a strong role in creating identity through these physically built environments. The study focuses on the heritage identity of India and the ways it can be restored during urban expansion or development as a tourism destination. The identity of the heritage built environment can be protected by replicating the historic structures in the new space or abstracting their identity to preserve its essence. We have seen its effects and processes of identity creation, and it can be implemented to reflect the cultural identity in the built form either by abstraction or replication. Many more factors can affect the place's identity and are discussed in this chapter.

Chapter 2

Experiments with Place Identity and Architecture

Chapter Abstract

The place identity in users' minds can be used for future developments during urban expansion or tourism facilities. We did a user survey to understand the user perception of identity maintenance and heritage protection. In the Indian context, we see a variation in the cultural and physical environment as we move from one place to another. For the site study, we have chosen two different Indian regions, Northwestern and Northeastern, with diverse physical, economic, and social backgrounds to accommodate this change. The study is done in Assam and Rajasthan, with a questionnaire survey, and results are analyzed using the semiotic analysis and relative importance index. It is found that the people have two main governing ideas of identity restoration, abstraction, and repetition, which are relatable to UNESCO's three heritage protection paradigms. For utility expansion, people prefer crude replication of identity using architectural elements, but for admiration of the cultural and architectural heritage, abstraction seems to be the choice.

2.0. Documenting the common perception of place identity

The place identity of a city plays a vital role in its brand identity. The principles of imageability, usability, legibility, etc., are relevant for personal experiences and community experiences as long as it is perceived right (Das, 2008; Hamidi et al., 2020; Mandeli, 2019). Historic cities are designed to keep the urban design principles in mind and address contemporary user requirements (Macdonald, 2006; Wiryomartono, 2012; Zhang & Wei, 2017).

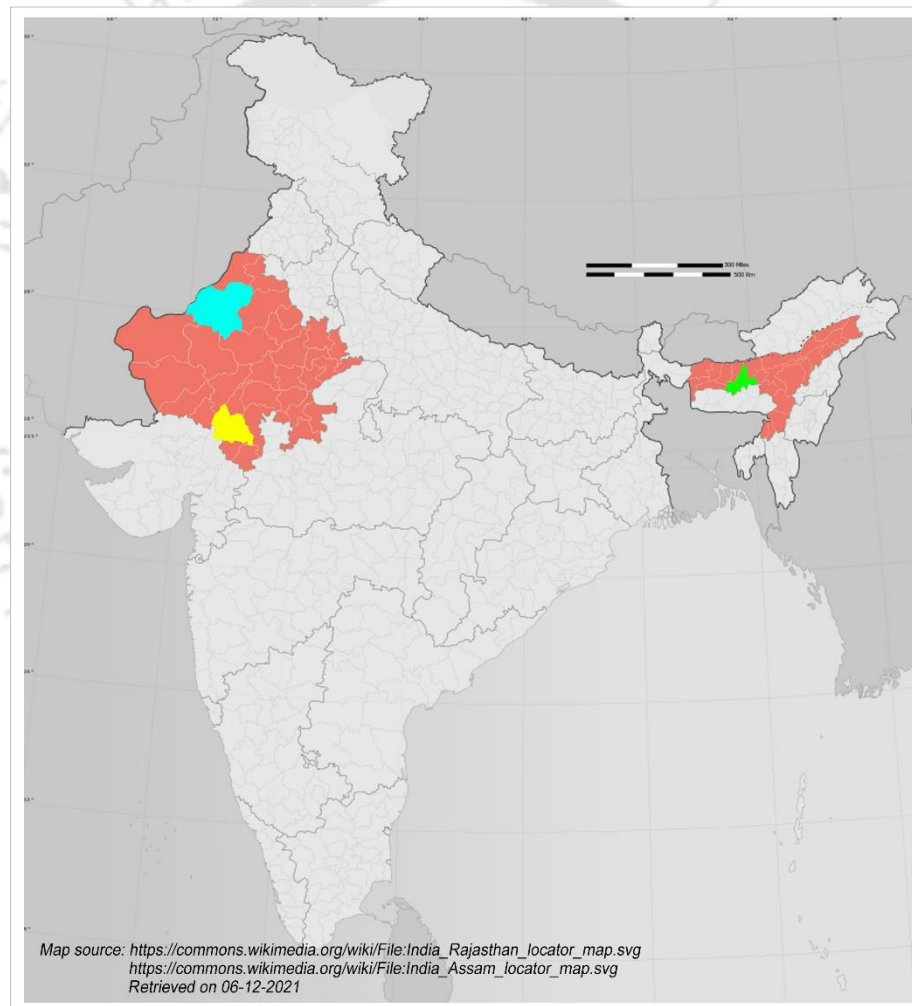


Figure 26. Map of India showing the study areas of Assam and Rajasthan

Figure 26 shows the cities under study for their heritage identity. These historic cities have a strong cultural, traditional, and architectural significance. A study of their heritage will allow us to understand the principles of place identity through elements of architecture and urban design.

The two states, Assam and Rajasthan, are different in their social, cultural, and environmental settings. Assam has a hot-humid climate, and Rajasthan has a hot-arid. The climatic difference in the two states causes different architectural and construction styles with different public-built spaces being used differently. Hence, the study has tried to consider the climatic and cultural differences seen throughout the country.

In Assam, the study is done in Guwahati, the state's cultural capital. It is under tremendous pressure of urbanization, and the city's cultural heritage faces the threat of extinction. The city is famous for its natural resources and Kamakhya Devi Temple. The new development plan only considers the natural resources of the place but ignores the cultural heritage. The city represents the North-eastern states and has the potential to be a cultural hub too.

The other part of the study is done in Rajasthan, rich in its cultural traditions, built heritage, and iconic natural resources. The state has an iconic image of being a desert place, and most depictions of the state show it with sand dunes. But the state also has extensive water resources, primarily man-made, that are generally missed out. So, here we have studied two places, Udaipur and Bikaner, to cover both natural settings. Bikaner has the sand dunes Rajasthan is famous for, while Udaipur is renowned for its lakes and is called 'the City of Lakes' and 'the Venice of the East.'

The three study sites have been selected due to the vast cultural, traditional, and architectural wealth these places hold and their significance in narrating the past. The common character for the cities under study is that they are under pressure from urbanization, and the places' historicity faces a threat. All three places come under the Smart City Mission and rapidly develop and transform to get an international 'Smart' status.

The first study is done in Guwahati, Assam, focusing on the Kamakhya Railway Station. It focuses on understanding the idea behind cultural identity and how it contests natural beauty as an identity indicator. The second study is done in Bikaner, Rajasthan, to understand people's perception of the city's built heritage and their link with the traditional and cultural significance of the architecture. The third study is done in Udaipur, Rajasthan, to see the applicability of the ideas of replication and abstraction of the identity creating elements from a heritage-built environment. The design and bye-laws proposal for developing each of these cities has been given at the end of each study with feedback from design and architectural practice professionals. The studies are discussed in detail in the following sections, with a final inference from them in section 2.4.

2.1. Creative Expression of Cultural Heritage Identity in Guwahati

By the mid-nineteenth century, the railway had established itself as an essential part of life in the industrial era, and the railway station took on an increasingly characteristic appearance. Architects have amended the industrial aspect of the train sheds through a more traditional façade design. The station buildings fight for a place among the league of theatres, museums, and city halls. The role of embellishments is mostly neglected in governance policies for railway stations, even though the architecture and spatial planning are considered.

The visual design is monographic and ignores the context of visitors. This study tried to identify the ways culture can be depicted in the built environment by abstracting the visual elements from the context or replication of the architectural elements. We have explored the visual design elements of the Kamakhya Railway Station that acts as a gateway to Guwahati for people visiting the Kamakhya temple. The study proposes a suggestion for the railway station's visual design with a focus on tourism.

2.1.1 Introduction to the Indian Railway's outlook toward Railway Station Design

Indian Railways is one of the world's largest Railway networks, with over 64,000 Route Kilometres and 7,000 stations. The Ministry of Railways under the Government of India oversees the operation of these 64,000 km railways, and their General Managers head 16 Zonal Railways. The Indian Railways carries more than 17.5 million passengers daily, and some major Railway stations handle 100-200 million passengers per

annum (Bogart & Chaudhary, 2012). Most railway stations were built over 100 years ago and had a limited and aging infrastructure that runs an ever-increasing number of passengers (Bear, 2020). The railway stations are located in the populated areas of the city, inhabited by the residents, and are a part of city life.

IRCON International Limited (IRCON, A Govt. of India Undertaking under the Ministry of Railways) and Rail Land Development Authority (RLDA) (a statutory authority under the Ministry of Railways) have collectively formed a joint venture known as Indian Railway Stations Development Corporation Limited (IRSDC). IRSDC has been in charge of the redevelopment and beautification of the Indian Railway stations (Chinnobaiah, 2020; Chinnobaiah, 2019). The main objective of the company is to make Indian railway stations of international standards and quality by upgrading the level of passenger amenities. It should also maintain a location-specific identity.

The Design Brief by the Government:

The team of IRSDC has come up with design and planning principles for railway stations, proposed for renovation/re-development. These principles are taken from a design competition (National Informatics Centre, 2019) invitation and include, but are not limited to, the following:

1. Identity and context. The competition seeks designs that will assist in improving the identity of respective stations in the broadest possible way. The design must be a positive place to use, stay, or pass through, be a significant landmark for the area, and act as a positive gateway element for the respective cities. The design must positively contribute to its location and engender a sense of civic pride. The cultural context – setting,

landscape, built history, memory, indigenous cultural conditions, understanding of the past, and continuity into the future – should all inform the design outcome.

2. Site design. The concept must propose a well-designed use of the site and respond appropriately to factors including orientation, natural light, maintenance, and servicing. Visibility, lighting, signage, and wayfinding will all be important factors.
3. The public realm and urban fabric. The design must contribute to its place by careful integration into the existing urban fabric. Designs should create a distinctly urban character and sense of place which complement the identity of respective cities and other citywide strategies, without cliché.
4. The organizational diagram. A brief organizational diagram must underlie the design concept, with intuitive patterns of movement that invite pedestrian activity within and through the site. Identification of connection networks on and beyond the site is encouraged.
5. Station area mobility aspects. The railway station is a transit hub, design of operational areas and comprehensive planning for mobility, access, and circulation is of utmost priority.
6. Form, massing, appearance. The created space must be attractive with appropriate relationships about scale, form, mass, materials, finish, and function of all elements. The revision site must mediate between the station and the rest of the city.
7. Functional planning. The planning must be done intelligently together with a demonstrated understanding of amenity and convenience.

8. Materials. The material used must be intelligent, keeping in mind its usage and economic factor. It should be able to withstand harsh conditions associated with such a public infrastructure project.
9. User Perspective. The design must recognize and respond to the needs of all users. The proposal must include a universal design for people of all ages and abilities and travel by any mode.
10. Community Priorities. In general, all stakeholders and the local community aspire that the station precinct is safe, vibrant, sustainable, accessible, connected, comfortable, convenient, with an inspiring design reflective of respective cities.

The study addresses the issues mentioned above in a cultural context linked with a railway station.

2.1.2 Cultural Context

This study focuses on visually revitalizing the Kamakhya Railway Station of Guwahati, Assam, and the probable elements of the city's identity to anchor with. An inquiry is made about Kamakhya Railway Station with its context of the Kamakhya temple. And the city context in terms of the Smart City Proposal for Guwahati is also studied to find the applicability of the previously mentioned context.

2.1.2.1 The Kamakhya Temple

Kamakhya Devi temple is one of the most famous Hindu temples in India. It has an exceptional status as the seat of Goddess worship. Kamakhya is considered significant also as the center of culture and the capital of the *puranic* period *Pragjyotishpur* or *Kamarupa Desh*. Despite a very long and rich active tradition of visitation, worship, and

celebration of festivals here, this sacred complex's fundamental nature and character have hardly changed over the centuries (Prasad & Alizadeh, 2020; Deka & Devi, 2017; Kaushik, et al., 2015).

In India, the Goddess (Devi) worship and pilgrimage to their seats (Shaktipithas) system is among many ancient living traditions. The absolute total number of the *Shaktipithas* in India, which runs into thousands, attests to the importance of Goddess worship contemporarily. However, the levels of importance vary as per the textually prescribed and perceived greatness and superiority. Due to its glorious past and highly revered status, Kamakhya is most venerable and is called *Adipitha*. There is enough historical evidence to support the fact that Shiva worship was widespread in Assam. The whole mythological development about the beginning of Goddess Kamakhya's worship revolves around a mythological character called *Naraka*.

Like other ancient Indian tales, the image and presentation of Goddess Kamakhya are full of symbolic meanings. The essential attributes of Her imagery symbolism are described under different aspects. Since Kamakhya represents the genitals of the Goddess, referred to as the *yonipitha* or *yonimandala*, it is partly covered with cloth and garlands of flowers. The Goddess Kamakhya, represented simply by her *yonis*, expresses the creative aspect of the power and energy integral in *Shakti*. Additionally, it could also be explained as a symbol of menstruating, representing the female's fertility. Also, female fertility is regarded as equally sacred by the cultivators concerned with the Earth's fertility.

2.1.2.2 *The Sacred Complex.*

According to their understanding of the temple boundaries, the sacred complex has different meanings for different people. For some, the

physical boundary wall of Kamkhya Temple is complex, while for others, it is the temple cluster. As per the present study, the sacred complex of Kamakhya extends up to the foothills of Kamagiri/ Nilachala. The maps present a synoptic landscape view of Kamakhya and the environment. The central part of the complex is around 5 km away from Guwahati City Centre. One may interpret the pilgrims' cognitive map as the popular image of any sacred place, in this case, Kamakhya, coming to a devotee's imagination. Here we may add that these maps play a substantial role in perceiving the sacred space, and the mythological narratives play a specific central role in this process. The temple complex houses a variety of twenty-five Gods and Goddesses discussed in table 5.

Table 5. The divinities are housed in the Sacred Complex of the Kamkhya Devi Temple at Guwahati, Assam.

S. No.	Divinities	Numbers	Percentage
1.	Goddesses (one for each)	13	52
2.	Gods	11	44
	Shiva	05	20
	Ganesha	04	16
	Vishnu	02	08
3.	Others (Vetala, Demigods)	01	04
<i>Total</i>		25	100

2.1.2.3 The Temple Architecture.

The temple complex has witnessed several major renovations and now exhibits a mix of medieval and contemporary construction styles. The temple is divided into four interconnected parts: the *Vimana*, the *Chalanta*, the *Pancharatna*, and the *Natamandira*. Of these, the first

three parts' ground-plan is original and simultaneously, whereas the *Natamandir* was added later (Monga, 2019). The first three chambers are known as *Garbhagriha*, *Chalanta*, and *Pancharatna* were reconstructed in 1565 during the reign of Naranarayan. Still, according to archaeological studies, the reconstruction of this may have been done over the ground plan of an older temple (Hemani, 2015). However, some decorative designs in the wall below the main dome date to the 11th-12th century.

2.1.2.4 Festivals.

In India, most festivals have religious underlining. In the Kamakhya temple complex, the festivals-celebrations are observed at two levels: in the Kamakhya temple and among the common people. The main festivals and their features are discussed below:

1. *Ambuvachi*. It is held for three days, starting from the end of *Mrigashira* star up to the end of *Adra* star in the early *Ashadha* (June-July). On the first day, the *Pithasthana* is ceremoniously covered by a red cloth, and the temple is closed, and on later days, purification rites are performed. Red color dominates the visual palette at this time. A big fair is organized during this period, which the government and voluntary agencies support. Many ascetics, monks, traders, and commoners assemble at the fair.
2. *Durga Puja*. This *puja* lasts for five days, the 6th-10th day of the light half of *Ashvina* (September-October) only. A clay idol of Goddess Durga, in *Mahishasura-Mardini* form, and other companion divinities (*Ganesha*, *Lakshmi*, *Sarasvati*, and

Karttikeya) are also placed in the temple and worshipped specifically on *Mahasaptami*, *Mahashtami*, and *Mahanavami*. Finally, on *Dashami* (the 10th day), *Jaya-Vijaya* and *Aparajita puja* are done. The clay idols are taken out in a procession to the Brahmaputra river for immersion in the afternoon. This procession is marked with the sound of *dhol- nagada*, Drums, and trumpets, a celebration of power in the form of *Shakti* and its victory of evil.

2.1.2.5 *Pilgrims and their Motives.*

Kamakhya, being a Goddess place of the pan-Indian level, naturally attracts people from different corners of India. In the northeast region, the presence of people from different parts of the country in connection with business and trade, services (government and private both), etc., in the northeast region, facilitates the diversified presence of pilgrims. However, the highest percentage of pilgrims is from Assam, especially Lower Assam. And other pilgrims are from West Bengal, Bihar, Jharkhand, Uttar Pradesh, Orissa, etc., in decreasing order.

2.1.2.6 *Guwahati City*

Guwahati is the largest city in the Indian state of Assam and the largest metropolis in North-Eastern India. A major riverine port city and one of the fastest-growing cities in India, Guwahati is situated on the south bank of the Brahmaputra. The ancient cities of *Pragjyotishpura* and *Durjaya* (North Guwahati) were the capitals of the old state of Kamarupa. Guwahati lies between the Brahmaputra and the foothills of the Shillong plateau. The Guwahati Municipal Corporation (GMC), the city's local government, administers an area of 328 square kilometers.

At the same time, the Guwahati Metropolitan Development Authority (GMDA) is the planning and development body of the greater Guwahati Metropolitan Area.

The Guwahati region hosts diverse wildlife, including rare animals such as Asian elephants, pythons, tigers, rhinoceros, gaurs, primate species, and endangered birds. The key features highlighted in the Smart City Development Proposal for Guwahati include the quality of life indicators, transportation conditions, water availability, etc.

2.1.2.7 SWOT Analysis

Strength. The following are the strengths of development in and around the city.

1. *Location and topography.*

Because of its strategic location, Guwahati is the gateway to the North-Eastern Region. It is a regional hub, and all other states in the region depend on Guwahati for connectivity within the region as well as with the rest of the country. It has a unique wetland ecosystem that should be preserved and restored. Wildlife Sanctuaries and Ramsar Convention-listed sites like Deeper Beel are exclusive to the region and can be the main tourist attractions that can boost the tourism economy of not only the city but the region as well.

2. *Heritage and Culture.*

Often referred to as 'The City of Temples,' Guwahati has a rich historical, cultural, and religious heritage that has the potential to be showcased for tourism. Festivals, temples, archaeological sites, local food, music, dance, arts and crafts, etc., can play a role in the city's physical and economic development.

Weakness. The weakness experienced by the city due to its history and geography is discussed below.

1. *Flash Floods and Landslides.* Guwahati city has started experiencing flash floods yearly, which in many cases can be attributed to heavy rains and general degradation of the city's natural ecosystem. Changes in the city's land-use pattern and unplanned urbanization are some of the main reasons for this re-occurrence of the phenomenon.

Opportunities. With the strengths mentioned above and weaknesses in mind, the opportunities identified for development in the city are immense.

1. *To develop into a Regional Hub- Education, Commercial, and IT.* Apart from locals, the city attracts most of the students pursuing higher education are from the North-Eastern States and other States. Also, because of its strategic location and its connectivity with the other north-eastern states, it has an innate potential to serve as the east's commercial and IT capital.
2. *To Become an Eco-Tourism Destination using the Riverfront.* As per the tourism plan for the North-Eastern region, Assam alone received around four lakhs domestic tourists, which is the highest in the area, and 15,557 international tourists in 2010. This reflects Assam's potential to be developed as an eco-tourism destination.

Threats. The significant threats faced by any type of development in the city, with context to the opportunities mentioned above, are mentioned below.

1. *Urban Expansion.*

Unauthorized urban expansion near the hills has led to frequent landslides, which, when coupled with soil erosion, results in reducing the capacity of these stormwater drains further as the silt flows directly into these drains and inundates the city.

2.1.3 Kamakhya Railway Station

This railway station is a junction with almost 45 trains stopping here. Out of which almost 10 are local trains. Including the weekly trains, train traffic can be up to 60 trains a day. The railway station beautification has been done recently. To reach the station from the city using public transport, one has to drop down at Assam trunk road at Kamakhya Railway station stop. A 200-meter walk inside leads to the station, shown in figure 27. It runs parallel to the railway line on one side and small shops of eatables and electronics on the other side.

If we look at the shops, they do not seem to represent the culture of the Kamakhya Temple of Guwahati city. The entrance of the station is topped with a dome, seen in figure 26, which the Kamkhya Devi Temple directly inspires. The station has an eatery outside the station and several smaller shops and food stalls on the platform. There are five platforms that are accessible from both sides of the city.

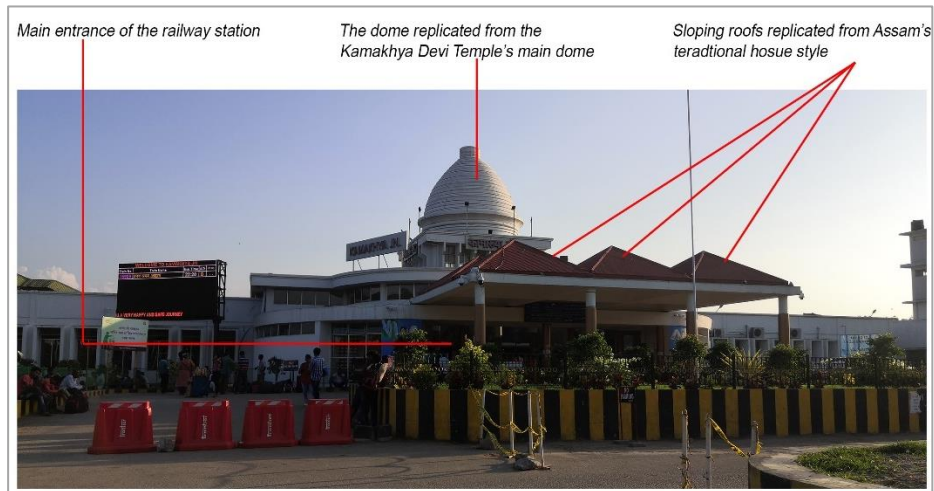


Figure 27. The entrance of Kamakhya Railway station, with a dome inspired from the Kamakhya temple.

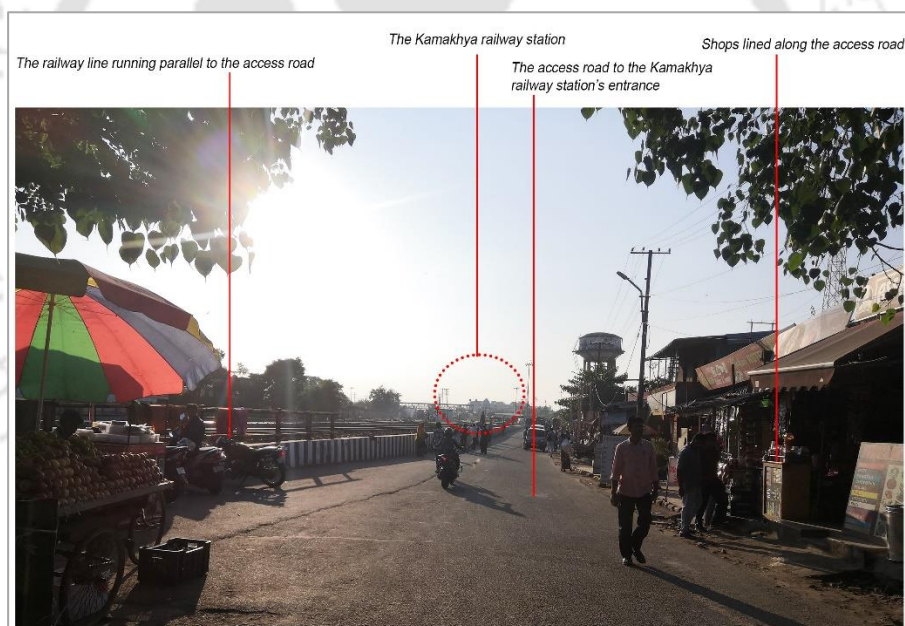


Figure 28. The access road to the Kamakhya Railway station running parallel with the railway tracks, with small shops on the right hand side and railway line on the other side.

2.1.4 The Survey and results

The users of the Kamakhya railway station can be recognized under five categories, namely, the pilgrims, the regular local travelers, daily commuters, the shopkeepers on the station, and the railway staff. An

open-ended questionnaire was designed to develop an understanding of the requirements of each user group. A sample size of 30 people was chosen, and purposive convenience sampling was used. This method was selected due to the availability of samples and language issues. The respondents included the railway staff from station offices, the shopkeeper of railway stalls, the tourists, and regular travelers.

The questionnaire had two sections, one focusing on the railway station design and the other on the cultural perception of the Kamakhya region. In the first section, the respondents were asked questions about their identity and link to the city and other railway stations. The second section inquired about people's perception of the temple and ways it can be replicated in the railway station design.

2.1.4.1 Survey Results

The survey results are classified according to the five human factors that play an important part in experiencing a place. The factors are physical, cognitive, social, cultural, and emotional.

- i. **Physical.** People feel comfortable and do not want any changes in the spatial planning of the railway station.
- ii. **Cognition.** Sometimes, the language of signage was a barrier for people with different cultural backgrounds. So, signage for indicating the station is needed, which everybody can understand. Also, the ambiance of the station did not reflect the environment of the Kamakhya temple.
- iii. **Social.** Due to the social norms, the visuals from the temple cannot be used here.
- iv. **Cultural.** Cultural significance is high, hence more culturally significant decorations need to be used.

- v. **Emotional.** The emotions of the place are attached more to Assam state, particularly to Guwahati city. Thus, the current decorations cannot be scraped off totally (Barua, 2007). These paintings are significant for people.

2.1.4.2 Analysis

The user behavior and response analysis have shown that people see the Goddess as an abstract symbol. Although they have a robust relationship with the Goddess, the link is established more strongly with the temple architecture. The offering-activity-culture map is drawn for the railway station and the temple to understand their relationship, as shown in figures 29 and 30. The railway station is related to the activities, which generate the culture for the place.



Figure 29. Offering- Activity- Culture map for The Kamakhya Devi Temple

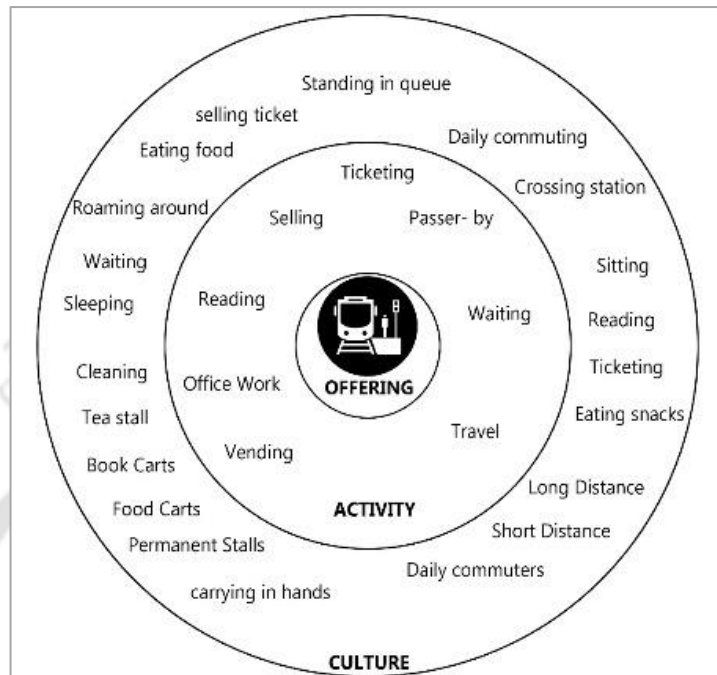


Figure 30. Offering- Activity- Culture map for The Kamakhya railway station

For example, the activity of waiting generates the culture of eating, reading, roaming around, sleeping, etc. These activities thus affect the architecture of a place by creating a culture that needs infrastructural support. The offering-activity-culture map of the temple shows that there are fewer activities but more cultural impacts. It is seen that celebrating festivals in a particular way generates the activity of yearly Fairs, which is a result of the festival culture of the place.

The abstract idea of the Goddess runs in the culture of the place, and the architecture reflects that abstraction. There is little effect of the Goddess figurine on the activities. The temple complex majorly caters to festivals and their celebration. Thus it can be interpreted that the temple's culture can be combined with the activities of the railway station to generate a more cohesive design that represents the city.

2.1.5 Design explorations

1. **Physical.** Although the design of the station includes a lot of red colors and natural settings, it is out of the line of sight. The offering-activity-culture chart shows that only waiting is an overlap in the activities for the two places. So, if the wall paintings are brought down at human eye level and added to the waiting areas too, then visual connectedness can be achieved.
2. **Cognition.** The suggestion from people was to create a visual and auditory scene by using more red color in the façade design. For acoustic simulation, soft music from the temple and recitation of *shlokas* and prayers can be added. Even without an understanding of the language, it will give a distinct identity to the station.
3. **Cultural.** Cultural significance is high. Hence more culturally significant decorations need to be used. These decorations include but are not limited to the terracotta murals, a native handicraft of the area. These murals may depict stories related to the temple.
4. **Emotional.** It is found from the survey that people are more linked to the natural setting of the temple and its festivals. The station may have an exhibition space featuring photographs and paintings of the place.

Based on these results, we came up with some design ideas to be applied in the interior design for any tourist facility, in this case, the railway station (Deepshikha, 2019). Figure 31 shows an art piece that is made replicating the identity feature of the temple's architecture, its dome, and the color popular with the temple.



Figure 31. A composition was generated to explore the abstraction of the identity-creating elements, the color red from the famous Ambuvachi festival, and the dome of the Kamakhya Temple.



Figure 32. The abstracted image was generated with inspiration from the Kamakhya Temple, lush green mountains, and the river Brahmaputra.

Figure 32 shows an abstract image generated from the cultural and natural context of Guwahati. The green signifies the mountains and hills, blue is used for the river Brahmaputra and red for Kamakhya Temple. The circular design shows ten hands and legs for Goddess Kali. The red color separates Kamkhya Devi from Kaali as the red color is associated with this temple and the Ambuvachi festival. We have tried to encompass both cultural and natural contexts in this second attempt. We got feedback from architects from Guwahati that the usage of color as the essential element will not work as most interior design projects are decided from the beginning. An interior design element like this will have specific background and theme requirements that might not be generic. Hence we explore more options by taking inspiration from the common elements used to depict Goddesses, shown in figure 33.

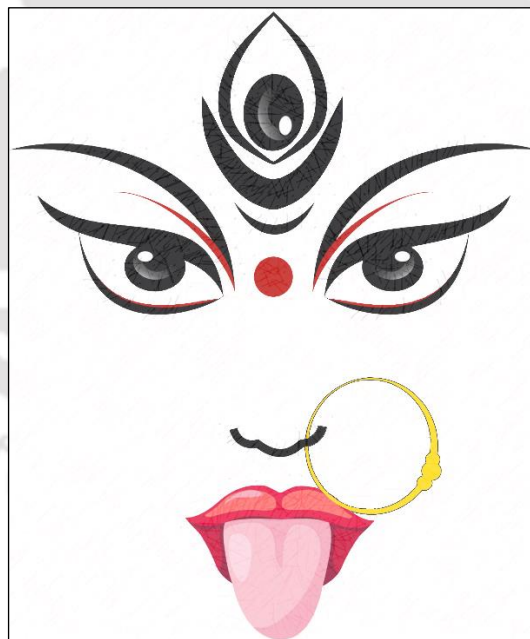


Figure 33. The most common depiction of Goddess Kaali and Durga used in India focuses on her eyes, ornaments, tongue, and Bindi. Image source: <https://www.hindubhagwan.com/maa-kali-images>

We were inspired by this idea of focusing on the eyes of the Goddess as an abstraction of her physical form. Also, the Goddess Kamakhya is the goddess of birth and gives life to the world. She is depicted by *yonis*, and we have abstracted this idea. Keeping this as the center, we explored several sculpture ideas, shown in figures 34, 35, and 36.

In figure 34 and 35, we have explored the idea of the Goddess' depiction through the eyes. The visual center of the composition will be the *bindi* that we have abstracted to the earth. As Kamakhya Devi is the Goddess of fertility and the world begins from her. In figure 36, we have explored the idea of depiction of the Goddess by her figure from the temple, the *yonis*. We explored the idea of the Goddess birthing the earth to mark the beginning of a new life.

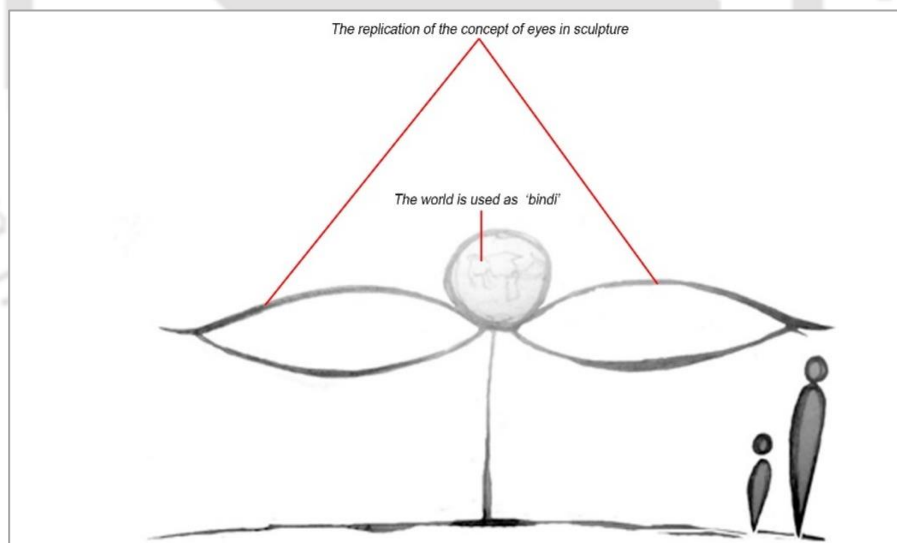


Figure 34. The urban design exploration of sculpture for Guwahati city regarding Kamakhya Devi Temple. The exploration is made with direct use of the Goddess' depiction through eyes and the *bindi*.

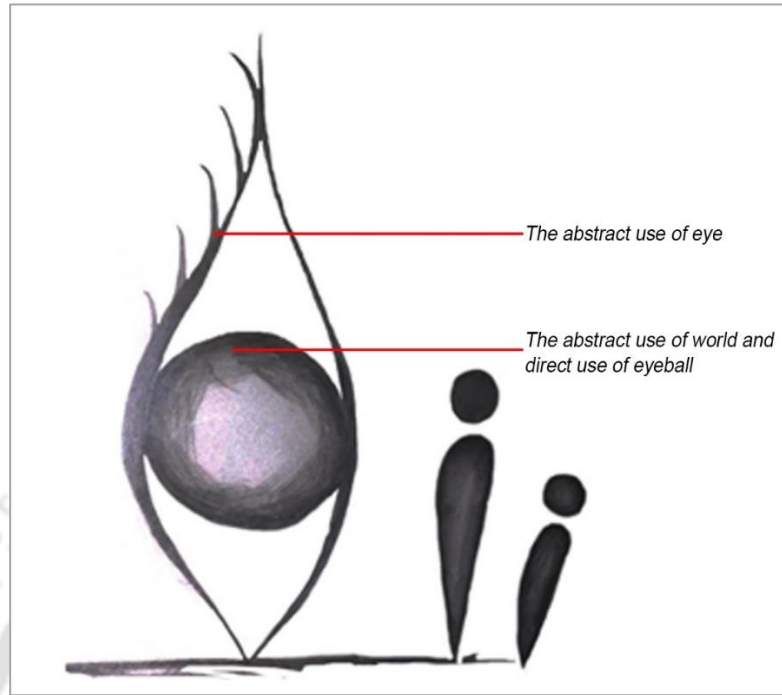


Figure 35. The urban design exploration of sculpture for Guwahati city regarding Kamakhya Devi Temple. The exploration is made with abstract use of the Goddess' depiction through eyes.

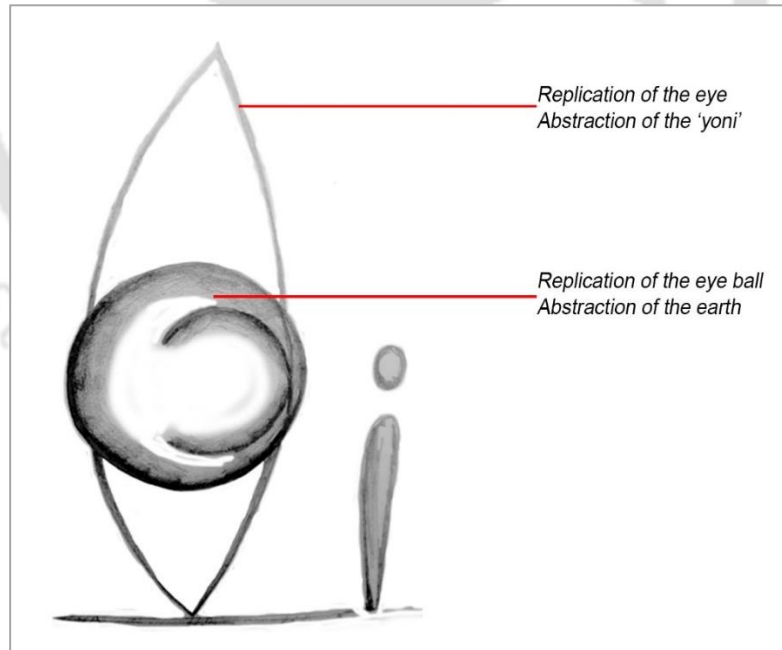


Figure 36. The urban design exploration of sculpture for Guwahati city regarding Kamakhya Devi Temple. The exploration is made with the abstraction of the Goddess' identity and story behind the Temple.

This idea of abstracting the identity of the Goddess from the cultural significance of the temple was finalized. We used this idea to finalize a design for urban installation, shown in figure 37. The design was modeled in 3D software to create an image displayed in figure 38. The design was sent to designers and architects of this region for their feedback. With their feedback, a modification was made to the proportions of the installation and the finalized design is shown in figure 39.

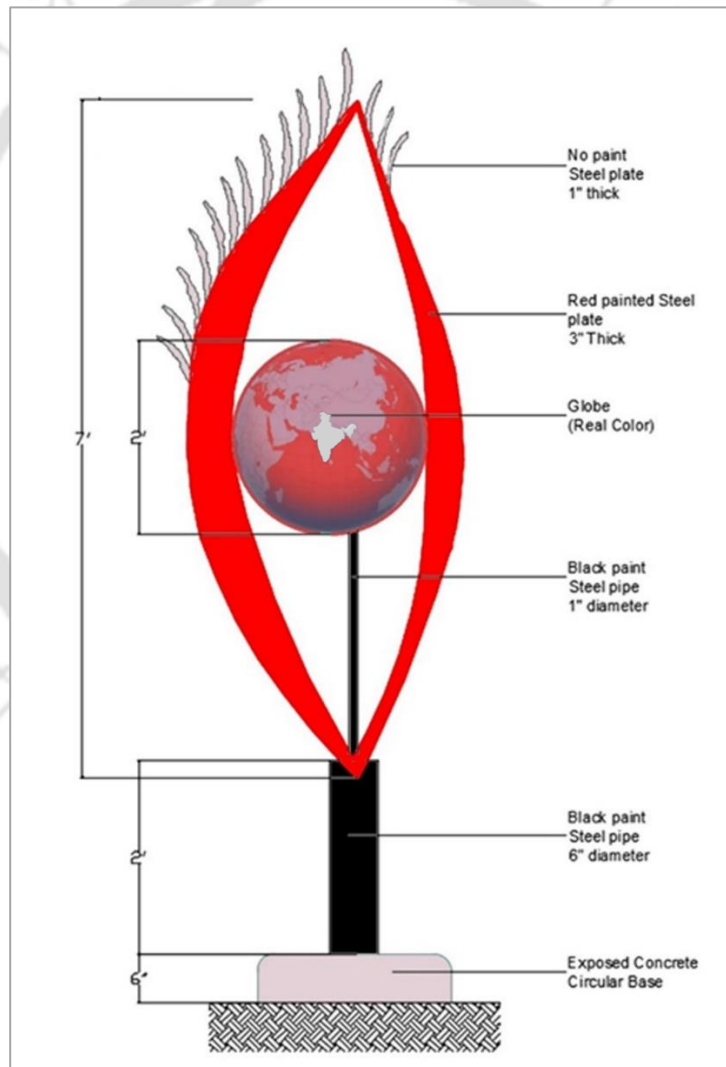


Figure 37. An exploration into the expression of Kamakhya Devi Temple's cultural significance by abstracting the story behind the Temple.



Figure 38. An abstract urban sculpture, designed by taking inspiration from Kamakhya Devi Temple, depicts the Goddess and its concept.

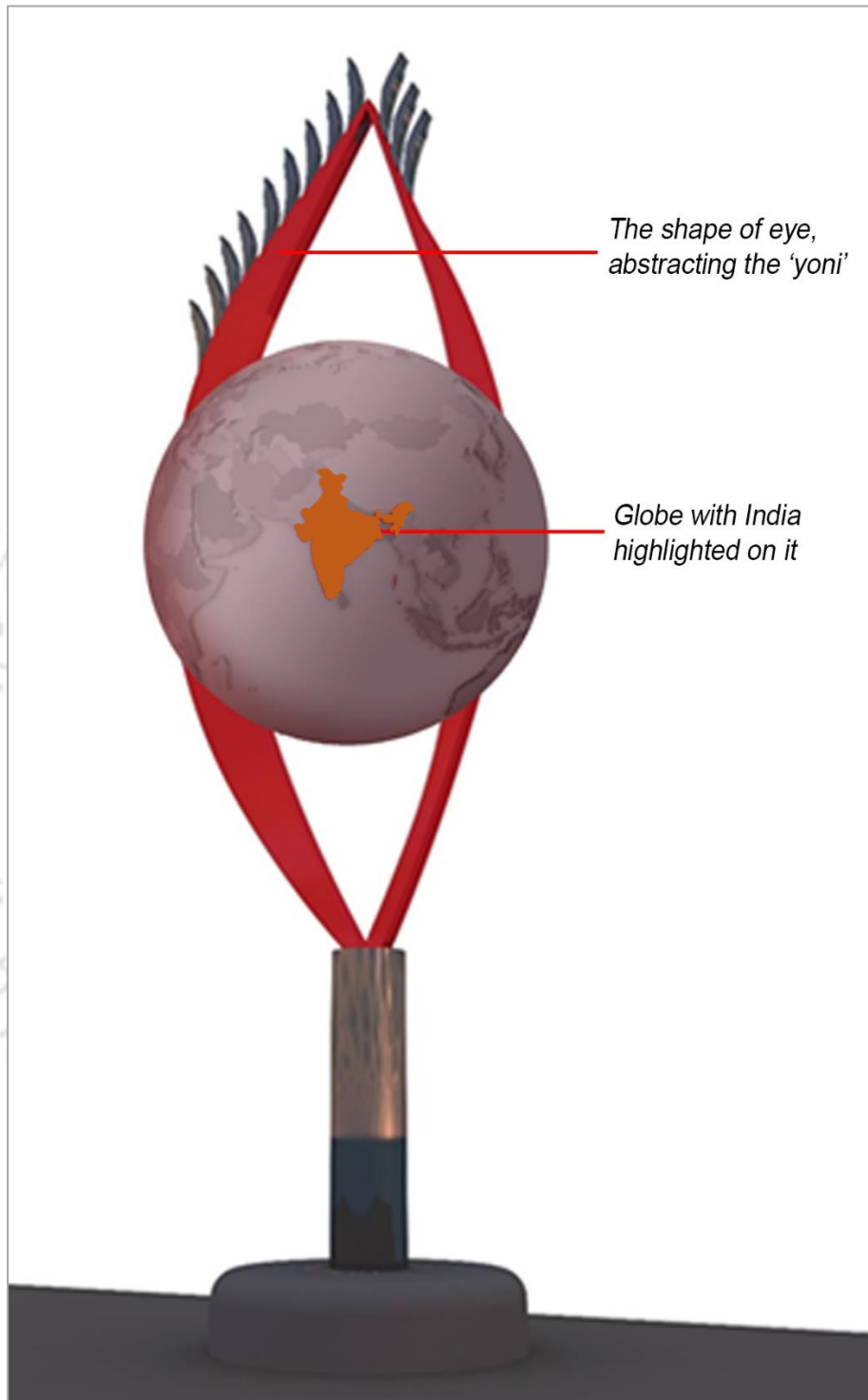


Figure 39. The final design for urban installations in Guwahati city and the KAmakhya railway station to depict the Goddess.

2.1.6 Inferences

The study has analyzed various requirements laid out by the Ministry of Railways for the new face of modern railway stations. It can be observed that theoretically, the brief emphasizes maintaining the identity of a city in the station visual and experience design. It also states the importance of people's perception of their city and its identity. But, somewhere in the process of realization of the project, this factor loses its significance. This study attempts to understand the identity of a culturally significant heritage city and how it can be reflected in the railway station design.

The Kamakhya temple has a religious, cultural, and emotional link with the residents of Guwahati city. The Kamakhya Railway station fails to reflect their perception of the temple in the design. They see the railway station as a transit point and a gateway to their city. But this gateway, according to them, is not a correct representation of the temple's image.

The designers and planners put effort into maintaining a connection between the station and the heritage and culture of the city. The attempts are made to reflect the identity in the interior as well as exterior design. Yet the failure of connecting people's perceptions can be accounted for keeping them out of the planning process. From this study, we would like to suggest that the people of that city create the place identity of a city. If it needs to be appropriately reflected, people must be at the center of the design and be involved in the planning process.

2.1.7 Discussion

A place with high cultural value has a strong identity, and people want that identity to be conserved. In the case of a city like Guwahati, where natural and cultural heritage competes with one another, urban designers need to find common ground for replication and abstraction of identity amongst the two elements. The natural identity, in this case, is replicable, but the cultural identity of Kamakhya Devi Temple must be abstracted. With the inputs from various practicing architects in this region, we have come up with the following suggestions to be included in the Smart City Proposal for Guwahati:

1. An abstract form of the Goddess can be used as a part of visual design for the Kamakhya Railway Station to showcase the cultural identity in built form.
2. The sculpture shown in the figure designed with inspiration from the Goddess can be a part of the city's urban design.

2.2 A place with a strong belief system: Bikaner, Rajasthan

A sense of place is seen as natural. Some consider the sense of place as a survival instinct, while others believe it to be a territorial instinct. Environmental psychologists argue that physical components of a built environment play a significant role in creating an image of a place in the minds of their users. The built environment of an area has a substantial impact on the creation of the identity of that place. In cities of architectural value, the built environment shapes an image of the city in the minds of residents and visitors.

According to Kevin Lynch, a city can be imagined by its residents by five elements: paths, edges, districts, nodes, and landmarks. (Lynch, 1960)

The tourism business can extract the image created at these locations and market it to strengthen its identity. This study summarises a survey done in Bikaner, India, a city famous for its historic buildings and traditional food. Thirty- five people were inquired about the city's identity and how they relate to it. The results show that the city's architecture plays an essential role in creating a place identity.

2.2.1 Introduction

The place-identity theory talks about the creation and application of the identity and factor involved, but it omits the contribution of the cognitive factors in a built environment (Dovey & Dovey, 2010; Devine & McCollum, 2019; Devine-Wright & Clayton, 2010). The cognitive factors mainly concern the activities happening in space, their perception in the user's mind, and their personal preferences.

2.2.2 Site study and Results

Bikaner city is in the northwest of the state of Rajasthan, India, in the middle of the Thar Desert. It was the capital of the princely state Bikaner, established by *Rao Bika* in the 15th century. The city is most famous for its savory snack, *Bikaneri bhujia*, which is sold all over the world. The main places of interest include the Junagarh Fort shown in figures 40 and 41, Laxmi Niwas Palace, *Rampurai Haveli* Complex (figure 42), Karni Mata Temple (figure 43) *Laxminath* Temple, and *Bhandasar Jain* Temple.

Apart from the religious stories and beliefs attached to these buildings, each one has its unique selling point, like the Karni Mata Temple is home to rats, Lakshminath temple with foundations filled with *ghee*, 1008 abandoned *havelis*, etc. All the famous buildings have *Marugurjara* style architecture seen in figures 40, 41, and 42.

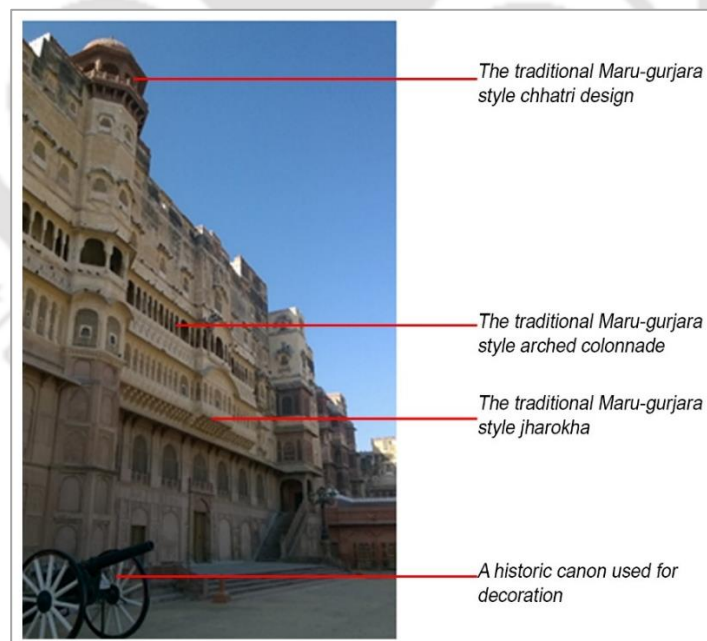


Figure 40. The exteriors of the Junagarh Fort of Bikaner show traditional architectural elements of the Maru-gurjara style.

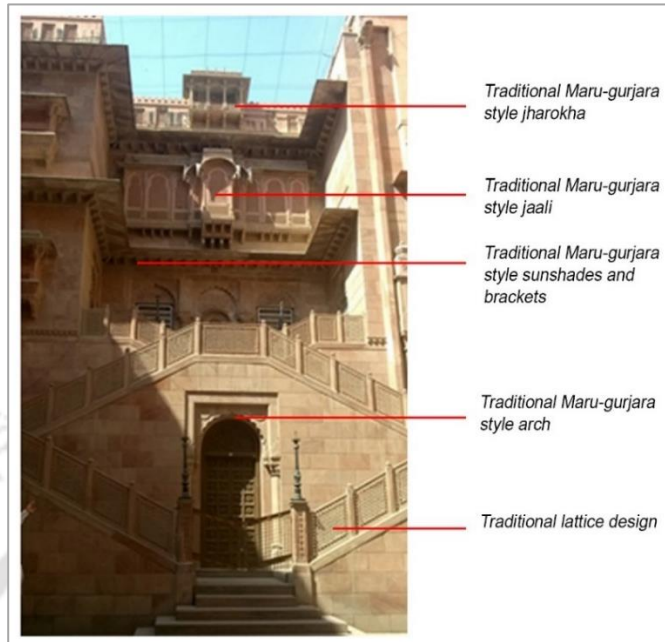


Figure 41. The first entrance courtyard of Junagarh Fort also acts as an entrance foyer for visitors. It also showcases the traditional architectural elements.

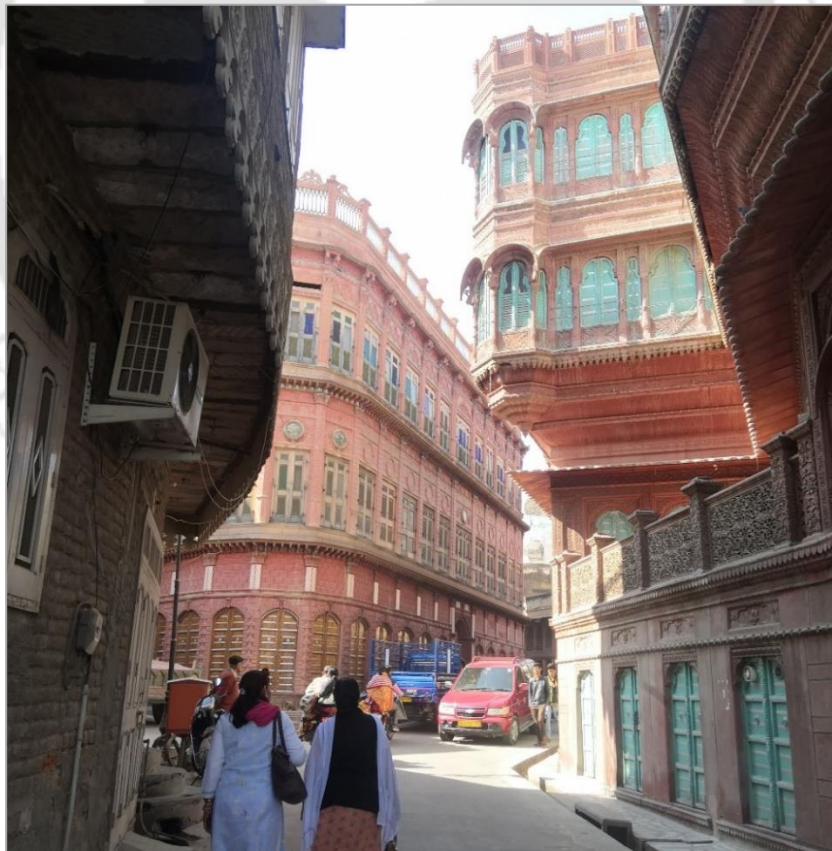


Figure 42. The Rampuria Haveli Complex houses some best examples of architectural features from the Maru-gurjara style.



Figure 43. A lady offering food to rats at the Karni Mata Temple of Bikaner.

Thirty-five people were chosen by random purposive sampling and surveyed to understand their perspective of the city's identity. The sample contained an almost equal share of tourists and local people. The residents surveyed do not see architecture as a separate part of their environment, and the results of the survey show that 85% of residents chose food to be top in identity-creating elements, while *Junagarh* Fort topped the list for tourists with a 100% score as shown in figure 44 and figure 45.

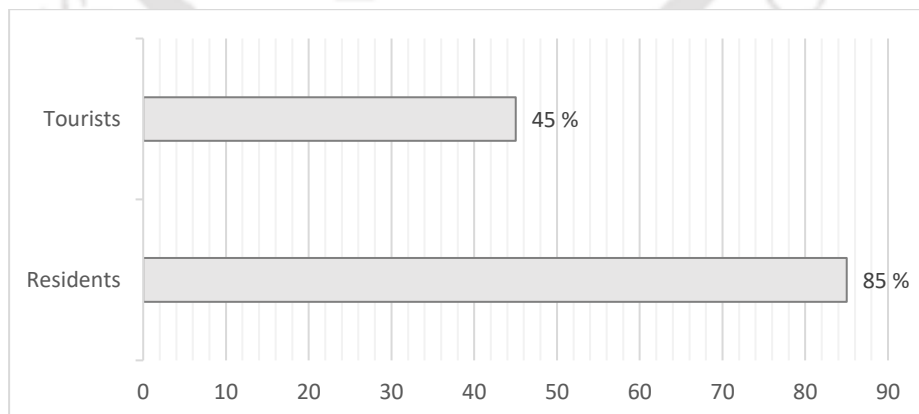


Figure 44. The result of Bikaner's survey shows the percentage of residents and tourists that consider food as an identity-creating element.

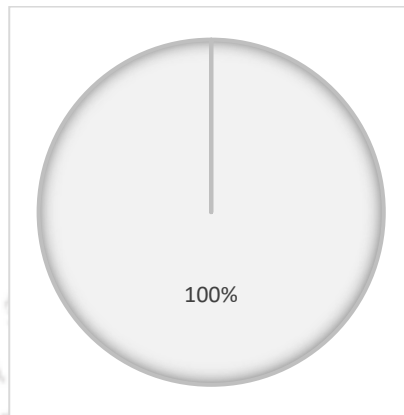


Figure 45. The survey result shows a hundred percent choice of Junagarh Fort as the most iconic place in Bikaner for creating its place identity.

Almost 60% of the residents surveyed mentioned the camel farms inside city limits to be iconic (figure 46), while the *Haveli* complex was cited by all the tourists, show in figure 47.

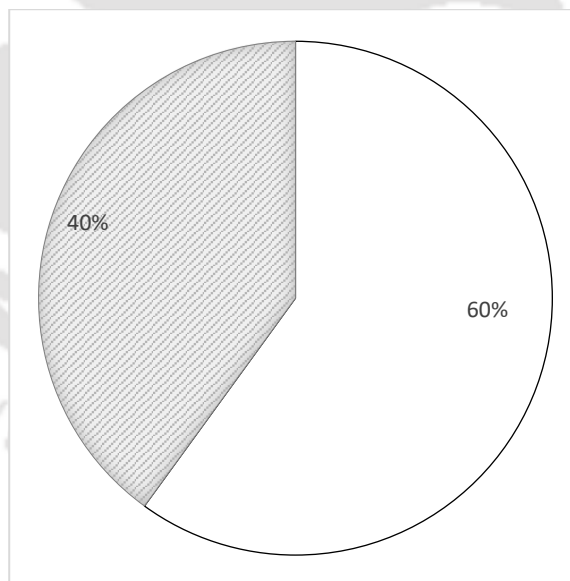


Figure 46. According to the residents, the survey result shows that camel farms are the most important tourist spot that creates a place identity. Sixty percent of residents chose it, while forty percent include the architectural heritage places of historical importance.

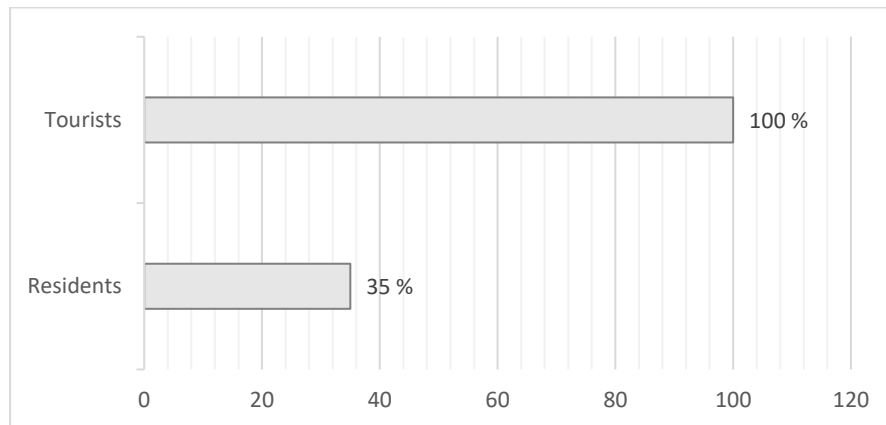


Figure 47. Survey results show that a hundred percent of tourists consider Rampuriya Haveli Complex important for Bikaner city's identity creation, while only thirty-five percent of residents agree.

Fifty percent of the locals were aware of the architectural style of temples and their identity, as seen in figure 48. Nearly seventy-five percent of tourists had already planned a visit to these temples, intrigued by popular stories about their architecture and construction style, shown in figure 48. Upon knowing the stories, the other twenty-five percent of tourists included these temples in their itinerary.

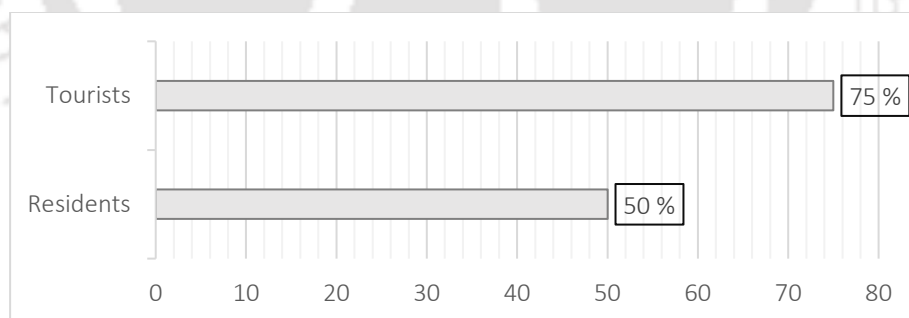


Figure 48. The survey result shows that seventy-five percent of tourists consider that the temples in the city contribute to Bikaner city's tourism identity, while only fifty percent of residents agree with it.

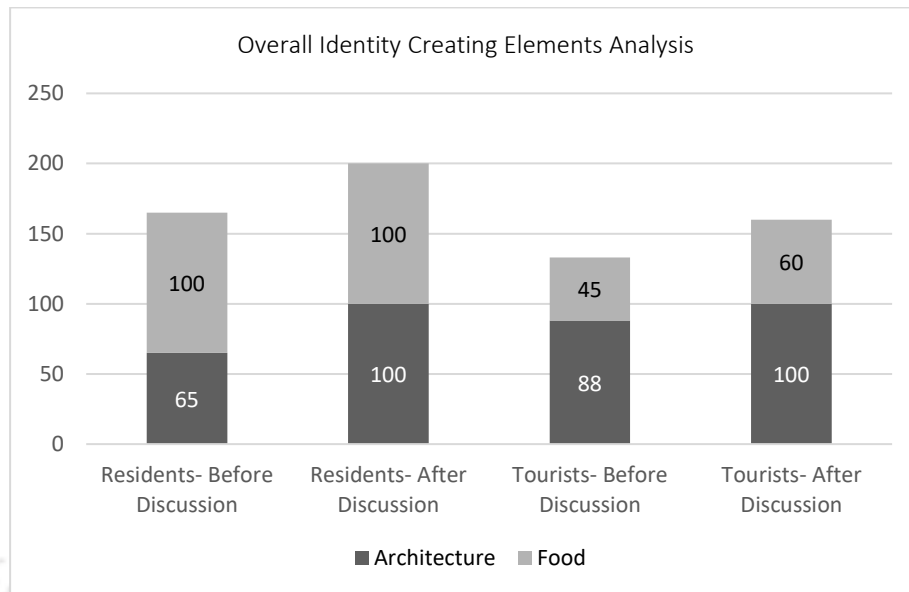


Figure 49. Survey results show the difference in perceptions of residents and tourists of Bikaner about identity creation through the architecture of the place and a comparison of before and after results of the on-site group discussion.

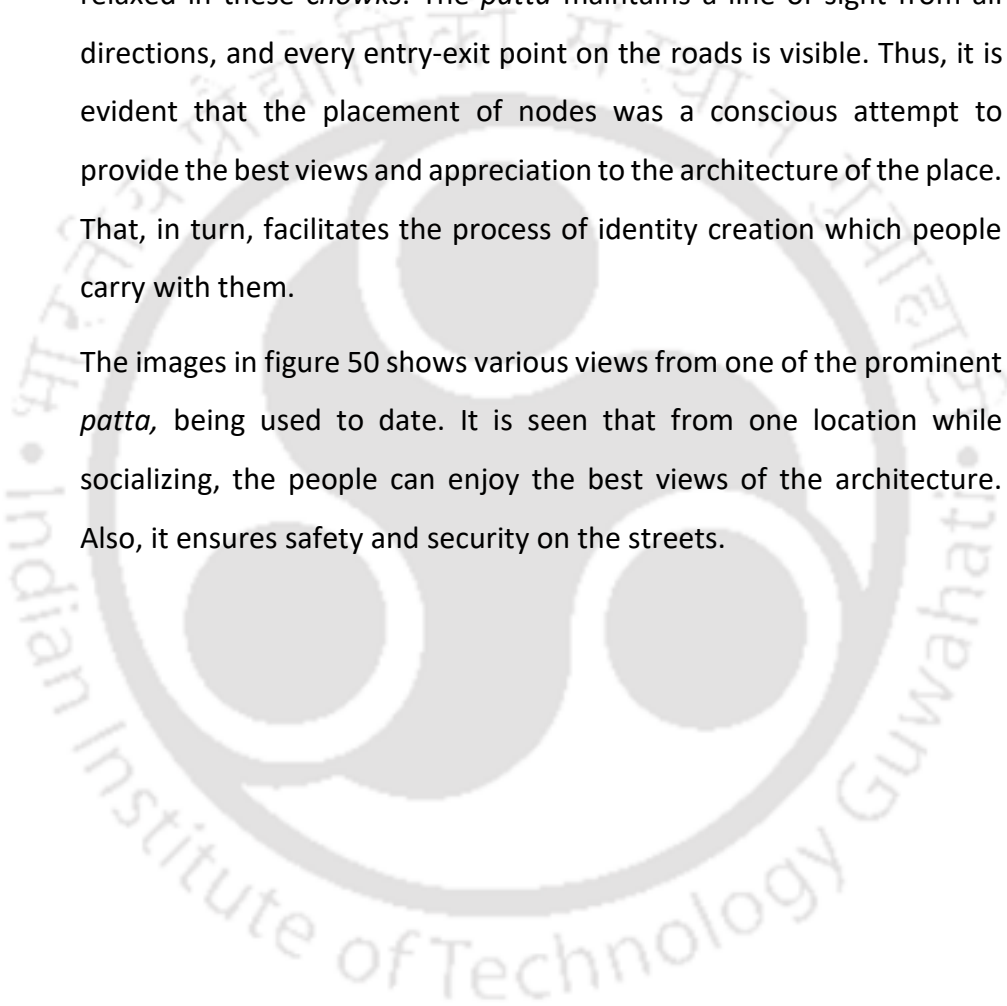
All residents talk about the beautiful *Havelis* and fort architecture only after the mention of food and culture. Upon enquiring more, it was found that even the residents see the architecture of the place as iconic but did not realize it until asked about it. Figure 49 shows the difference in perception of architectural heritage before and after the survey. The architectural elements like multi-cusped arches and intricate designs on stone are the identifying features for the residents and tourists.

The most important observation from the site study was that the identifying features were all located in the *Rampuria Haveli Complex*, and people pass by that place without noticing them unless they reach a node. A piece of street furniture, a double bed-shaped sitting platform, is installed at each node of interior streets. The place is called a *chowk*, and the furniture is *Patta*. The area has a tradition that during the daytime, women sit on this *patta* to socialize while doing household

work, while in the evening, men gather at these spots for discussion. This practice is locally known as the *Patta Sanskriti*.

The interesting fact is that all the elements that people recognized as the architecture of Bikaner are directly visible from these *chowks*. The uncomfortable angles for the line of sight through the streets are relaxed in these *chowks*. The *patta* maintains a line of sight from all directions, and every entry-exit point on the roads is visible. Thus, it is evident that the placement of nodes was a conscious attempt to provide the best views and appreciation to the architecture of the place. That, in turn, facilitates the process of identity creation which people carry with them.

The images in figure 50 shows various views from one of the prominent *patta*, being used to date. It is seen that from one location while socializing, the people can enjoy the best views of the architecture. Also, it ensures safety and security on the streets.



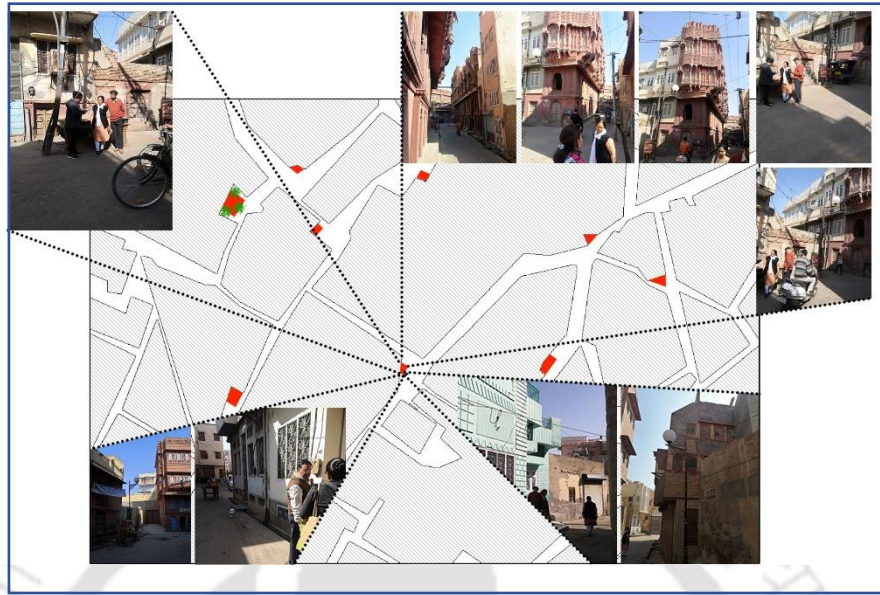


Figure 50. The map showing various buildings and locations of pattas

2.2.3 Analysis

Through literature, we have found that cognitive elements of place-making are crucial in the creation of the place identity of a city. The users of a place associate activities and functions with a space that contributes to their city image. Their experiences and perception significantly affect their mental image of the place and in turn, the place identity.

The perception of legibility is, therefore, primarily cognitive rather than effective. In order to show their relation to the place, people talked about *Junagarh* fort and the food. But actually, the image is created through smaller architectural elements. Those elements are seen near them, subconsciously attaching themselves to them. Also, it is found that the features seen every day during transition do not create that strong identity compared to the ones seen from the viewpoint, here the *chowk*. The three-point arches are abundant in the streets, but people

identify cusped arches as the area's main feature. All the doorways to these *havelis* have cusped arches.



Figure 51. During the site study in Bikaner, it was observed that residents who do not have access to a patta often sit outside their homes. It shows the importance of the 'patta sanskriti' for the place.

The tourists found the architecture of the *Havelis* and Junagarh Fort to be comparable, but for residents, it was difficult. After partitioning of property between families, the residents who do not have access to a patta sit outside their homes on chairs, as seen in figure 51. It is their way of life for the locals, while for tourists, it is an encroachment of roads. This phenomenon also enhances the concept of place attachment.

2.2.4 Inferences

The perception of the image of a city is cognitive and experiential. In this case, the residents experience the place in all its physical settings but talk only about the experience. They often forget the physical context, but for a one-time visitor, both things have an equal role in

identity creation. Once the list of experiences and memory ends for a resident, the built environment immediately takes over. It is this that distinguishes urban design guidelines and city image marketing. Urban design can be a vehicle for the city image, but it is not a driver. The image of a city is created through the perception of people and their communication with the built environment.

The results of this study were discussed with practicing architects in Bikaner. They helped us in formulating quantifiable results that can be used by urban designers and architects for future development while rejuvenating the existing city areas or creating something new. The feedback form discussed with the architects has been attached in Annexure B.

The suggestions after feedback include the following:

1. A façade with traditional architectural elements combined with the narrow streets and big open *chowks* is the correct identity of the city.
2. *Chajjas*, *Jharokhas*, etc., shall be only in traditional style with red sandstone cladding.
3. All building entrances must have a niche, locally known as *aaliya* designed as shown in figure 52, to keep an oil lamp, *deepak*.
4. The exterior surfaces must have motifs of flowers, as shown in figure 54, and must be replicated at other places to restore the heritage identity of the city.
5. On all exposed elevations of the buildings, the surface shall be finished in red sandstone and carved with intricate patterns, like shown in figure 53.
6. All houses must be opening to an open road intersection, creating a node popularly known as a *chowk*.

7. All the *chowks* must have a community gathering space and street furniture known as a *patta* to sit. This will keep the *patta sanskriti* alive.

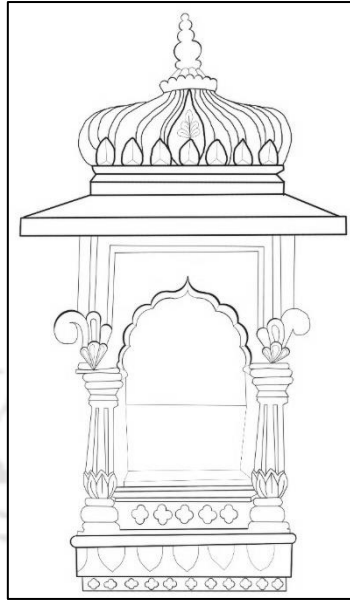


Figure 52. Traditional 'aaliya' design most preferred by residents as an identity creating architecture element.

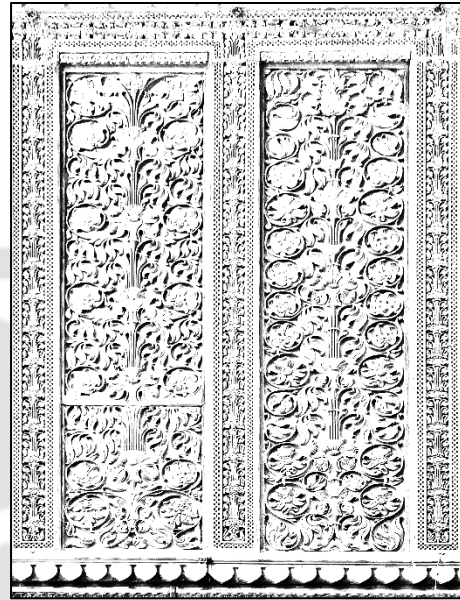


Figure 53. Intricate wall carving design of mostly seen in Bikaner City, most preferred architectural element in identity creation, as per the people's perception.

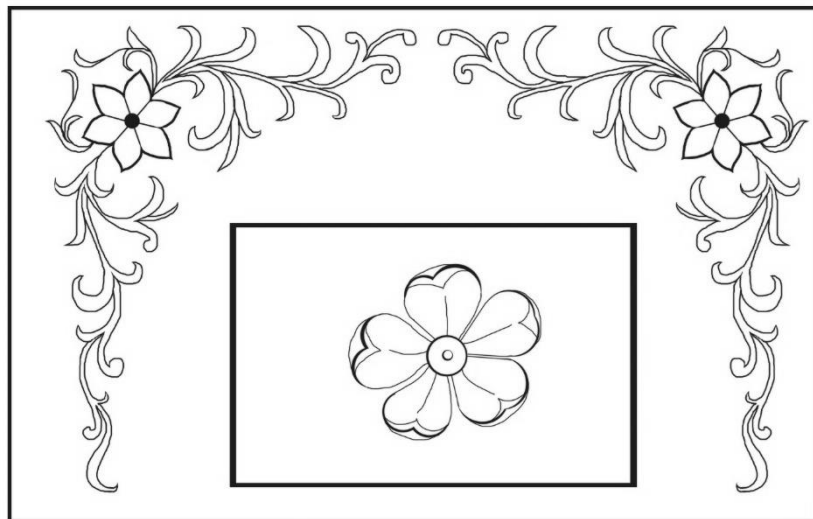


Figure 54. Traditional flower motifs used on exterior surfaces of Bikaner

2.2.5 Discussion

It can be concluded from this study that the preservation of identity is important for a place with a strong belief system. The place's culture and traditions are reflected in the built environment, and the architecture of the place responds to these cognitive needs of the people—culturally rich spaces tend to have a stronger place identity in the minds of the residents and visitors. The residents' and visitors' perceptions of this place's identity may differ with their experiences and knowledge about it. Suppose an attempt is made to restore the identity of the place for its place branding as a tourist destination. In that case, we must find a way to identify the major elements of a built environment that can be used further.

People are more inclined to protect the heritage by retaining relics that create architectural identity. They appreciate the use of the traditional architectural elements when a haveli is being created by crude replication. But when such use is to be done in a hotel or any other tourist destination, the replication might not be suitable, and abstraction is required. Hence, we can conclude that crude replication is preferred when we talk about the utility-based expansion of space. When the architecture is to be appreciated, abstraction is a better approach.

2.3 The Architectural Heritage of Udaipur City: An Investigation into Identity of the Built

Udaipur is one of the biggest cities of Rajasthan and is under rapid urbanization. The city is famous for its culture, traditions, and beautiful lakes and palaces. The city is renowned for its identity as 'City of Lakes' and 'Venice of the East'. Figure 55 shows the famous Taj Lake Palace Hotel built on an island in Lake Pichhola.

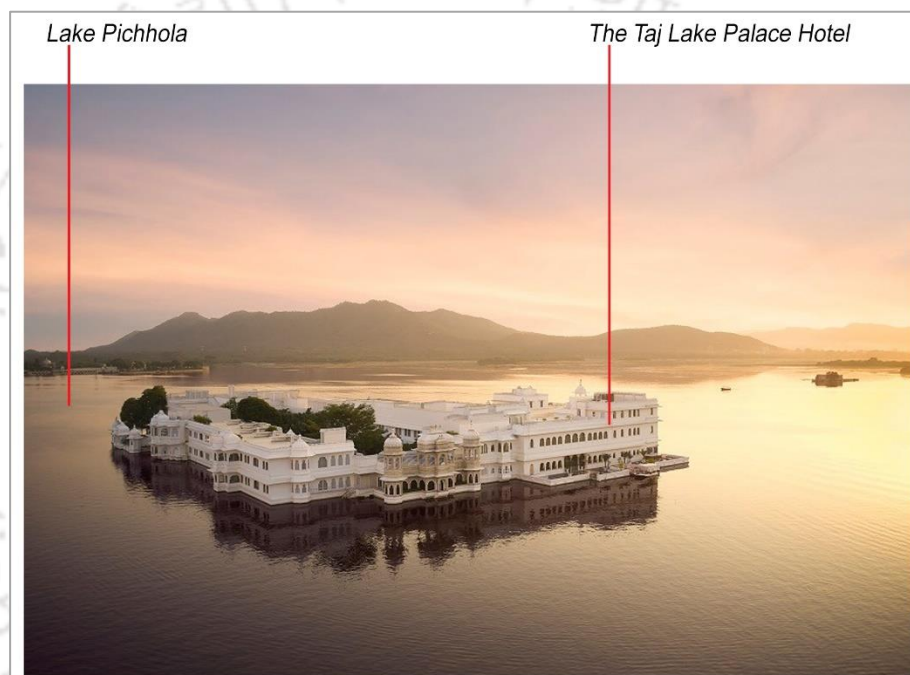


Figure 55. A photograph of the Taj Lake Palace Hotel in Lake Pichhola. It is a world-famous hotel for its architectural grandeur and beautiful natural setting. Image source: <https://www.tajhotels.com/en-in/taj/taj-lake-palace-udaipur/image-gallery/>

The city is famous for its architectural heritage and displays the classical features of the Maru-gurjara style. The city has architectural attractions like the City Palace, *Saheliyon ki Baadi*, the Monsoon Palace, Sajjangarh Fort, Kumbhalgarh Fort, Bagore ki *Haveli*, etc. Figure 56 shows an image of the City Palace as seen from Lake Pichhola. In the early 15th century, the city was built around man-made lakes and, in present times, serves as a major tourist attraction.

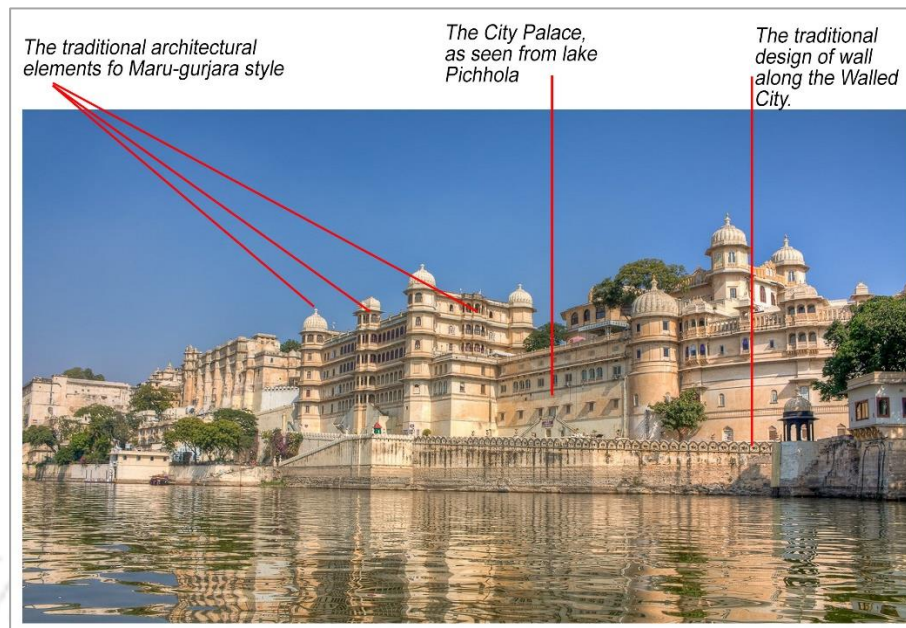


Figure 56. The City Palace of Udaipur, as seen from Lake Pichhola. It displays classic features of the Maru-gurjara style of architecture. Image source: <https://www.gemtravels.com/holiday-package/glimpse-of-mewad>

The tangible and intangible heritage of the city has deep-rooted effects on the place's culture. It arises from the Rajputana culture and traditions. The built environment reflects the cultural heritage in terms of visual elements and house planning. The city has most of the historically important structures in the heritage precincts of the historic core, around lake Pichhola (Samant, 2007). The heritage precincts are planned organically, and various road intersections create nodes for the city. Most of the landmarks are present on or near these nodes.

In figure 57, we see the Jagdish Temple of Udaipur. It is a famous worship place for the locals and hosts an annual *rath yatra*. The Temple complex has high cultural and religious significance for the locals and architectural significance for the tourists visiting the area. It has become a prominent landmark for the city. The heritage precincts have commercial and residential land use. The main streets are lined with shops, and inner lanes are used for residential purposes.

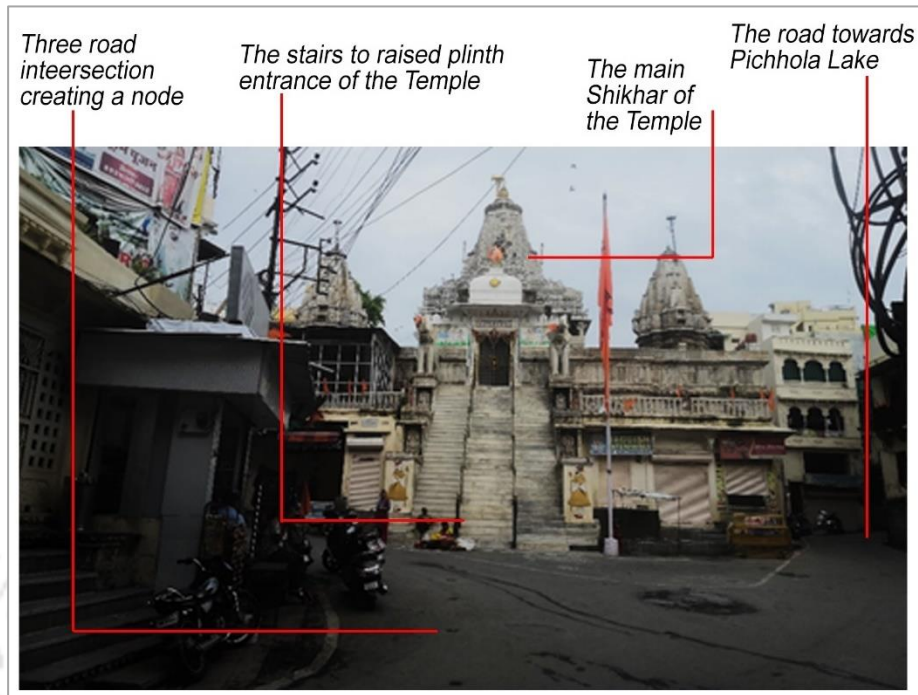


Figure 57. The Jagdish Temple in the walled city of Udaipur, Rajasthan. It is at the four-road-crosssection and is a landmark for the city.

Udaipur was the capital city of the Mewar region and held a unique cultural and traditional significance. The heritage-built environments of the city reflect this significance and play host to various cultural events in these precincts. The city's cultural heritage thrives on the built heritage of the city based on its place identity. The sense of place experienced by the city residents reflects on their day-to-day activities. The economic and livelihood activities are primarily based on tourism, and the locations are decided by tourist routes (Pal & Rawal, 2020; Bautès, 2016).

It's becoming increasingly difficult to maintain Udaipur's historic core as a result of development. The loss of local cultural heritage has been caused by the transformation of indigenous character to facilitate global forces (Dave, 2017). Alterations cause disruption to the social and physical fabric of the city's historic building floors and daily routines

(Maheshwari & Singh, 2018; Dadhich & Sharma , 2013). Increased tourism activities and a loss in the sense of place have significantly impacted historic assets.

There has been a massive transformation in historic built form due to insensitive development, traffic congestion, and the addition of foreign elements(Cui & Ryan, 2011). The local people have disassociated themselves from the core and moved to the newer settlements. As a result, crafts and traditional livelihoods of indigenous peoples are reduced to a commodity suitable for tourist consumption. As a result of a lack of heritage management and conservation guidelines, over-tourism, globalization, and inhabitants' changing values have made it more vulnerable.

Udaipur's approach to preserving its historic sites has been largely monumental. The restoration, conservation, and adaptive reuse of major tourist destinations like Palaces, Havelis, and Ghats have helped to support tourism. In contrast, the city's or the city's living heritage has not received the attention it deserves. Living market and makeshift commodities, arts, and crafts have been commodified rather than restored and conserved (Munjal & Munjal, 2011) (Shrimali, 2017). Udaipur has shifted its focus to the city's living heritage and built form as a result of the recent Smart City mission (Prasad & Purohit, 2017).

The city residents interact with their built environment and interpret their experiences according to their perceptions. These experiences create an image in users' minds and are unique to them. The collective image in the residents' minds creates an identity of the place. The place identity can be used in the future urban expansion of a city or the development of a tourist destination.

Many factors influence the place identity like place attachment, sense of place, sense of belonging, etc. The major physical contributing factors in identity creation are traditions, culture, food, built environment, activities, geography, etc. This study is done in Udaipur city, a historic town of North-western state of India, Rajasthan, famous for its royal culture, traditions, heritage architecture, and natural beauty. This study identifies architectural dimensions of the place that play a crucial role in creating its place- identity through the user survey.

The study is done with three sections of users, the permanent resident, the temporary residents, and the tourists, to identify the city image that they have in their minds. This study aims to find the identity-creating elements from the city core's heritage-built environments that architects, urban designers, and planners can use during the city expansion. It is found that the architecture of the place impacts that image, and more minor architectural elements from the heritage precincts of the city create place identity.

These identified elements help strengthen the city image in the minds of the residents and visitors of the city. A balanced approach and choice between abstraction and architectural heritage replication can help conserve visual aspects of built heritage without the city experience being overwhelming or monotonous. Kevin Lynch's study, published as *The Image of the City*, inspires this study's idea, where he has mapped down the mental image of three cities Boston, Jersey City, and Los Angeles.

2.3.1 Study area introduction

The city was established in the valley area of the Aravali ranges and had an enclosure from three sides. The master plan, shown in figure 58,

shows the expansion scheme of the city till the year 2031. The city limits extend up to the hills on three sides and expand eastwards towards village Dabok, the airport. The city is rich in water sources, primarily man-made, all interconnected to maintain water supply throughout the year and avoid flooding in monsoons. The tourism facility development focuses on using these water bodies and linking the destinations to the airport.

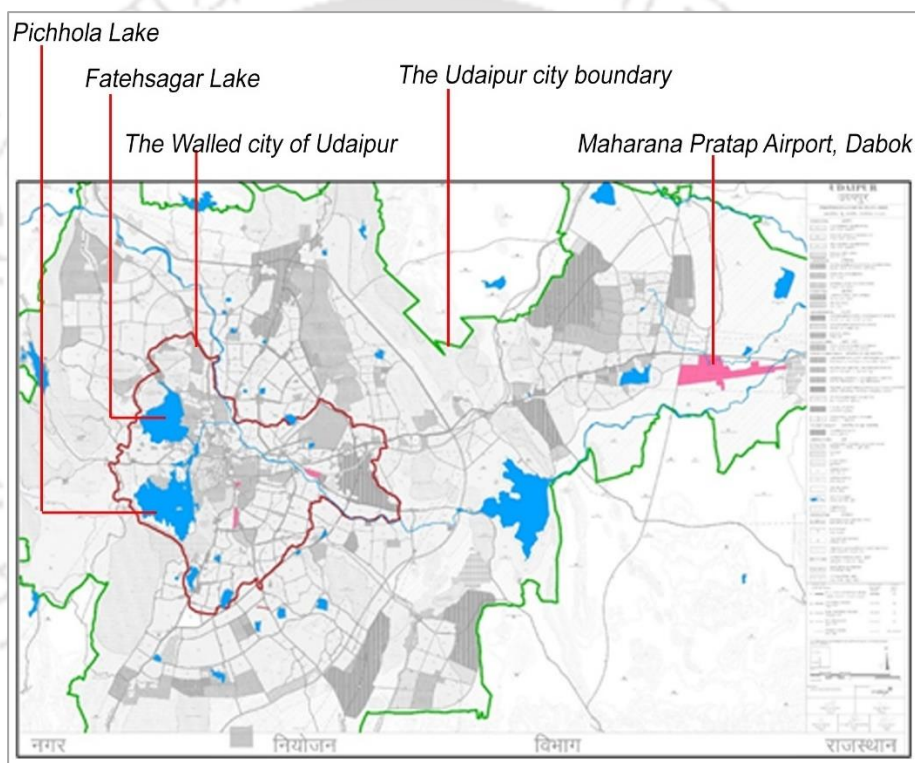


Figure 58. The master plan of Udaipur shows the urban expansion plan for 2031 and highlights the water resource for the area. Master plan source: <https://urban.rajasthan.gov.in/content/raj/udh/uit-udaipur/en/town-planning/master-development--plan-.html>

As mentioned earlier, the expansion of the city is happening towards the airport. And the airport serves as the main transit point for tourists that come to the city. We need to utilize the city's place identity for the tourism business and protect the unique living heritage. The new areas developing along the highway that connects the city and the airport

need to be in visual synchrony with the original built environment. We conducted the study to inquire into the city's place identity and users' perception. Details of the study are discussed in the following sections.

2.3.2 Methodology

The methodology for the study is inspired by Kevin Lynch's book 'The Image of the City' (Lynch, 1960). The method he has used starts with interviewing people and understanding how they create an image of the city. Here we have used the same approach to identify the elements that make place identity. We identified the city's main user types: the permanent residents, the temporary residents, and the tourists.

The user's types are generally concentrated in parts of the city according to their motives. The major permanent residents still live in the Walled City area, the temporary residents live in new town extensions, and tourists visit the City Palace area without fail. Thus we shortlisted these three areas for the study. Figure 59 shows the areas marked on the map of Udaipur.

We first collected visual data for Udaipur, documenting the various architectural elements that create a distinct heritage identity of the city. We prepared the questionnaire used to do the on-site survey of people and their perception of the place using those pictures. A pilot survey was done to check how respondents responded to the questions and then reiterated the questionnaire to do the final survey.

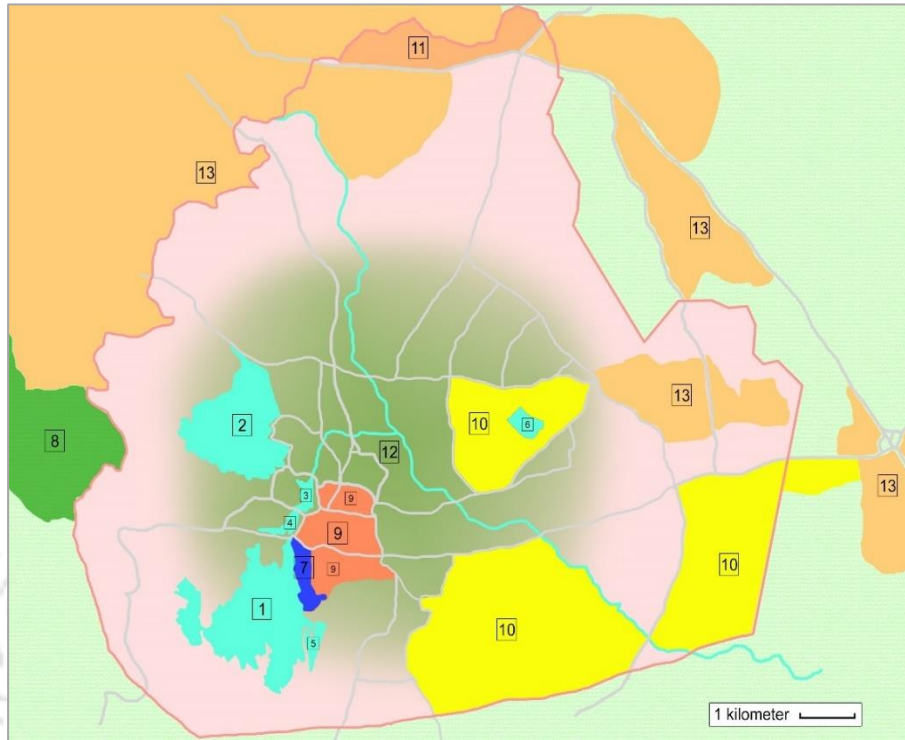








Figure 59. The map of Udaipur, Rajasthan, shows the survey sites' location and users.

Legends		Color
1	Pichhola Lake	
2	Fatehsagar Lake	
3	Swaroop Sagar (Lake)	
4	Rang Sagar (Lake)	
5	Doodh Talai (Lake)	
6	Roop Sagar (Lake)	
7	City Palace	
8	Sajjangarh Fort and Biological Park	
9	The Walled city of Udaipur	
10	New Town Extension areas	
11	Geetanjali Group of Educational Institutes	
12	The main city area	
13	Udaipur rural	


The questionnaire is divided into five sections, section A being the ethnographic details, section B having morphological details, section C having questions related to the visual survey of people. The respondents look at photographs and tell their aptness in the context of Udaipur on a three-point semantic scale, as shown in table 6. The following section, D, has architectural elements that people have to choose are distinct from the city's architectural style. The next and final section has an open-ended question about Udaipur's architectural identity, the respondent's perception of it, the need to be preserved, and how they can do it.


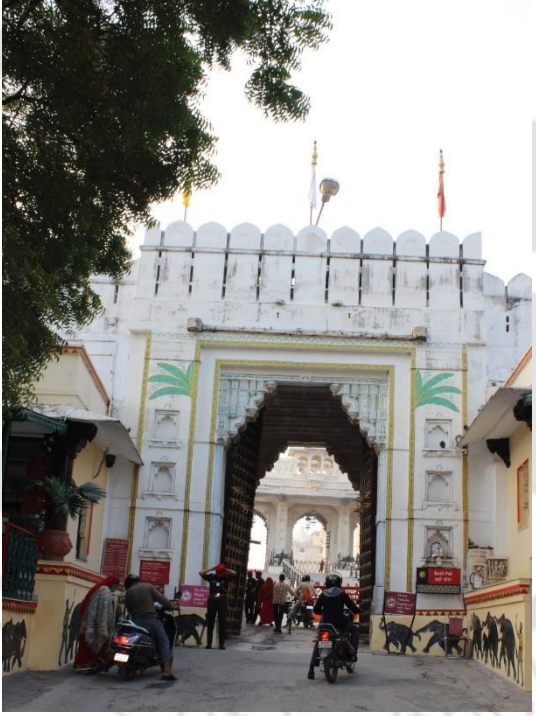
Table 6. Question one of Section C, a sample for the type of questions and scale used in the questionnaire, after adjustments made from the feedback of the pilot study.



Palette	Least appropriate (1)	Neutral (2)	Most appropriate (3)
			
			
			
			
			
			



The images used for the questionnaire survey are discussed in table 7, where we have discussed the reason for selecting the image. We initially shortlisted the pictures from all the visual data collected for the city. From those shortlisted images, architects from the city picked up the nine images to use in the questionnaire for the survey. The last photo was put in from another town to confirm the recognition abilities of the respondents.



Table 7. The photographs selected for the user survey of Udaipur and the reason for their selection, as given by the architects.


S. No.	Photograph	Reason for selection
1.		<ul style="list-style-type: none"> • The traditional arches • The iconic bracket design • The <i>jharokha</i> • The <i>patti</i> design • The traditional <i>jaali</i> design • The color and surface finish • Location of the building on the main road

<p>2.</p>		<ul style="list-style-type: none"> • The traditional roofscape background • The color and surface finish • The ornamentation by wall paintings
<p>3.</p>		<ul style="list-style-type: none"> • The traditional arches • The traditional roofscape • Whitewash with lime plaster as surface treatment • Surface ornamentation by wall paintings • Prominent location for all users • Background

<p>4.</p>		<ul style="list-style-type: none"> • The traditional arches • Exposed Kotalstone <i>Jharokha</i> • Exposed Kotalstone brackets • The <i>jaali</i> design • Surface treatment and color • The strategic location of the building in heritage precincts
<p>5.</p>		<ul style="list-style-type: none"> • The traditional architectural elements • The white color • The gridline in building fenestrations and form • The foreground of water • Combination of the white building and lake water

<p>6.</p>		<ul style="list-style-type: none"> • One of the very few buildings of the heritage precincts with a modern look • Located at the heart of the heritage precincts • Trendy hotel amongst the tourists • The name is specific to Udaipur. Comes from Sajjangarh Fort.
<p>7.</p>		<ul style="list-style-type: none"> • Particular market in the historic area • Whitewash on lime plaster for surface treatment • Iconic roofscape

<p>8.</p>		<ul style="list-style-type: none"> • The traditional arches • The market place from the historic district • A religious building • Market to address specific user group • Whitewash on lime plaster for surface treatment
<p>9.</p>		<ul style="list-style-type: none"> • Udaipur cream color on plaster for surface treatment • Traditional gateway with a multi-cusped arch • Arched colonnade • Bracket design of the overhangs • Located in the middle of the heritage precincts

10.		<ul style="list-style-type: none"> • The image is not of Udaipur • Whitewash on lime plaster for surface treatment just as Udaipur • Ached entrances, but these are pointed multicusp arches, unlike Udaipur
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2.3.3 Site study and results

This site study was done over one year in Udaipur. The Walled City area of Udaipur holds the most prominent heritage structures and the most important tourist destination, lake Pichola and Fatehsagar. The survey of temporary residents is done in Transport Nagar on Airport Road, Udaipur, a new- town extension. The tourists were surveyed in and around the City Palace Complex and near the two lakes, seen in figure 60. As shown in figure 61, the residents were surveyed in the heritage precincts and the historic markets.



Figure 60. A photograph from the survey of tourists visiting Udaipur is done at the City Palace entrance.

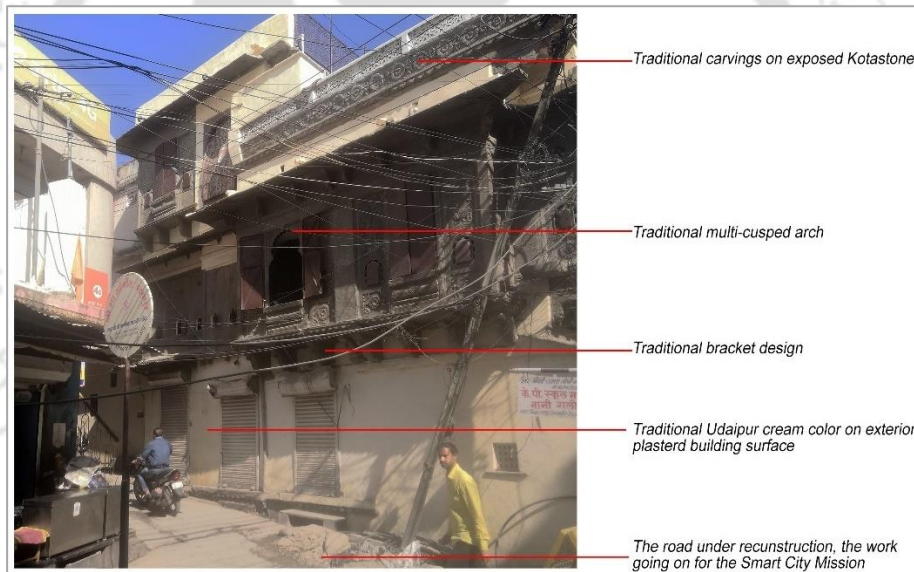


Figure 61. The photograph shows one of the survey areas of the permanent residents from the residential lanes of the heritage precincts of Udaipur.

Here I would like to mention that it was supposed to be a purposive sampling with 100 samples each in the three sections, the permanent residents, temporary residents, and the tourists. But due to the pandemic, there was a fall in the number of tourists, and residents were not ready to interact or let strangers come to their homes. It led to the

fall in sample size, and only 35 tourists and 50 residents were surveyed in each section. The sampling is random convenience sampling due to the limited availability of respondents.

The first pilot study was done in New-town extension for convenience, and we found that people were not comfortable using a 7 point Likert scale with a semantic naming. Hence, we replaced it with a three-point semantic scale for the main survey with the three indicators being yes, no, and maybe and people had to choose from the images mentioned in table 7 if they thought they belonged to Udaipur.

The results of the survey were analyzed using the Microsoft Excel application to generate a frequency chart. The frequency charts of the survey for the three user groups were compared to highlight the difference between their perceptions. Figures 62 to 77 show the survey results which were used for the statistical and semiotic analysis in the next section.



Figure 62. Perception towards the first color palette generated by the exposed Kotastone and brick masonry discussed in table (6).



Figure 63. The perception of various users towards the color palette was generated by inspiration from the lake palace.

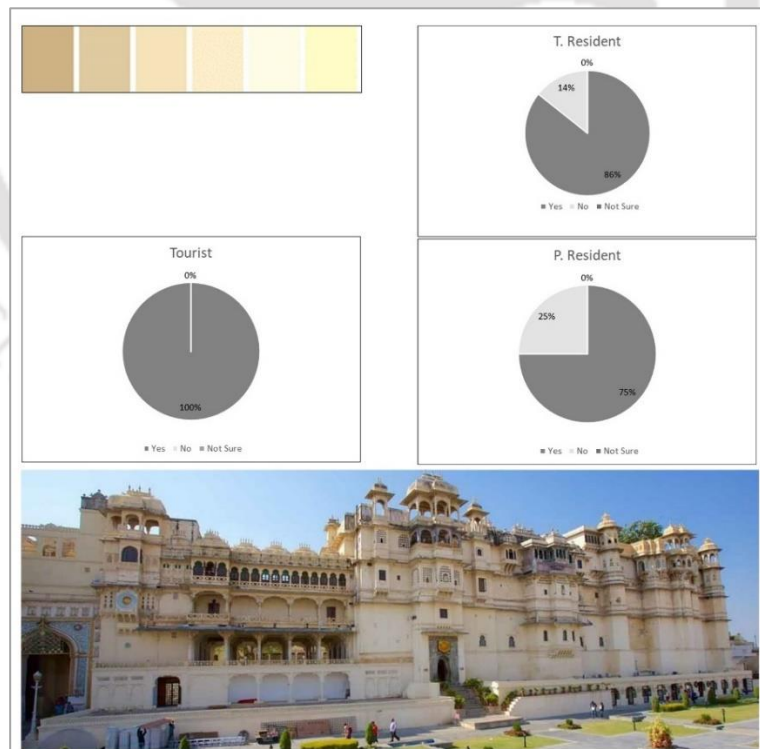


Figure 64. The perception towards the Udaipur cream color palette generated by the City Palace.

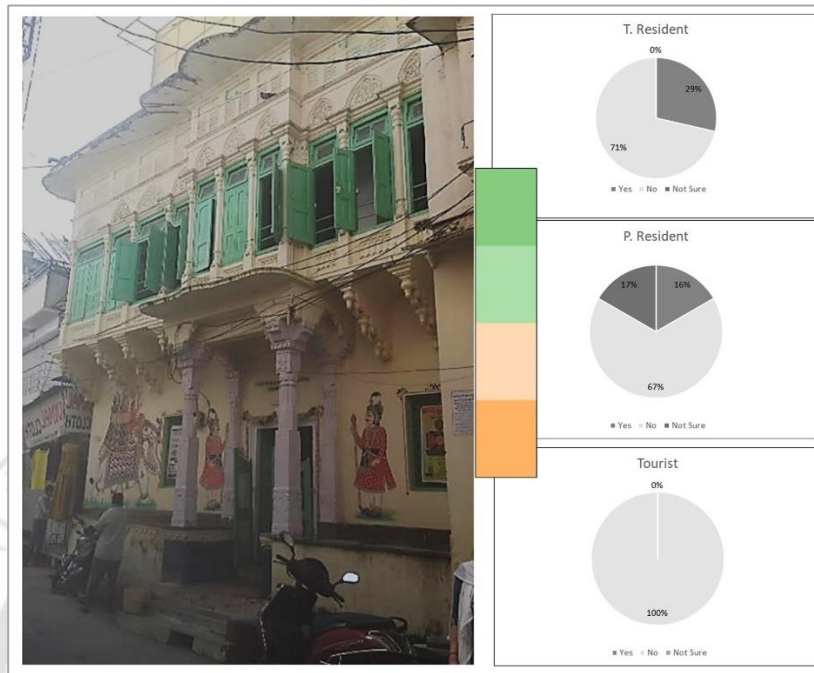


Figure 65. The perception towards the color palette generated by the streets of historic markets of the city

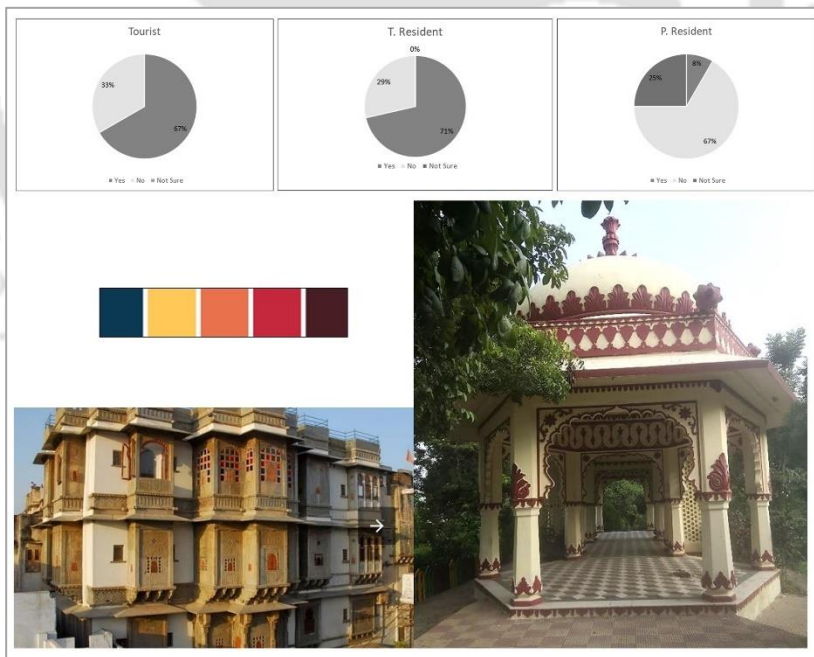


Figure 66. The perception towards the color palette is generated by newer architecture elements, including colored glass windows and *gerua* color.

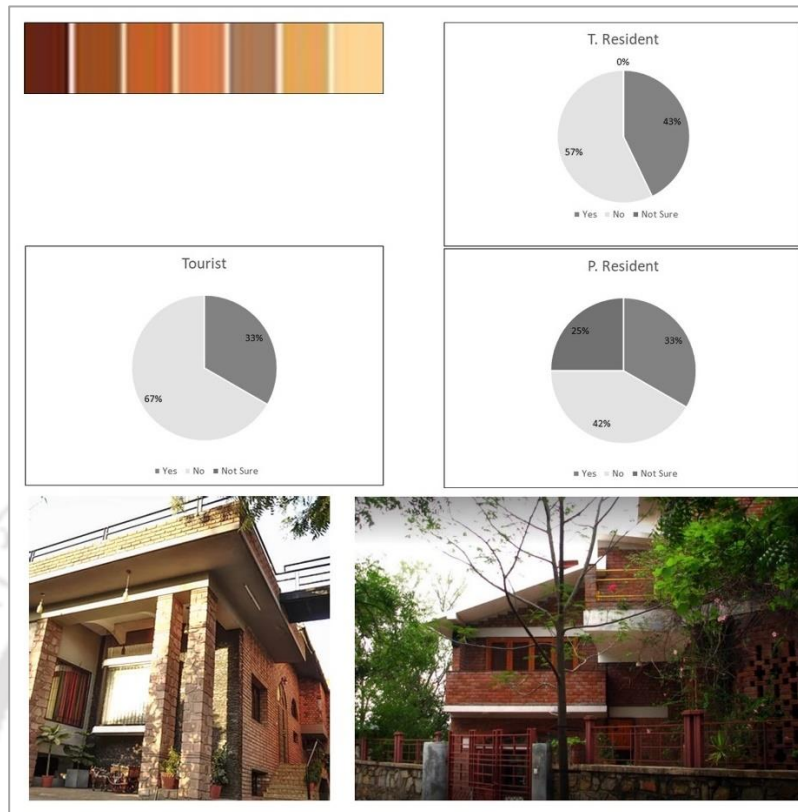


Figure 67. The color palette generated by the buildings follows a regionalist approach towards architecture.

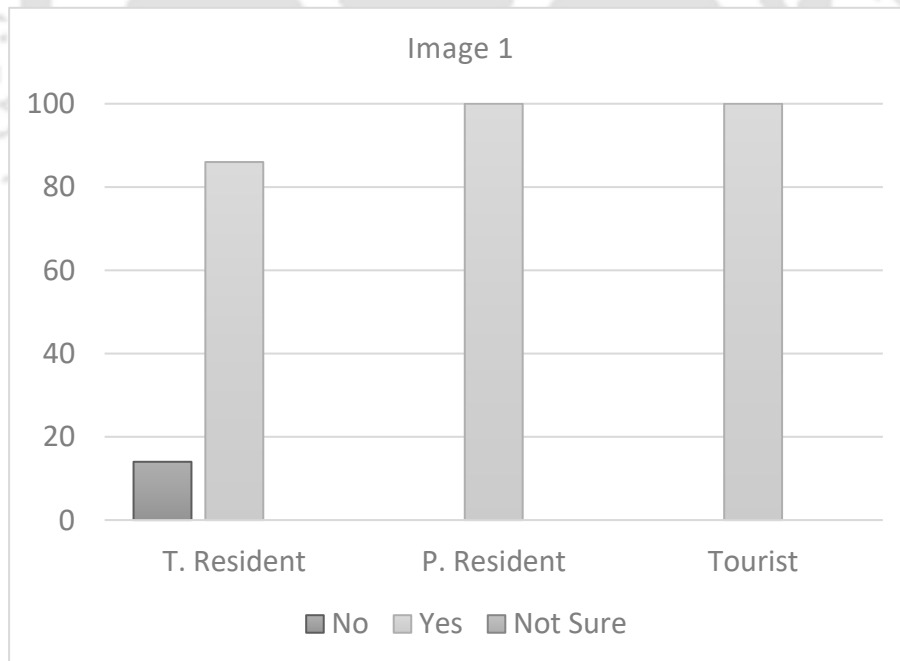


Figure 68. The survey result for the first image from the main road of the heritage area shows that it is of high visual importance to the users. Almost all the users recognized it.

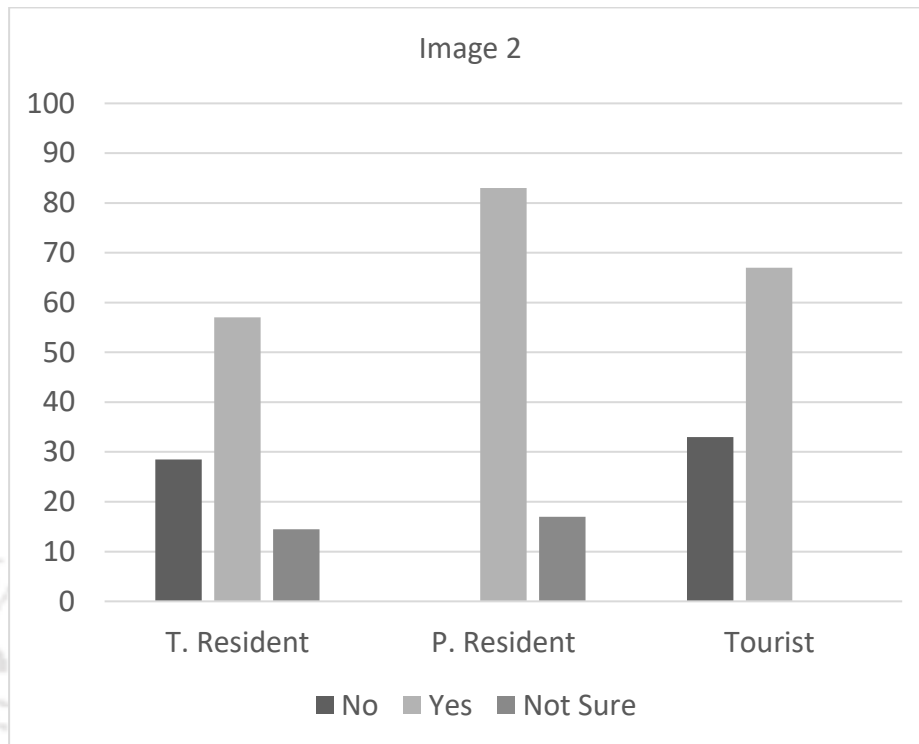


Figure 69. The survey result for the second image shown to the respondents in the Udaipur survey shows that only temporary residents have some visual link with it.

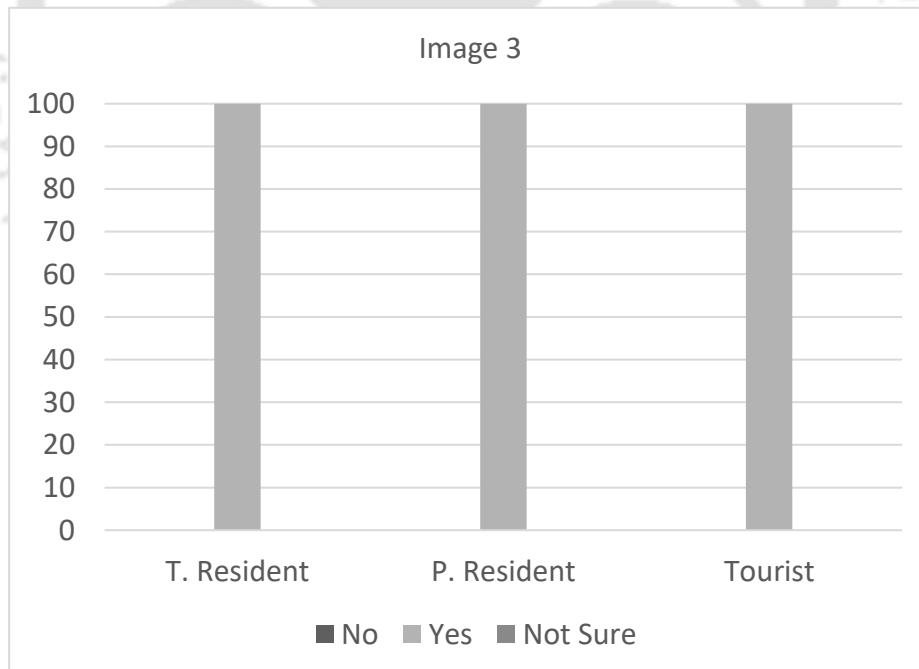


Figure 70. The survey result for the third image shown to the respondents in the Udaipur survey shows that all respondents recognize the entrance gateway to the City Palace.

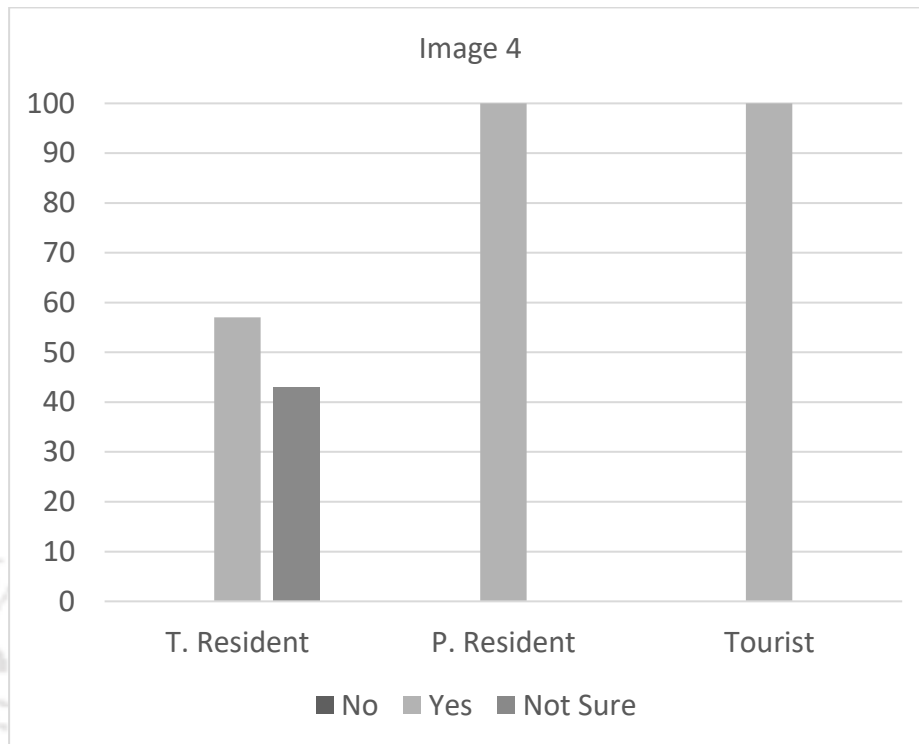


Figure 71. The survey result for the fourth image shown to the respondents in the Udaipur survey shows that the tourists and permanent residents are more familiar with the buildings on the streets of the city's heritage district.

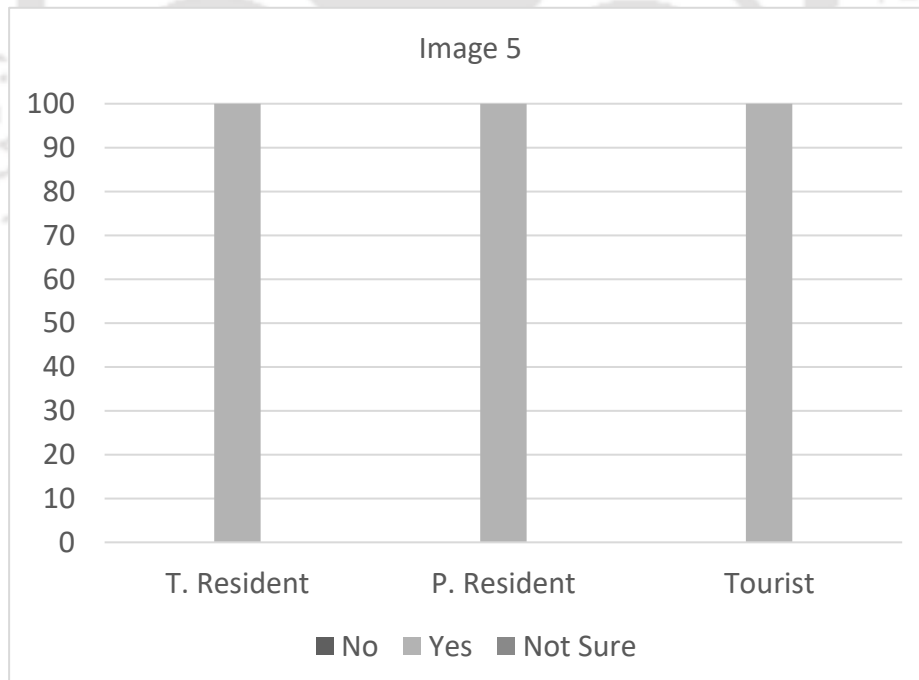


Figure 72. The survey result for the fifth image shown to the respondents in the Udaipur survey shows that all users immediately recognize white-colored buildings with water in the foreground.

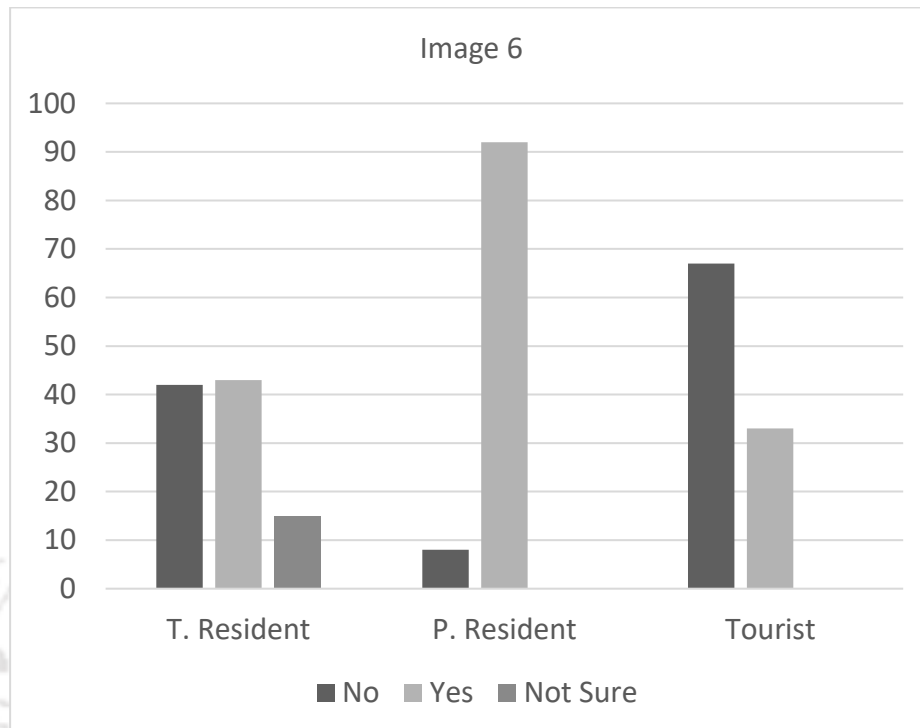


Figure 73. The survey result for the sixth image shown to the respondents in the Udaipur survey shows that the buildings in heritage precincts need to follow traditional architectural style to get visual attention. The permanent residents recognized it by the name.

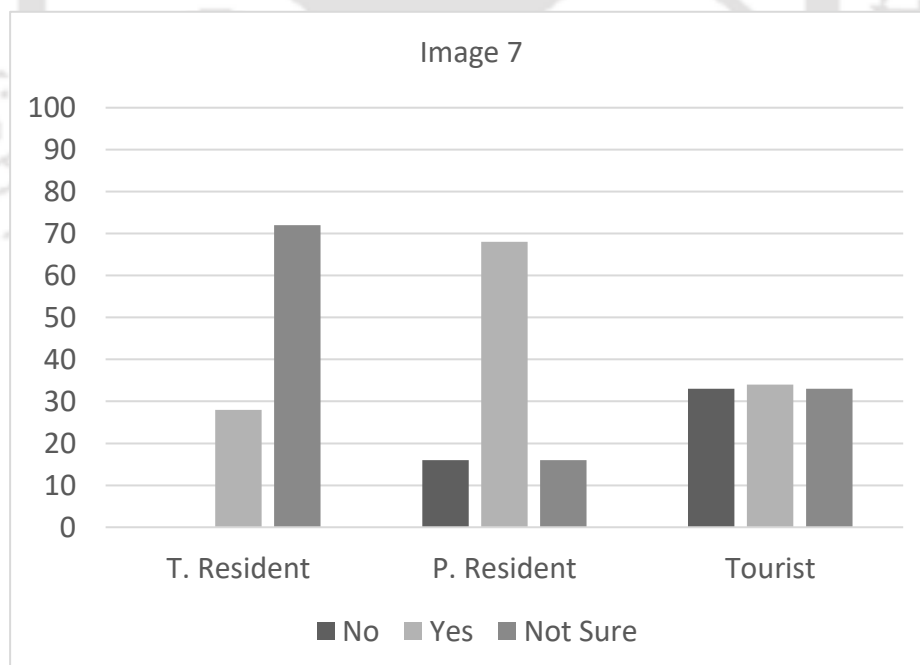


Figure 74. The survey result for the seventh image shown to the respondents in the Udaipur survey shows that the marketplaces from historic districts with no prominent traditional architectural features or elements do not visually impact the users.

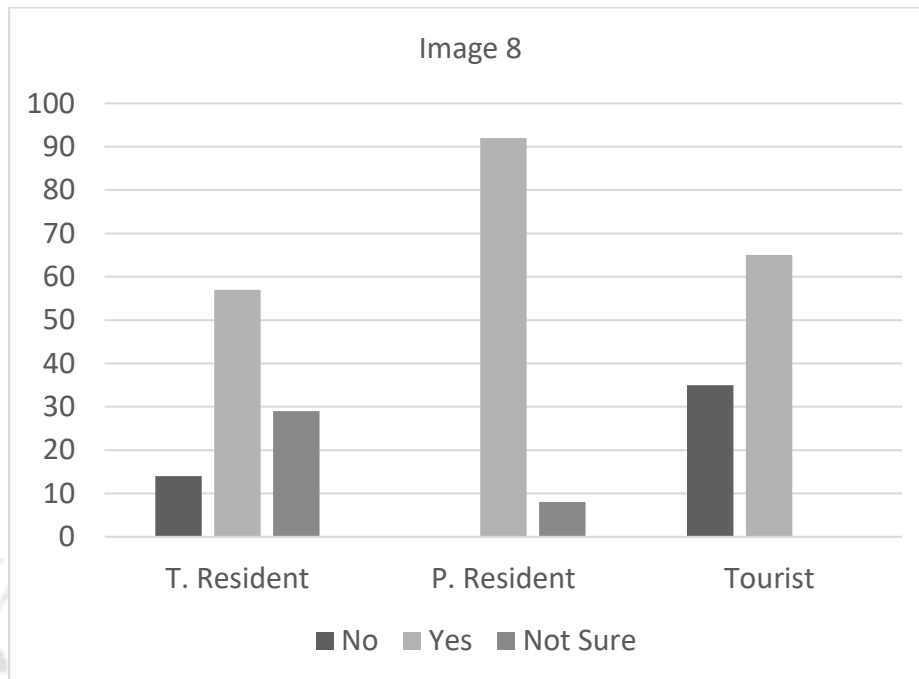


Figure 75. The survey result for the eighth image shown to the respondents in the Udaipur survey shows that the visual impact of new marketplaces is mainly by the shops addressing specific day-to-day needs.

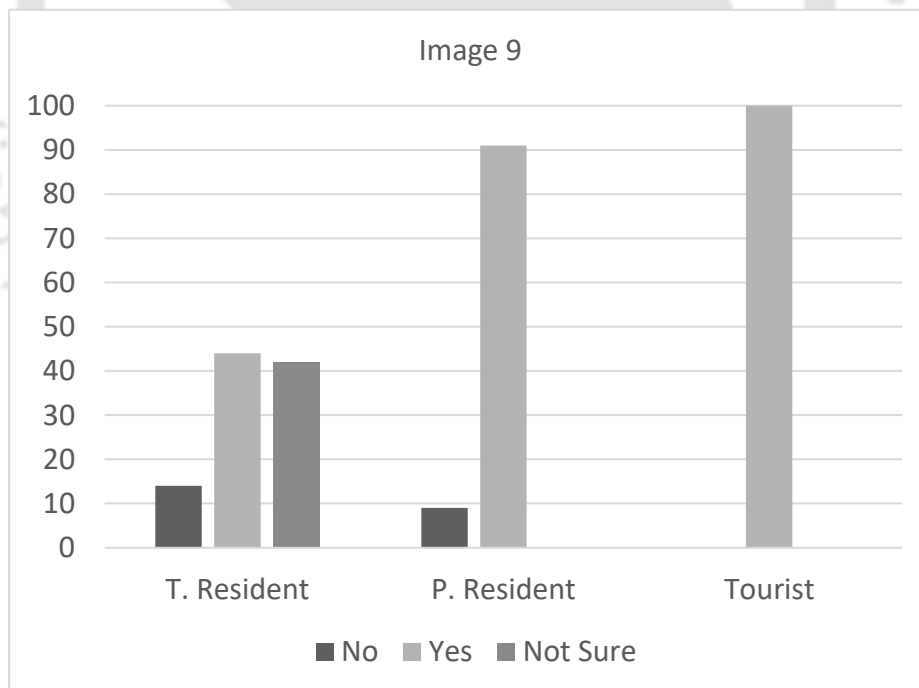


Figure 76. The survey result for the ninth image shown to the respondents in the Udaipur survey shows that the marketplaces with traditional architectural elements have a visual significance for the users but are often misinterpreted by the temporary residents.

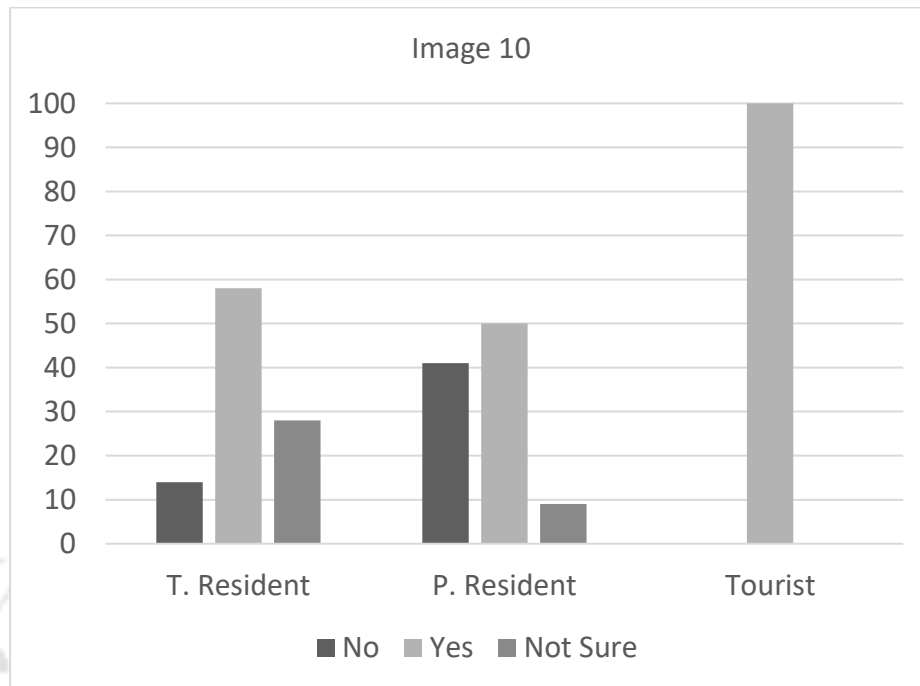


Figure 77. The tenth image shown in the survey was not of Udaipur, and the temporary and permanent residents could identify that. The tourists could not differentiate between the arch types and claimed it to be of Udaipur.

2.3.4 Analysis and results

We generated response frequency charts to analyze the data collected from the survey and calculated the relative importance index (RII) for the images, shown in tables 8,9, and 10. The relative importance index gives a priority list of the images and colors of the city through which people recognize them. Once we had the priority list, we analyzed the results and shortlisted the picture of Relative Importance Index 1. Those images were then analyzed using semiotic visual analysis as discussed in the paper (Mishra & Kolay, 2019).

Table 8. The Relative Importance Index table for permanent residents shows that images that contain a waterbody with white buildings create a strong identity for Udaipur.

Questions	RII	Ranks
Colour 1	0.5	3
Colour 2	0.933333	1
Colour 3	0.8	2
Colour 4	0.4	NQ
Colour 5	0.366667	NQ
Colour 6	0.566667	3
Image 1	1	1
Image 2	0.864	2
Image 3	1	1
Image 4	1	1
Image 5	1	1
Image 6	0.936	1
Image 7	0.808	2
Image 8	0.968	1
Image 9	0.928	1
Image 10	0.636	3

Table 9. The Relative Importance Index table for temporary residents shows that images that contain a waterbody with white buildings create a strong identity for Udaipur.

Questions	RII	Ranks
Colour 1	0.6	NQ
Colour 2	1	1
Colour 3	0.885714	2
Colour 4	0.428571	NQ
Colour 5	0.771429	3

Colour 6	0.542857	4
Image 1	0.888	2
Image 2	0.714	3
Image 3	1	1
Image 4	0.828	2
Image 5	1	1
Image 6	0.604	4
Image 7	0.712	3
Image 8	0.772	3
Image 9	0.72	3
Image 10	0.776	3

Table 10. The Relative Importance Index table for tourists shows that images that contain a waterbody with white buildings create a strong identity for Udaipur.

Questions	RII	Ranks
Colour 1	0.272727	NQ
Colour 2	0.854545	2
Colour 3	0.927273	1
Colour 4	0.418182	NQ
Colour 5	0.418182	NQ
Colour 6	0.272727	NQ
Image 1	1	1
Image 2	0.854545	2
Image 3	1	1
Image 4	1	1

Image 5	1	1
Image 6	0.272727	NQ
Image 7	0.745455	3
Image 8	0.418182	NQ
Image 9	1	1
Image 10	1	1

Using the semiotic analysis tool, a list of elements is generated, which according to the people, create place identity. From the results of this analysis, we have generated an image of the city with all the elements that have come up with this priority list after semiotic analysis. These elements have been used on the facade using the elements listed in section D of the questionnaire, which people said are identifying elements of the city. Under the guidance of experienced architects from Udaipur, specific proposals are generated, and an image of the city is finalized. A feedback form was generated for the architects to review the proposal and give their feedback.

Looking at tourists' relative importance index results, the identity creating elements are mainly water, the City Palace, the arches, and the city's color, with Udaipur yellow inspired from City Palace. The relative importance index for permanent residents shows that identity is created for them by the cornice design, the construction material, the use of stone masonry, although not being exposed covered by lime plaster is identifiable. The other important elements are the lattice design locally known as the *jaali*, the roofscape, the white color and, the water from lakes.

Looking at the temporary residents' results shows that arches create the identity in white color and the water. They primarily relate to the place by the utility of the spaces, which was evident during the study as they recognized most places by the signages visible in the images shown to them. They do not relate to the streets they travel by daily or regularly but are more familiar with the tourist spots, which would be their destination if they are traveling on a route.

From the semiotic analysis, we found that the architectural elements that create an identity for Udaipur are as follows:

- Multi cusped three-point arch (figure 78)
- Cornice design (figure 79)
- Roofscape (figure 80)
- Udaipur white or yellow

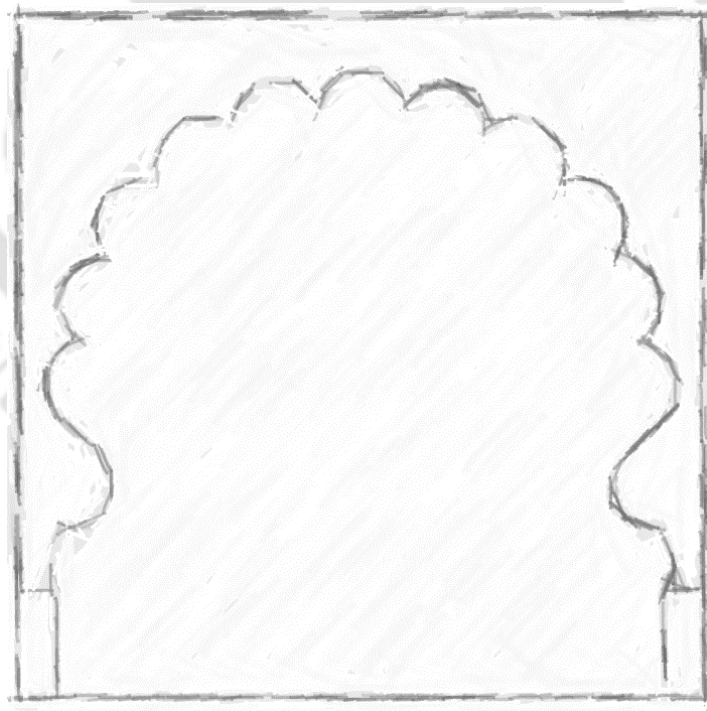


Figure 78. The one-point multi-cusped arch, used in many architectural elements like jharokha, gateways, door frames, windows, etc., impacts the place's identity.

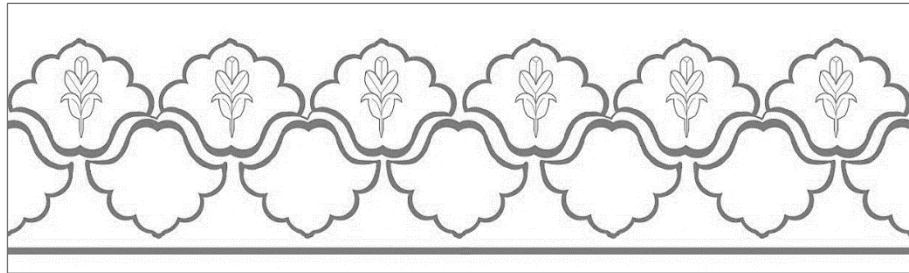


Figure 79. According to the semiotic assessment, the cornice or *Patti* design has a unique architectural identity for the city.

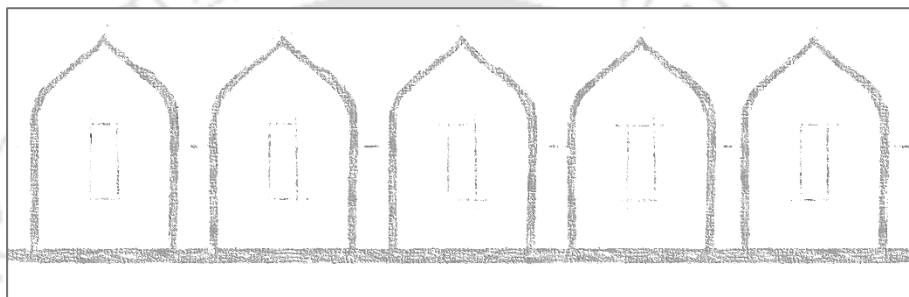


Figure 80. The roofscape design is unique to Udaipur and strongly impacts the place's identity.

Apart from finding the elements that create the place identity of Udaipur, we also found users' perceptions of the place's heritage. We found that all the respondents were aware of the city's architectural heritage. They prefer to maintain the city's identity while expanding the city towards the airport. The respondents from the town extension areas were particularly keen to reflect the place identity in their homes. For the residents and tourists, the city's identity is unique and must be protected. They believe that using more architectural elements in the city might make it overwhelming. Hence they prefer to maintain the city's heritage precincts by preserving and conserving them. People prefer the exact replication of the built environment from the heritage

district for the extension area. For other regions, the identity-creating elements can be abstracted and used.

Using these elements, we designed a street façade and experimented with various proportions and styles. We also suggested some of our other findings from the survey in the Udaipur Development By-laws. These suggestions and experimentations are discussed in the next section.

2.3.5 Conclusion

The site study and the results after an analysis suggest that the identity-creating built environments of Udaipur city are mainly two areas: the City Palace entrance complex and Gangaur Ghat. The essential combination of water and light color building strengthens the identity of Udaipur and is used for tourism branding throughout the world.

The city's identity is also created by its natural setting of water bodies with built structures as an island which we see in the city palace and its replication at the Jaisamand Lake, shown in figure 81. The hills with forts or palaces on their top are identified in people's minds. This feature is repeated while developing hotels with a heritage identity like Labh Garh Fort Resort (figure 82), etc.



Figure 81. The photograph of the Jaisamand Island Resort shows the abstraction of the identity creating elements from Udaipur. Lake with water is kept in the foreground with the backdrop of hills. The resort building is colored white and kept in the center.

Image source: <https://ar.trivago.com/en/udaipur-93979/hotel/jaisamand-island-resort-4883196>

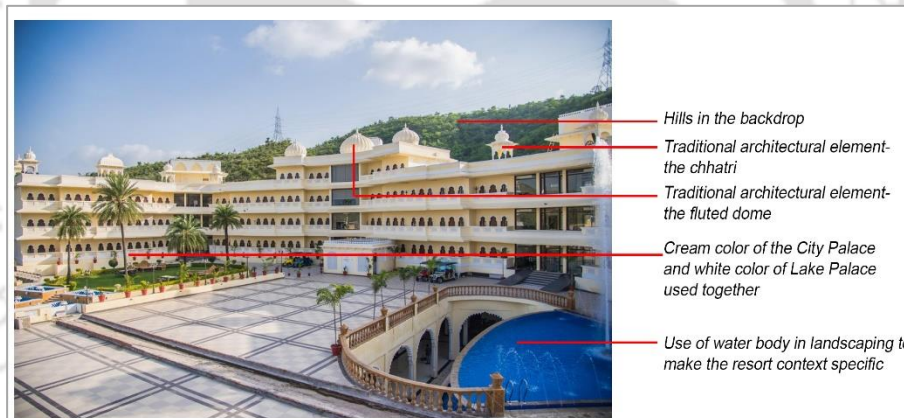


Figure 82. The photograph of the Labh Garh Palace Resort shows the use of traditional architectural elements along with the abstraction of the natural setting. Image source: <https://www.labhgarh.com/gallery.html>

The white building with a water body and hills in the backdrop is essential for setting Udaipur's built environments. Yet they can be broken down into smaller elements, and the architectural elements alone can be separated from the whole equation for abstract use.

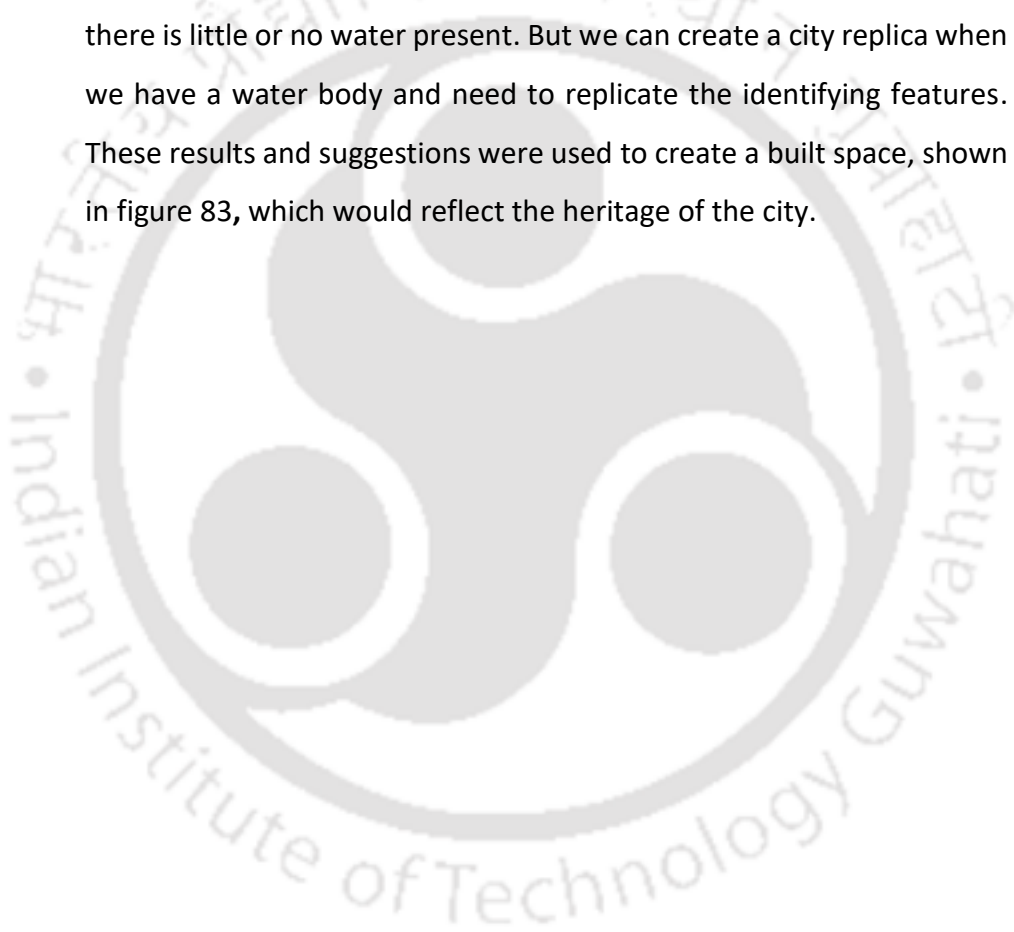
It can be concluded that the three elements, the roofscape, the cornice design, and the arch, are used in different architectural elements of the city. Their repetition throughout the city creates an image in people's minds that, in turn, makes its identity. When we talk about the color of the city, both cream and white colors have gotten a relative importance index of 1, and it can be concluded that both the colors have their place in the minds of people when it comes to place identity. While replicating a building with the city's natural environment, it is best to use the white color building as we see in the Lake Palace. While abstracting the architectural features and using them in a tourist spot inside or outside the city, the Udaipur cream can be used.

With this information, we created suggested some guidelines to be included in the city's development by-laws. The suggestions were discussed with Udaipur's practicing architects and urban planners. With their feedback, the finalized suggestions are as follows:

- *Chhatri, Jharokha*, etc., shall be only in traditional style with exposed Kotastone brackets
- The traditional cornice design, a.k.a. the *patti*, must be used at all floor levels.
- On all exposed elevations of the buildings, the surface shall be finished in smooth plaster and painted in Udaipur white color.
- Boundary walls should be painted in Udaipur cream color.
- 11400mm or 12300mm shall be identified as skyline derived from the parapet's inclusion in the Walled City area with roofscape as mentioned before.
- All the buildings on the street must follow the same gridlines.

- All proposal plans must be marked with the gridlines for walls and columns, and the same shall be followed until notified otherwise. Also, to meet the above-mentioned requirements, the elevations must strictly adhere to the elevation grid lines, both longitudinal and floor level lines.

From the interviews, we also learn that people want an abstract identity of the city to be replicated while creating a tourist destination where there is little or no water present. But we can create a city replica when we have a water body and need to replicate the identifying features. These results and suggestions were used to create a built space, shown in figure 83, which would reflect the heritage of the city.



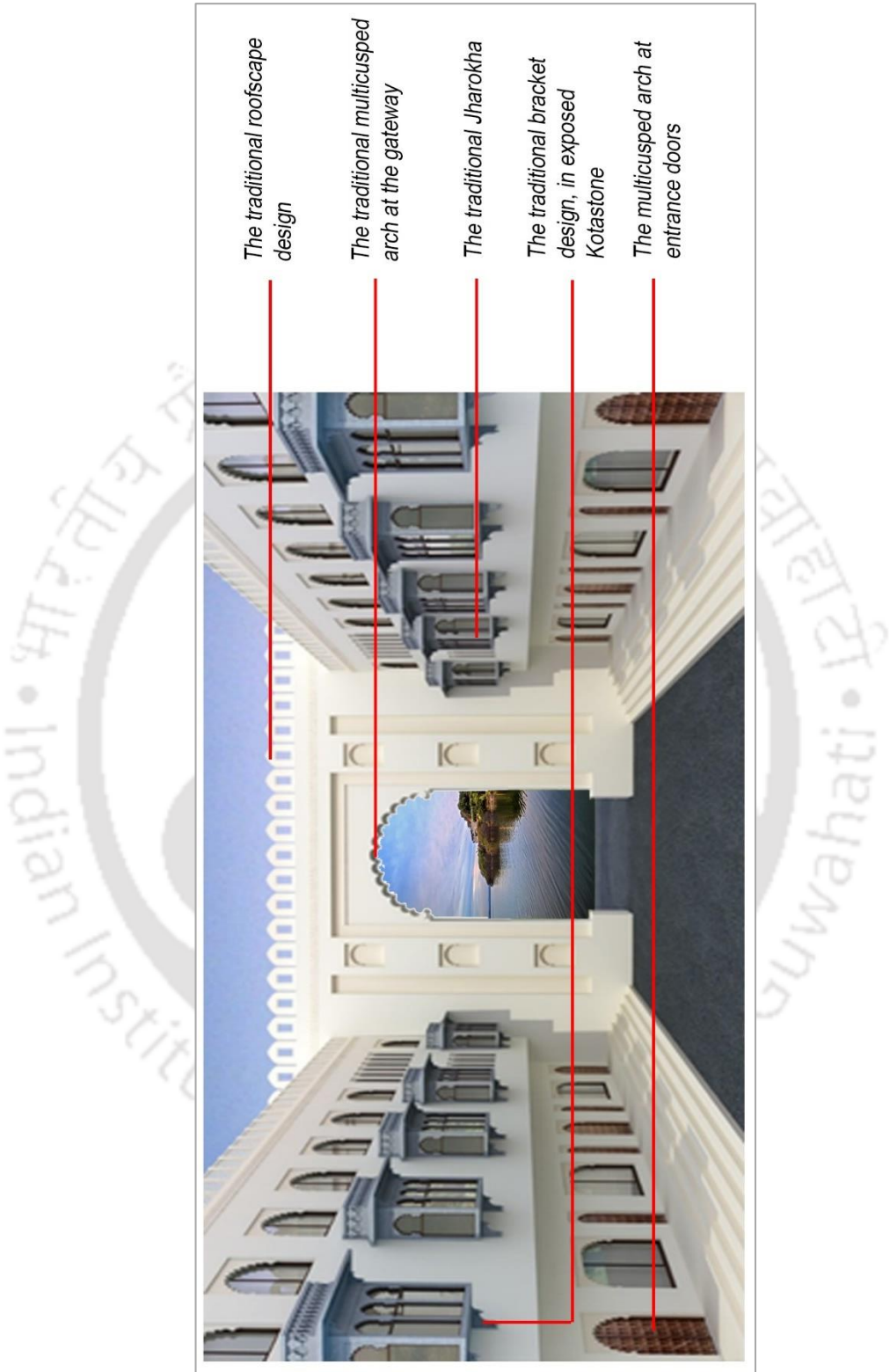


Figure 83. The street facade and built environment were generated using the guidelines and architectural features suggested by the survey results.

2.4 Discussions: Applications of replication and abstraction of identity creating elements

When we talk about a community's identity, it is non-transferable. The community will continue to hold its heritage value by following the traditions and cultures. The site survey of Bikaner is an example of it, where people continue to maintain the culture of sitting outside their houses, making it a culturally specific social activity. The tangible aspect of this social gathering is the presence of a *patta* at nodes in the city's heritage precincts.

The responsibility to protect this identity falls into the hands of the residents of a place. The tourists relate to a place at an evaluative and affective level and see the city as a process of reaching a tourism destination. The community members express unity in a city's place identity, which the tourists experience and carry back with them when they leave.

We need to consider the locals' and stakeholders' experiences to study the users' perception of a place. The locals are the permanent and temporary residents, while the stakeholders are the tourists and investors. These tourists act as place branding agents for a city and carry back experiences and stories to their place. They also carry back new knowledge about the place they visited to their home town, including learning about buildings, materials, culture, traditions, food, etc.

The study has taken a qualitative approach to access the elements that create the place identity of cities with tangible and intangible heritage. We have considered the user's perception of space at the center of this study. The physical outcomes of the survey for the three cities can be used in their urban design and planning for a more sustainable built

environment. The residents experience the new spaces that are responsive to their requirement of a sense of place and belonging. But when we talk about the tourists, they like to carry back the identity through the physical form and carry back mementos.

When we look at UNESCO's heritage protection paradigms, the preservation and conservation paradigm focuses on replicating the original structure. The heritage paradigm considers the whole historic precinct as heritage, replicating the built form and abstracting the space and functions. With this idea of abstraction and replication of the identity-creating features, tangible and intangible, we experimented with a memento design for the three cities under study that can be used for place branding.

We explored some designs for paperweights to check the applicability of the principles of replication and abstraction. This way, we explored the translation of the two concepts of identity design in the product design area. Figure 84 shows a paperweight, a typical design in Indian offices, with a glass ball and a centerpiece. The glass ball may take various shapes, ranging from elliptical, spherical to any other geometric form.

We experimented with the paperweight design using the replication of image-creating elements and popular mementos used for each city. We experimented with the spherical shape with a colored core. The experiments are done by using popular mementos and souvenirs. We have abstracted and replicated the architectural elements and natural settings to create the designs. These explorations were discussed with designers and after their feedback, we have selected five options of explorations for each city. These experiments with identity application are discussed in this section.

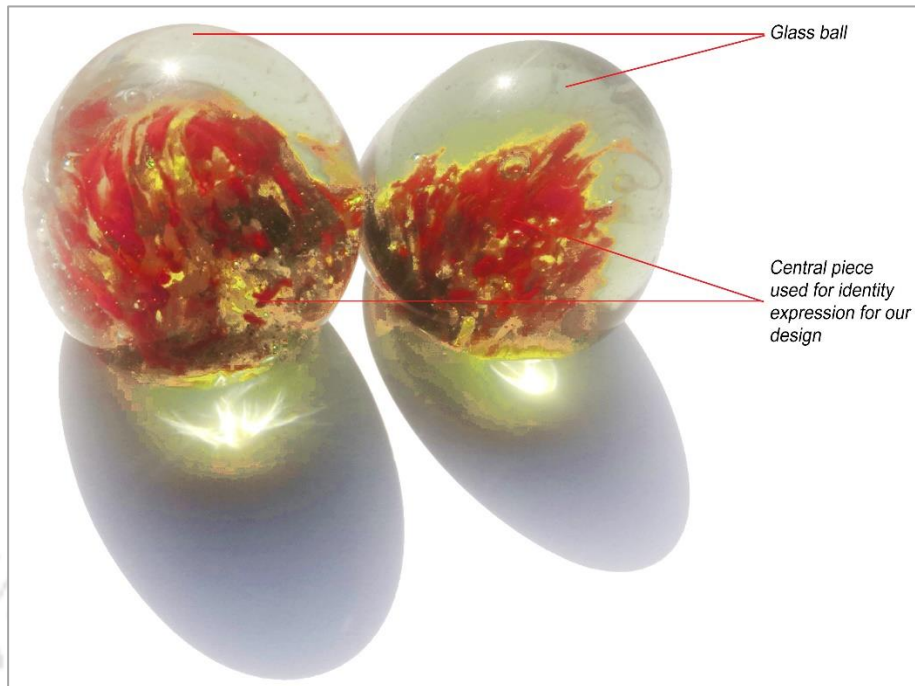
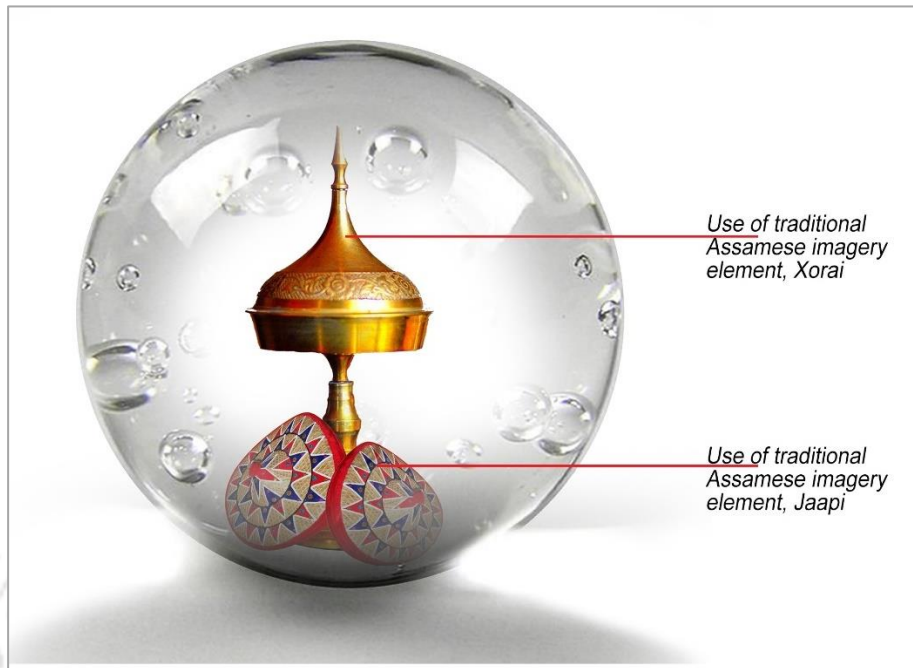


Figure 84. The typical paperweight design used in Indian offices has a glass exterior and internal colored material filling.

The study done in Guwahati explored the idea of reflecting cultural identity in the built environment. We understand that the users of the railway station appreciate the cultural significance of Kamakhya Devi Temple being shown in their built spaces. The use of local traditional artifacts extends the cultural relevance. In Assam, traditional objects like *jaapi*, *gomasa*, and *xorai* are popular as souvenirs. We have used these in the design explorations for the city.

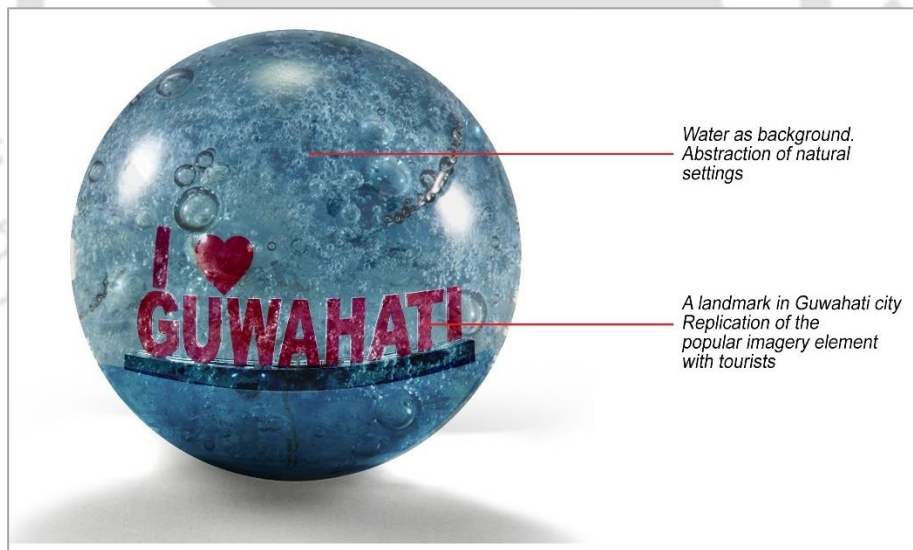
Figure 85 shows the first paperweight designed using the replication of *jaapi* and *xorai*. However, the *xorai* used in this case is not the traditional handmade material, but a machine-made version used more popularly in the current scenario. Figure 86 shows the replication of a sculpture at a popular tourist spot that directly uses the city's name. In this design, we have abstracted the city's natural settings by using water from the river as the background.



Use of traditional Assamese imagery element, Xorai

Use of traditional Assamese imagery element, Jaapi

Figure 85. The paperweight design replicates the typical mementos from Guwahati.



Water as background. Abstraction of natural settings

A landmark in Guwahati city. Replication of the popular imagery element with tourists

Figure 86. The paperweight design replicates the sculpture from Guwahati's tourist spot while abstracting the background of water from the natural setting of the Bramhaputra river.

In figures 87 and 88, we have replicated the prominent architectural identity creating a feature of Guwahati. The front dome of Kamakhya Devi Temple is an important architectural element and is repeated in

the city's urban fabric. In figure 87, we have used the natural setting of hills and the river with the dome. In figure88, we have abstracted the temple's identity in terms of red color from the *Ambuvachi* festival and used it as the backdrop for the temple.

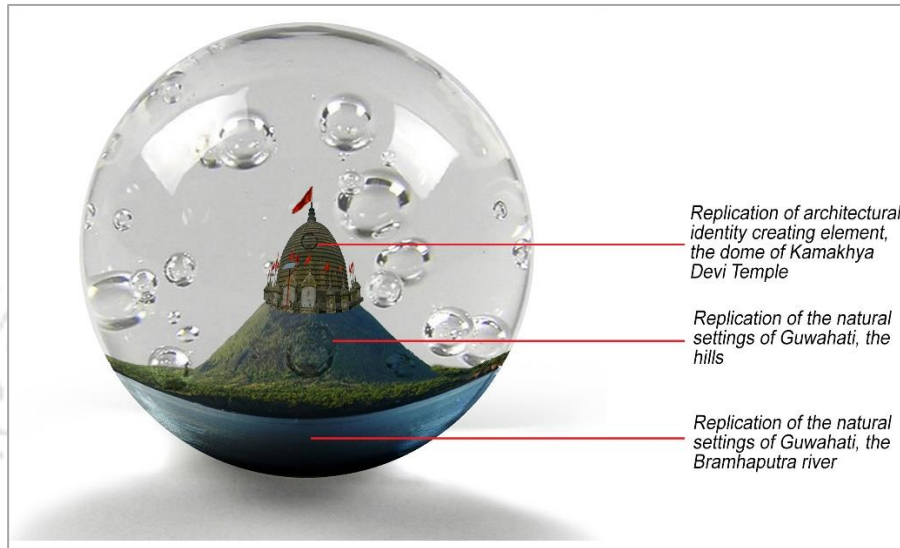


Figure 87. The paperweight design replicates the significant architectural feature and natural settings of Guwahati city. It uses the dome from Kamakhya Devi Temple, the hills, and the river.

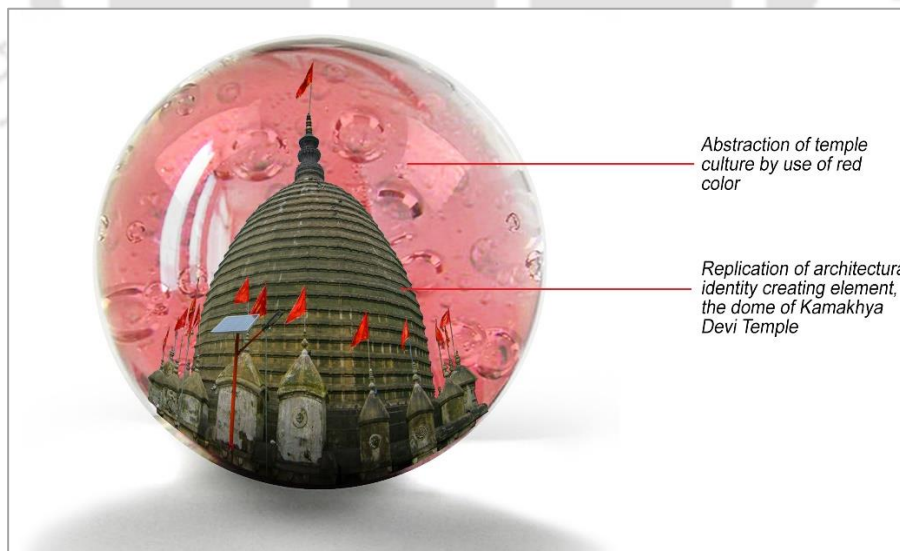


Figure 88. This paperweight design replicated the prominent architectural feature from the Kamakhya Devi Temple and abstracted the red color in the background to signify the *Ambuvachi* festival.

The final exploration in the paperweight design for Guwahati is made by abstraction of the significance of the Temple itself and replication of the natural settings. The abstracted image discussed in Guwahati's site study, shown in figure 39, has been utilized for this part. Figure 89 shows the exploration with the abstracted image and the hills and the river.

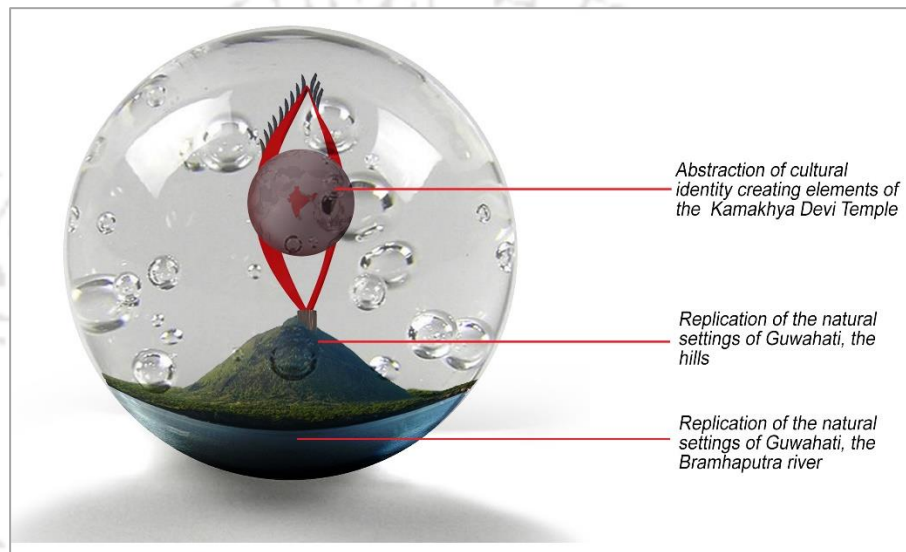


Figure 89. This paperweight design is created by abstraction of the cultural identity of the Kamakhya Devi Temple and replication of the natural setting.

The design explorations for Guwahati city with the context of the Temple discussed above show that a city's heritage can be used in memento design. These may replicate or abstract the identity creating tangible and intangible elements from the city's heritage-built environments. Next, we will discuss the same design experiment for Bikaner city.

Bikaner is famous for its annual camel festival, and the camel farms in and around the city play host to this carnival. Because of the camel fest's scale, the local people consider it important for the city's cultural

heritage. Figure 90 explores paperweight design replicating the city's natural setting and the cultural significance of the camels.

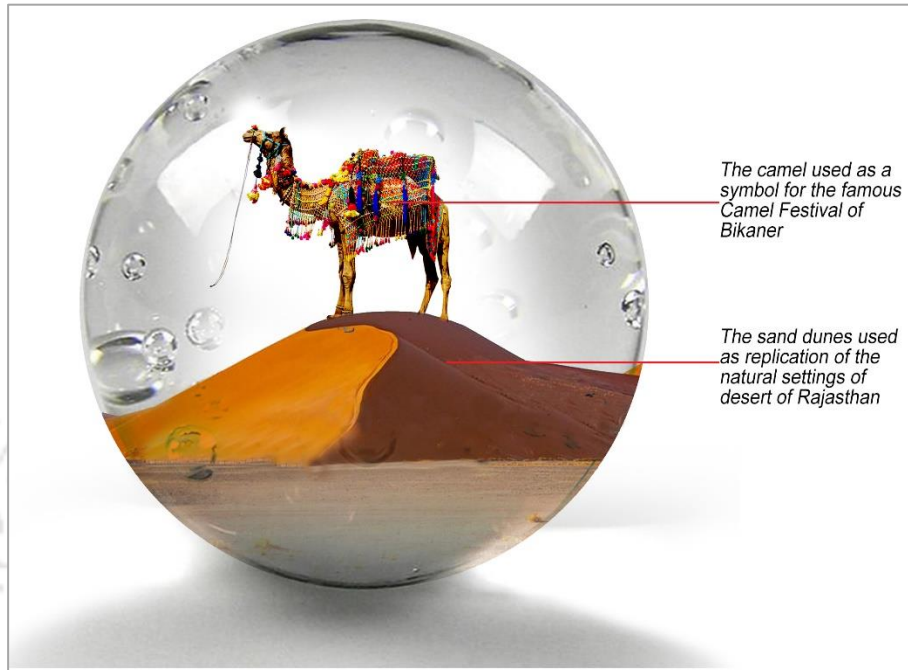


Figure 90. The paperweight design replicates the natural setting of Bikaner's sand dunes. It also replicates the cultural identity creator, the camel of the globally famous camel festival.

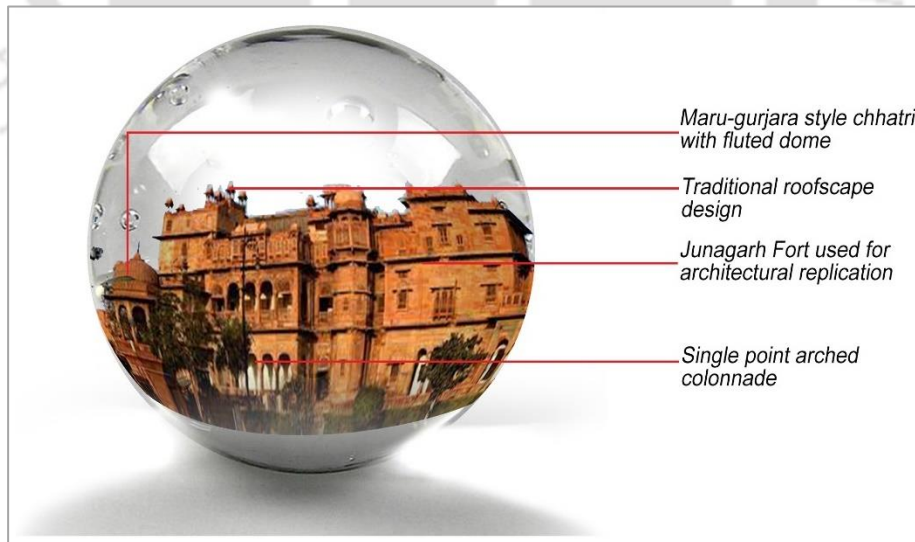


Figure 91. This paperweight design is created replicating the architectural heritage of the Junagarh Fort of Bikaner.

In figure 91, we see the use of architectural heritage by replication to design the paperweight. The design explores the concept of replication of the city's architectural heritage and has used the Junagarh Fort for it. Figure 92 shows another exploration of using Junagarh Fort to replicate Bikaner's architectural heritage. This design uses a rather more popular view of the Fort, seen from the city's main road. It has fewer architectural features visible from this side of the road but is more significant for the passers-by.

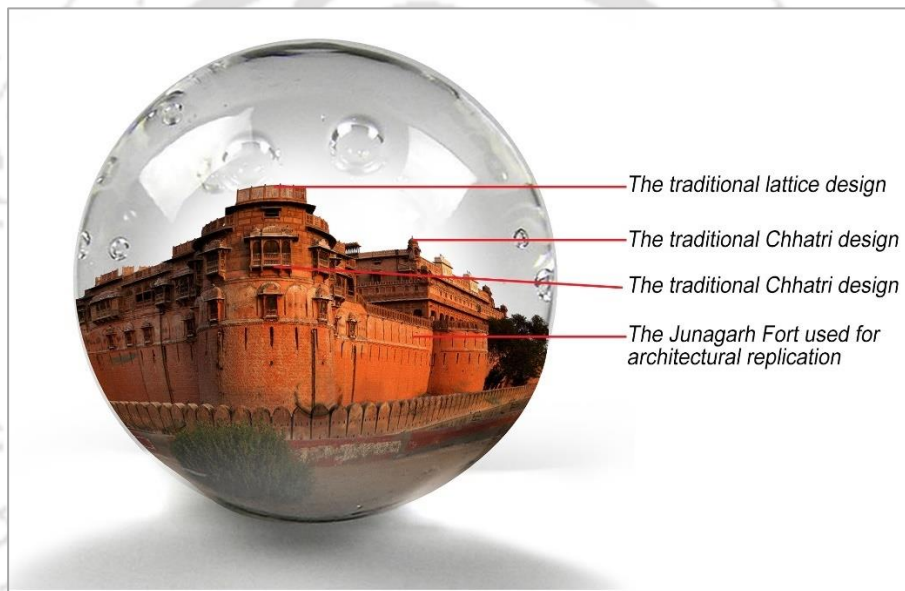


Figure 92. The paperweight design replicates Bikaner's architectural heritage by using the Junagarh Fort.

In figure 93, we have abstracted the built heritage of Bikaner and replicated its natural setting to create the paperweight design. The structure showcases traditional architectural elements like arches, windows, brackets, etc. Figure 94 explores the abstraction of the city's architectural identity. We have learned from the site survey of Bikaner that the intricate carvings on red sandstone are a visual identity creating architectural elements. Figure 53 shows one such carving that

architects and urban designers from Bikaner accepted. We have used that in figure 94 and created the design.

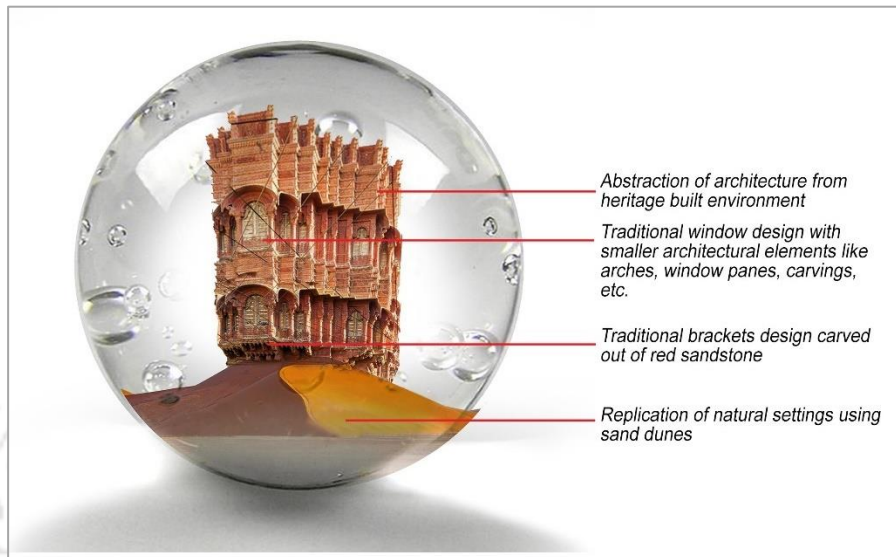


Figure 93. Paperweight design by abstracting architectural features like window design, arches, brackets, etc., into a structure. This experiment also replicates the natural setting of the city.

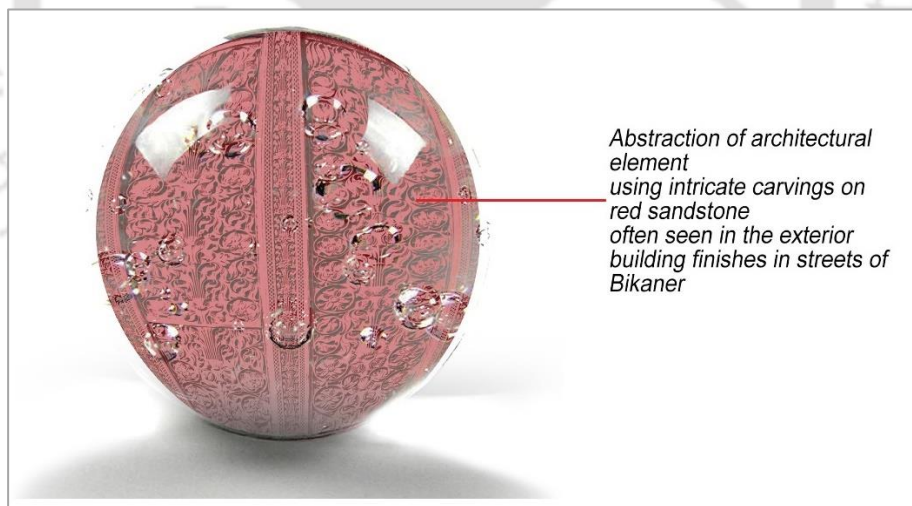


Figure 94. The paperweight design uses the abstraction of architectural features. It uses the intricate carving pattern popular for Bikaner on the traditional red sandstone.

The following explorations in paperweight design were made for Udaipur by replicating and abstracting its visual identity creating features. The city is famous for its lakes and palaces. The most popular

souvenirs of Udaipur include traditional clothing and puppets, both handmade in the city.

Figure 95 shows the paperweight design created by replicating the popular puppet souvenir wearing traditional clothing from the city. Figure 96 explored the idea of replicating the city's architecture into the memento design. We have used the City Palace's entrance gateway to showcase traditional architectural elements like the arches, *chhatri*, *jharokha*, etc. In the background, we have replicated the natural setting of the lake and hills.



Figure 95. The paperweight design was created by replicating the popular souvenirs from Udaipur, the puppets, and traditional clothing items.

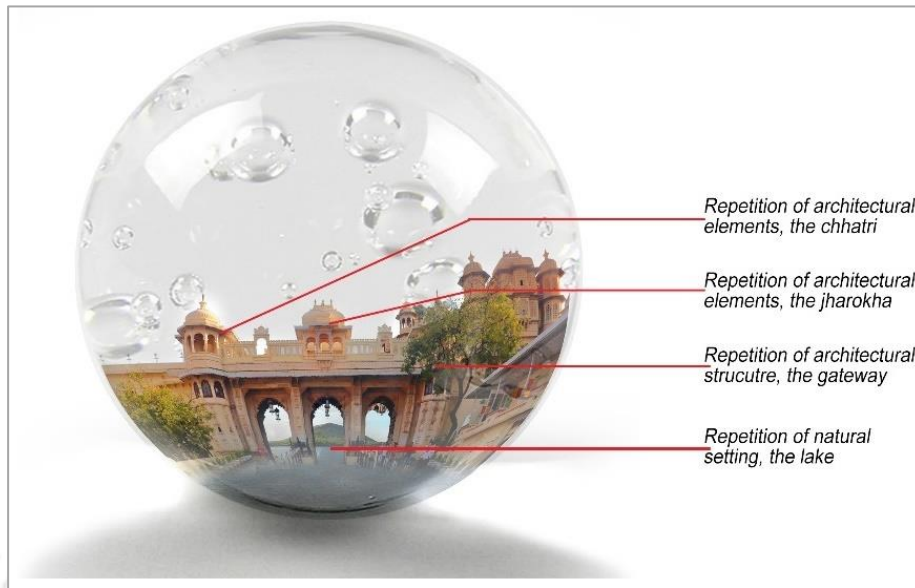


Figure 96. The paperweight design uses replication of the architecture and natural settings of Udaipur. The picture showcases traditional architectural elements like *chhatri*, *jharokha*, arches, etc.

Figure 97 shows another design exploration with a replication of architecture, natural settings, and a sculpture from Udaipur. The sculpture is a popular photography spot for tourists visiting Udaipur.

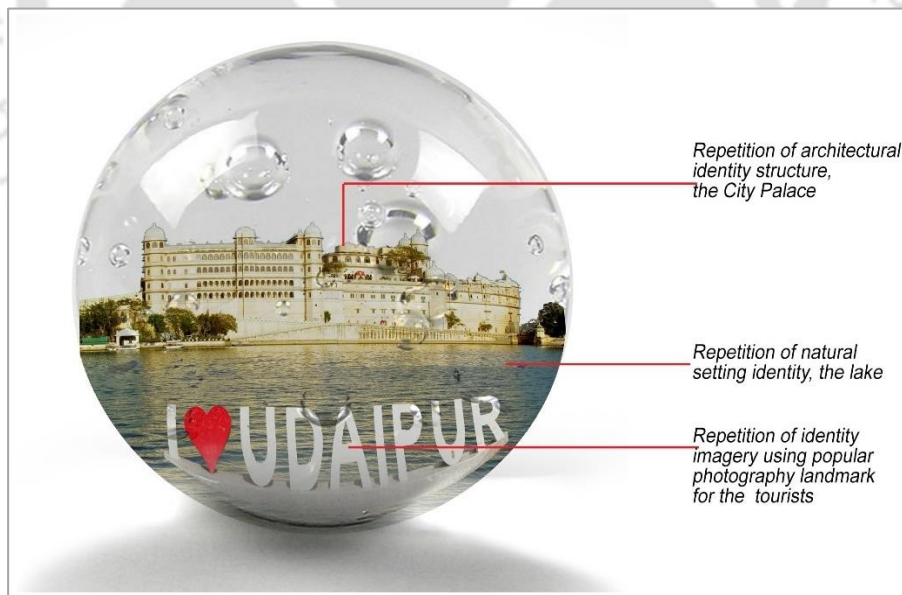


Figure 97. The paperweight design replicates Udaipur's architectural, natural, and urban design features. The elements are repeated as such from their built environment.

In figures 98 and 99, we see the design explorations made in the paperweight design by abstracting the identity-creating elements. Figure 98 shows the abstraction of traditional architectural elements, the multicusped arch, and the *patti* design, derived from the site study analysis. These elements have been discussed in figures 78 and 79. Here we have replicated the natural setting by using lakes in the background of the architectural abstraction. The abstraction of water bodies is done by the use of blue color in the glass ball of the paperweight.

The paperweight design exploration shown in figure 99 is created by replicating the traditional architectural elements of Udaipur, *chhatri*, arches, *patti*, materials, etc. Here we have abstracted the natural setting of lakes by using blue color to depict the water bodies.

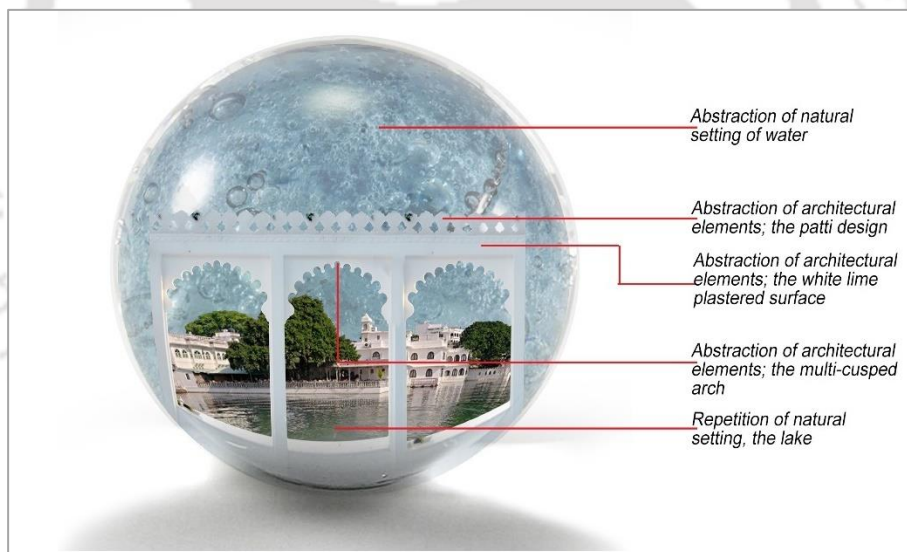


Figure 98. The paperweight design was created by the abstraction of Udaipur's architectural elements that make the city's visual identity. The natural setting has been abstracted in blue background color and replicated using water as the base.

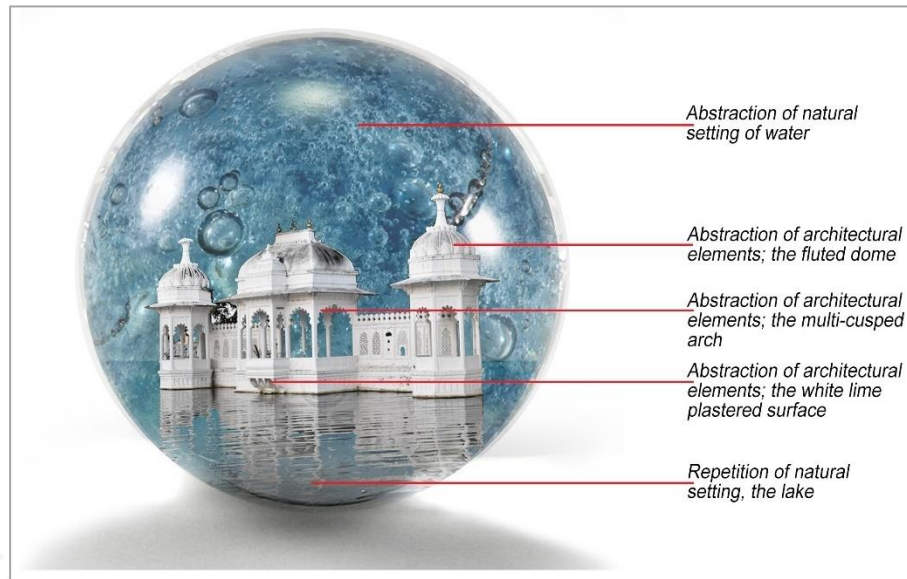


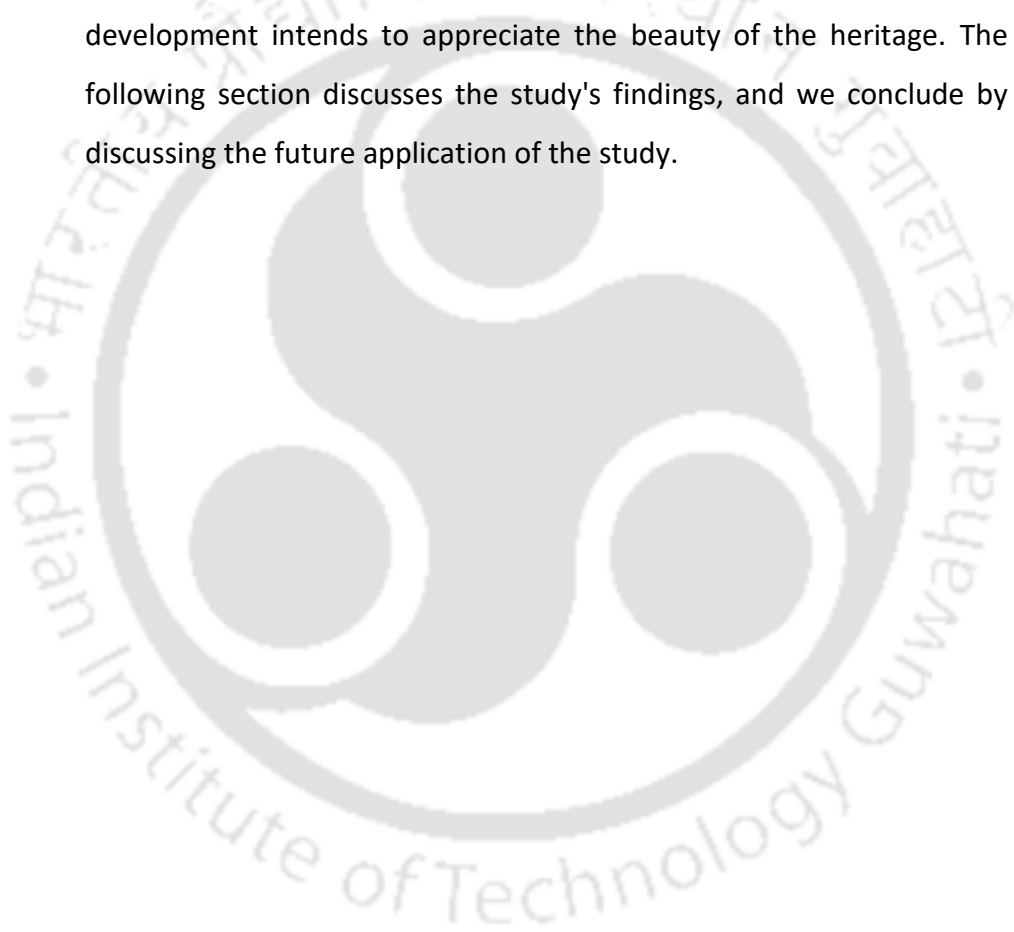
Figure 99. The paperweight design was created by abstracting the architectural identity creating elements of Udaipur and its natural setting.

From the site study, we have seen that irrespective of the geographical location of a city, its users want to protect its heritage and maintain the place's identity while urban development. In the case of Guwahati, the place identity is formed by the natural setting of hills and *Bramhaputra* river and the Kamakhya Devi Temple. For Bikaner, the place has its identity from the built heritage from the Rampuria Haveli Complex and the Junagarh Fort. In the case of Udaipur, the historic built environments and the natural setting of lakes and hillocks are the identity-creating features.

The users' perception of a place's built heritage plays a vital role in protecting the heritage. The heritage identity can be maintained while urban expansion by replicating the built environments of the heritage precincts or by abstracting the more minor architectural features from the whole built space. The abstraction can happen by identifying the

architectural elements that the city's users relate to creating the city's image.

We can conclude that when development happens inside or outside the city limits to expand the utility value of the city, like urban rejuvenation, heritage hotel or resort, etc., the identity creating elements can be repeated and replicated. Abstracting the heritage identity and architectural features associated with it is a good approach when development intends to appreciate the beauty of the heritage. The following section discusses the study's findings, and we conclude by discussing the future application of the study.



Chapter 3

Discussions and Concluding Remarks

Chapter Abstract

Many factors contribute to a place's identity. The image of a place is reinforced in the minds of its residents and visitors through various user-space interactions. As we've seen in previous chapters, perception is important in creating identity through built environments. The study focuses on India's heritage identity and its restoration of it during urban expansion or tourism development. We've seen its effects and processes of identity creation, and it can be used to abstract or replicate cultural identity in built form. This chapter discusses other factors that influence a place's identity.

3.1 Discussion

Recently, there was news in media about a man who got a replica of the Taj Mahal constructed at his home. The media report said it was an attempt from his side to profess his love for his wife, just like Shah Jahan did for his wife (Desk, 2021). As the photographs show, the new structure is a smaller version of the original monument, as shown in figure 100. The new structure is becoming quite popular with tourists who wish to see the original Taj Mahal at Agra but can not travel.

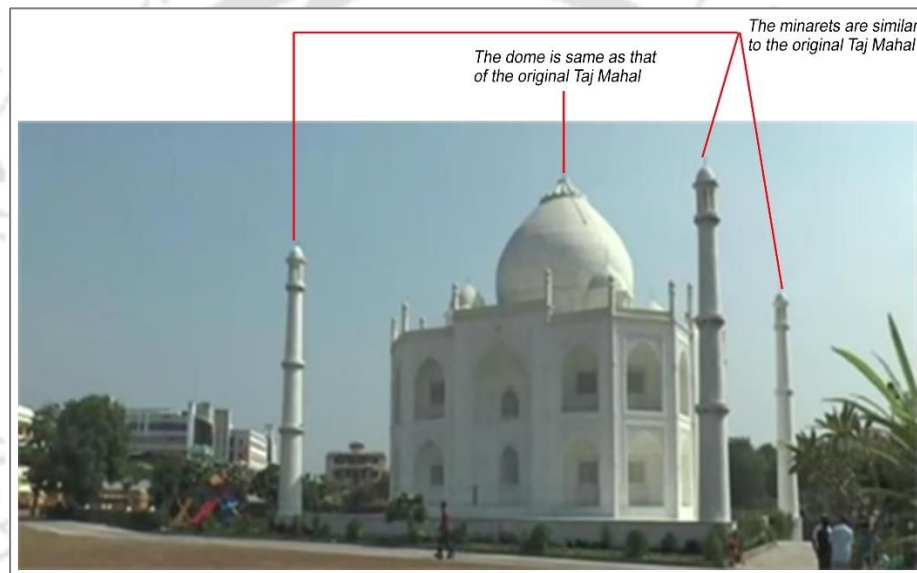


Figure 100. The Taj Mahal of Burhanpur attracts tourists' attention to those who cannot travel to Agra. Image source:

<https://www.newindianexpress.com/nation/2021/nov/22/madhya-pradesh-man-builds-taj-mahal-like-home-for-wife-see-pics-2386751.html>

The surface ornamentation is just like the original structure, the intricate engravings on white marble, shown in figure 101. It can be said that the new structure is an exact copy of the original one, seen in figure 102 and 103. Apart from the scale of the two structures, all the details have been replicated from the original Taj Mahal. Here we can say that

in order to express an emotion, a person replicated a built structure as its contextual identity originates from the same sentiment.

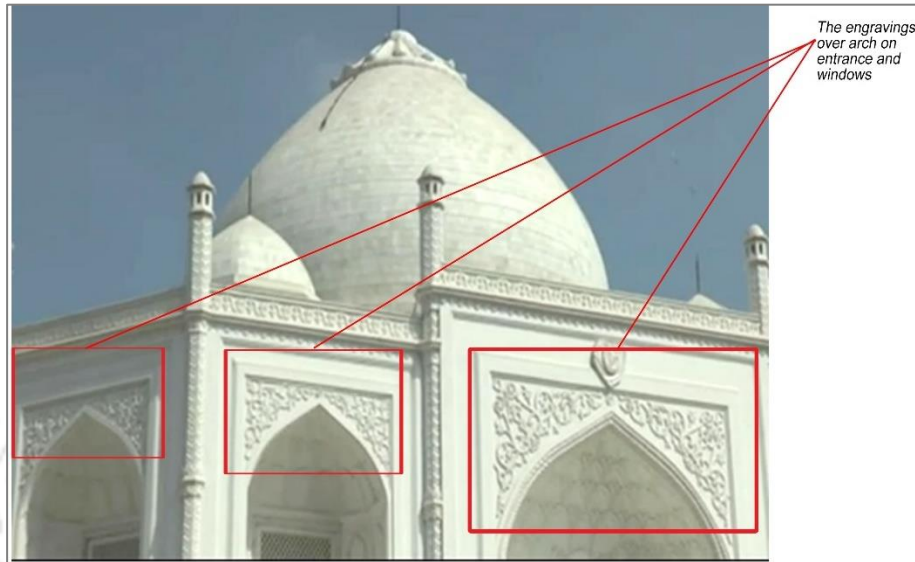


Figure 101. The engravings on the entrance arch are just like the ones of the original Taj Mahal at Agra.



Figure 102. The original Taj Mahal at Agra, Uttar Pradesh



Figure 103. The engravings on white marble at the Taj Mahal at Agra.

We see another example of finding identity in the built form at Leh, Ladakh, India. The place is a famous tourist destination for its natural beauty and architectural style. The place has historic Tibetan architecture. Figure 104 shows the use of local materials and wood carvings on beams, column bases, doors, and windows also reflect traditional Tibetan art and architecture.

The architectural style is well preserved in the main market area, which is a large pedestrian courtyard. The buildings in this market complex are in the Tibetan style with the same architectural language. The door and window arches are in wood, with the traditional wooden brackets supporting the sun shades, as shown in figures 105 and 106. The only time we see a change in the architectural style is the usage of the three-

point pointed arch at the Jama Masjid in the same market complex, as seen in figures 107 and 108.



Figure 104. The Tibetan architectural style still being used at Leh, Ladakh in its main market complex.



Figure 105. The traditional use of wooden bracket and arches at the window frame to support horizontal sunshade.



Figure 106. The traditional door frame is made of wood with arches and traditional engraving.

The arch is derived from the Mughal architectural style. We commonly see this arch at other places throughout the country, and the two examples are at the Jama Masjid of Bhopal, figure 109, and the Jama Masjid of Lucknow 110.

The architect of Leh's Jama Masjid informed us that he wanted to maintain the architectural style of the place but also wanted to give an identifiable element to the building. He abstracted the identity of the other Jama Masjid and found the arch to be a prominent element. Thus the architect has abstracted an identity creating element from the cultural context in the new development.



Figure 107. The entrance door of Jama Masjid at Leh main market complex has an additional arch. The three-point pointed arch maintains its identity with other Jama Masjid of the country.



Figure 108. The Himalyan Muslim Information & Learning Centre at the Jama Masjid of Leh, Ladakh. It has a three-point pointed arch at the windows, unlike the other buildings in the area.

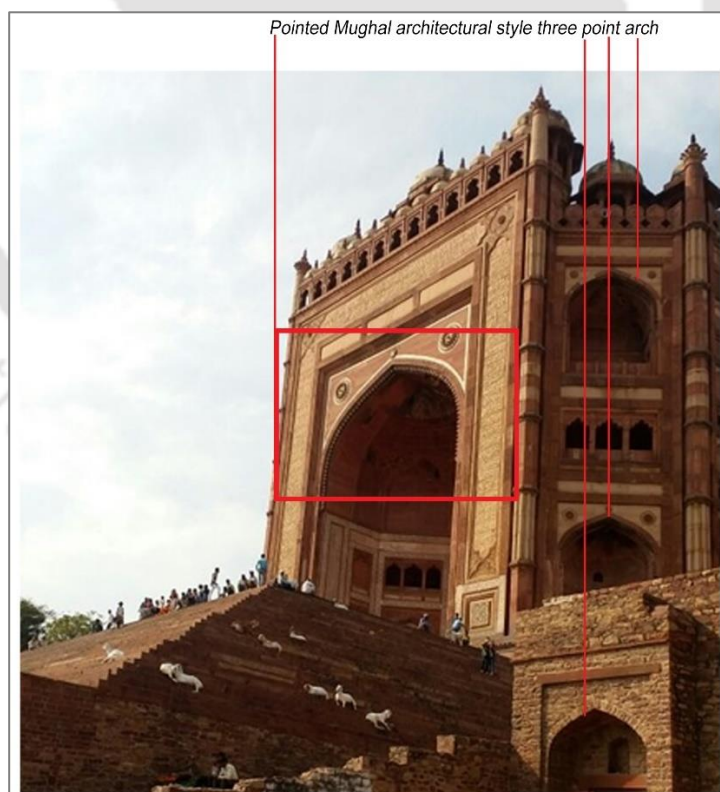


Figure 109. The entrance gateway of Jama Masjid of Bhopal, Madhya Pradesh has the three-point pointed arch.

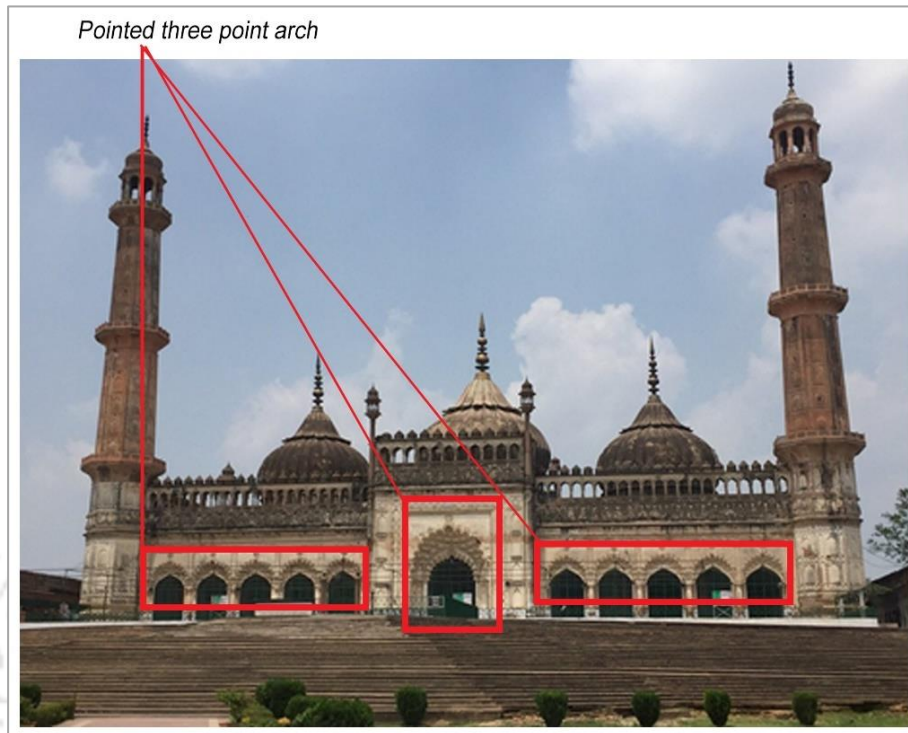


Figure 110. The Jama Masjid of Lucknow, Uttar Pradesh, inside the Bara Imambara Complex has three-point pointed arches at the entrance and the arched corridor.

We have found in this study that a place needs to maintain its identity during urban expansion or development as a tourism destination. The cities with the historical value of their tangible and intangible cultural heritage are losing their identity due to urbanization and globalization. These cities of reputation need to be protected, either by preserving historic districts, conserving the heritage structures, or treating the whole city as a living heritage. Through the study, we have found that the users of these cities feel the same way. In conclusion, the results of the study show that they are in tune with the first part of the hypothesis discussed in section 1.8.

As we have argued in section 1.4 of chapter 1, the architecture style of an urban built environment and its elements may be considered a promising aspect of identity creation. A person's interactions with their

environment create a perception of the space. These perceptions combined with the activities generate an image of the place. The combined images of a society can be studied together as the place-identity for the city. The findings of this study can be understood as an attempt to link the architecture of built heritage to its place identity. To reinforce this place identity, we must maintain it during new developments.

Ideally, these findings can be replicated in identity design studies where the study area has cultural significance and traditional value. If a space user feels attached to a place, they will want to conserve their identity and maintain their heritage during expansion. One of the easier ways of doing so is by replicating the identity creating architectural features or by abstracting their cultural value for appreciating it. Hence, this study confirms the hypothesis from section 1.8.

These findings provide a potential mechanism for future developments of cities with a heritage value. A city's identity can be used for a better image of the city in the minds of residents and visitors. This positive image can be utilized for tourism purposes and responsible urban expansion that respects the place's culture. The study of place-identity through the built environment can be used in many ways, three of which are discussed further.

3.1.1 Use in future expansion

The architectural heritage of cities is fragile, and its existence depends upon governance. As in the case of most developing countries, urban areas face the challenge of excessive pressure on land as a resource. The planners and designers must answer the question of finding ways to satisfy the contemporary space requirements whilst maintaining a city's heritage identity. The question arises at the time of new constructions, inside or outside the city, and at the time of rejuvenation or redevelopment of historic cores of heritage towns.

The maintenance of the heritage identity while designing or redesigning a city with historical importance needs to be addressed carefully. The officials, planners, architects, and designers must be aware of the history of the heritage precincts and the significance of each building and built space in creating the glorious past. Before proposing a new development plan, the people's perception of the history and the physical evidence that the heritage-built environment carries also needs to be considered. The urban fabric and inter-woven complexities of culture, traditions, environmental factors, structural performance, creative expression, etc., need to be considered.

This study takes the cities of Rajasthan and Assam as experimental verification of these theoretical assumptions as one is extreme west of the country while the other is East. The inferences from the study show people's perception is the key to generating place identity. It can be interpreted that:

- i. On redevelopment or rejuvenation of the historic core of a city, the existing heritage scape needs to be identified and utilized.

- ii. The reconstruction of the identity system of a place may happen both by retaining the architectural features of the place or by abstracting the idea behind them.
- iii. From these investigations, it is possible to derive a method capable of suggesting a possible development of techniques and modes of intervention.

3.1.2 Place Branding and Tourism

Mental images of a place create the place identities in the minds of the residents and visitors. The sense of place is constructed over time by personal interactions of people with their environments and how the place responds to the community. When we talk about place branding, it is dependent on the place identity, which is dependent on the user perceptions of the city.

The brand value of any place depends upon its cultural significance to the residents, their economic dependence upon the place, and the tourism value for the visitors. A place with vast natural resources or historical importance is expected to have better brand value in the tourism industry. The three cases studied in this research have enormous natural resources, significant development appreciating it, and are historically significant. These things combined form a reputation amongst tourists and increase their brand value.

This study contributes to our understanding of place identity by providing an urban design solution to support destination and place branding. We now understand that destination branding can not be carried out successfully without acknowledging the permanent and temporary users of the place. To develop a city for tourism and to restore it to its former architectural glory, the needs and aspirations of

the users of the city need to be at the center of the design process. This will strengthen the common perception of the place for the resident, who will communicate it to the tourists. It will lead to better brand value and tourism.

3.1.3 Repetition v/s Abstraction of Identity as a planning concept

The study discusses two main concepts of identity abstraction or replication. In the case of Guwahati city, where Kamakhya Devi temple has a high cultural significance, the natural resources provide a backdrop for its geographical identity. The elements of nature, like the river and the greenery, are used in future developments. But to restore the Kamakhya Temple's identity, we have to approach it differently. Here abstraction seems to be the correct approach for depicting cultural elements of the temple. The direct use of the temple architecture can suffocate the visual space by its overuse.

In the case of Bikaner, we found that people have attachments at both physical and emotional levels. They show this by imitating their house's physical urban design elements, abstracting their form and idea. But at the same time, when they talk about the development of tourism destinations and heritage hotels, they would like to repeat architectural elements like cornice designs, wall carvings, wall niches that will give the heritage value to the new development.

3.1.4 The language of urban development: Unity or Diversity




The architectural language of a place is developed over time and responds to climatic and socio-cultural factors. The socio-cultural factors include material availability, craftsmanship, local user preferences, belief systems, customs, etc. These influences are observed at an individual building level, the building clusters, the street layouts, the street facades, etc.




The architectural elements, features, and structures may carry the same meaning for different places of a region, but their usage may be different. Table 10 shows the urban design and architectural features and elements used in various cities of Rajasthan. The main part remains the same throughout the cities, but the application and minor details vary. We compared structures like gateways, singular elements like lattice, arches, and complex elements like *jharokha* and *chhatra*.




In table 11, we see the comparison of the architectural styles of different cities of Rajasthan. The three cities follow the Maru-gurjara style of architecture, and each has environmental, cultural, social, and political influences on it. All the cities were once walled and had three fenestration gateways to enter and exit the walled area. In this style, *jharokhas* cover windows to keep away the dry, hot summer wind loaded with sand.




The construction and visual style of these *jharokhas* are unique for each place due to their craftsmanship and material availability. The windows and *jharokhas* also use *jaali*, the lattice, with unique patterns. Jaipur and Bikaner use sandstone for exposed construction, while primarily kotastone is used in Udaipur.





Table 11. A comparison between elements of architecture within the cities of Rajasthan.





Place	Architectural structure- Gateway	Explanation
Jaipur		<ul style="list-style-type: none"> • Three fenestrations • Top <i>chhatri</i> • Characteristic roofscape • Mughal style arch • Jaipur pink color
Udaipur		<ul style="list-style-type: none"> • Three fenestrations • Top <i>chhatri</i> • Characteristic roofscape • Maru-gurjara style arch • Udaipur cream color
Bikaner		<ul style="list-style-type: none"> • Three fenestrations • Top <i>chhatri</i> • Characteristic roofscape • Mughal style arch • Red sandstone cladding

<i>Jharokha</i>		
Jaipur		<ul style="list-style-type: none"> • Fenestrations covered with <i>jaali</i> • Top <i>chhatra</i> • Characteristic <i>jaali</i> design • Jaipur pink color • Colored glass window panes
Udaipur		<ul style="list-style-type: none"> • Fenestrations covered with <i>jaali</i> • Top flat • Characteristic <i>jaali</i> design • Maru-gurjara style arch • Exposed Kotastone construction material • Characteristic bracket design
Bikaner		<ul style="list-style-type: none"> • Fenestrations covered with <i>jaali</i> at the base and wooden window panes at the top • Characteristic <i>jaali</i> design • Maru-gurjara style arch • Carved red sandstone finish • Characteristic bracket design

Chhatri		
Jaipur		<ul style="list-style-type: none"> • Octagonal or square base • Mughal dome on top • Maru-gurjara and Mughal style arch • Fluting on dome
Udaipur		<ul style="list-style-type: none"> • Square base with square or octagonal top • Maru-gurjara style dome • Maru-gurjara style arch • Fluting on dome
Bikaner		<ul style="list-style-type: none"> • Square base with square top • Maru-gurjara style dome • Maru-gurjara style arch • Fluting on dome

<i>Jaali</i>		
Jaipur		The characteristic design with octagonal geometric patterns
Udaipur		The characteristic design with geometric patterns containing circles, squares and polygons.
Bikaner		The characteristic design with geometric patterns containing straight lines and polygons.

Arches		
Jaipur		<ul style="list-style-type: none"> • Mughal style arch • Maru-gurjara style pointed multicused arch
Udaipur		<ul style="list-style-type: none"> • Maru-gurjara style multicused arch
Bikaner		<ul style="list-style-type: none"> • Mughal style arch • Maru-gurjara style arch • Colonial style arch
Colour and materials		
Jaipur (city)		<ul style="list-style-type: none"> • 'Jaipur Pink' color over plastered walls. • Surkhi mortar

<p>Jaipur (palace)</p>		<ul style="list-style-type: none"> • Cream or yellow, derived from the yellow sandstone color over plastered walls
<p>Udaipur (city)</p>		<ul style="list-style-type: none"> • Lime whitewash with 'Udaipur white' color over plastered walls
<p>Udaipur (palace)</p>		<ul style="list-style-type: none"> • Cream or yellow, derived from the yellow sandstone color over plastered walls
<p>Bikaner (city, palace, fort)</p>		<ul style="list-style-type: none"> • Red sandstone cladding over stone walls. • Intricate carvings.

The colors for the cities are specific and still used by the city development by-laws. Jaipur was colored in *Gerua* color, i.e., brick red color over *surkhi* mortar for a political reason and since has been known as 'Pink City.' The by-laws now refer to this color as the Jaipur pink. The City Palace has a light yellow color from the original yellow sandstone cladding. Like Jaipur, the streets of Udaipur have a different color, white and cream, while the City Palace is yellow. In the case of Bikaner, the city, Junagarh Fort, and the Laxmi Niwas Palace have red colors from the red sandstone used for construction and cladding.

The built environment of these cities is identical in some aspects, based on the climate, materials, palatial culture, and traditions. But the distinction comes from the user perspectives and the socio-cultural backgrounds of the residents and rulers. The difference in the economic status of the residents and rulers of Jaipur and Udaipur led to the difference in the color and materials of the city and the Palace, but the same material reflects the similarity in economic status in Bikaner.

Thus, unity and diversity become quite visible in the same region. The architectural features of form, size, orientation, materials, etc., from the three cities, synchronize their built environments in various ways. The reasons behind such synchronization can be explored from both climatic and social aspects to understand the variation in the region's architectural styles. The architectural features are replicated to unite the environments, but the abstraction of details makes them diverse.

3.1.5 Effects of westernization and globalization on place identity

Globalization is a multidimensional phenomenon that affects all walks of life. It has a strong impact on the architecture of a place in terms of its identity, construction materials, and technology. Architects often find themselves stuck between maintaining the place identity or moving towards modernity. The choice between the past and present's contrasting images and cultures of architecture is present in each historic town.

Kota is a historic town in Rajasthan, where, as a part of a political motive, the 'Seven Wonders' park was created. This public park houses replicas of the seven prestigious monuments of the world: Taj Mahal of Agra, Colosseum Rome, Leaning Tower of Pisa, the Pyramid of Giza, Eiffel Tower of Paris, Statue of Liberty from New York, and Christ the Redeemer of Brazil, shown in figure 111.

The park has since become the identity of the city. We can understand the impact of globalization on Kota through this example. The city has historical importance for Rajasthan and has built heritage as living proof. The place had heritage identity and distinctiveness through architecture, were through globalization, this new identity has emerged. The choice between the existing due to past or present contrasting cultures and architectures, along with values and methods of expression, has been a tough call for architects and planners.

Westernization of the thoughts and globalized outlook towards built environments and structures affects the technology and new concepts represented through architecture and its contribution to the built environment. The new exposure and technology emphasize adapting to

the trend of globalization, but the impact on traditional place identity can be positive and negative.



Figure 111. The 'Seven Wonders' park of Kota, Rajasthan, houses seven replicas of the world's wonders. The monuments are scaled-down versions and serve as tourist attractions. (Images are taken from various online resources like Pinterest and travel blogs)

On the one hand, the traditional construction practices and heritage identity is lost. But on the other, we get exposed to better construction practices and built environments. We need to develop thinking about, approaches towards, and concepts of how to cope with globalization, benefit from the new technology by acting locally and globally, and not isolating any modern development. The idea must be to build a powerful form of globalization from a grassroots level that suits India the best.

3.2 Further Queries

Broadly translated, our findings indicate that the architecture of a built environment carries the identity of the place and boasts about the glorious past. It holds vital information about our cultural heritage. But future investigations are necessary to validate and extend the conclusions drawn from this study. The queries that have arisen from this study are discussed below.

3.2.1 Do we need to change our identity with the changing ecology?

Modern cities face the issue of identity loss due to the practice of the International style of architecture. In the Indian context, the popularity of the international style can be attributed to globalization and westernization. Another common architectural style seen in Indian cities is postmodern, in which ornamentation of buildings becomes essential. The two styles have shaped most Indian cities to look alike and look like any city globally. The traditional construction practices arising from local climate and material availability have been kept aside to adopt an internationally competent image.

The vernacular architectural style has roots in the local climate, ecology, materials, craftsmanship, and user behaviors. Critical regionalism is an architectural movement that brought back the vernacular practices to life. The identity associated with the cities and their built heritage comes to light with this architectural style. Critical Regionalism does not replicate vernacular architecture or traditional architecture but addresses contemporary issues.

The main question we ask concerning critical regionalism is how do we address modern-day problems of space crunch, energy efficiency, space

planning, and user satisfaction with the ages-old traditional space building practices. Charles Correa was an Indian architect, trained in the west, yet a believer in vernacular architecture. His works showcase a style that appreciates the vernacular architecture of a place. But instead of copying it as is in his design, he selected the architectural elements that gave them their identity. He would use these elements in his design by keeping their essence and principles. He would modify the way of using the elements per the site context, like the climatic conditions, cultural influences, etc.

With reference to the works of architects like Charles Correa, we take a look at the issue of climate change and changing ecologies of current cities. He designed the Gandhi Smarak Sangrahalaya at Sabarmati Ashram, Ahmedabad, in a style that was called 'Critical Regionalism.' This style is a mix of Indian architecture, vernacular or traditional architecture, and modernism. The architectural style of any place is developed by its vernacular construction practices. As we see in the photograph below in figure 113, the sloping roof at the Gandhi Ashram is derived from the vernacular architectural style of Gujarat.

At the same time, a water body in the center represents the step-wells or '*bawari*' traditionally used for storing the rainwater. If we see it as a response to the geographical location, the waterbody in the building courtyard cools the whole complex during extreme summer months. The sloping roof covered with terracotta shingles is excellent for the city's heavy rainfall in monsoons. The use of shingles is also inspired by other buildings of the complex, seen in figure 112. Thus a question arises about making necessary changes in the new built environment to

acknowledge the past yet cater to the contemporary comfort requirements.

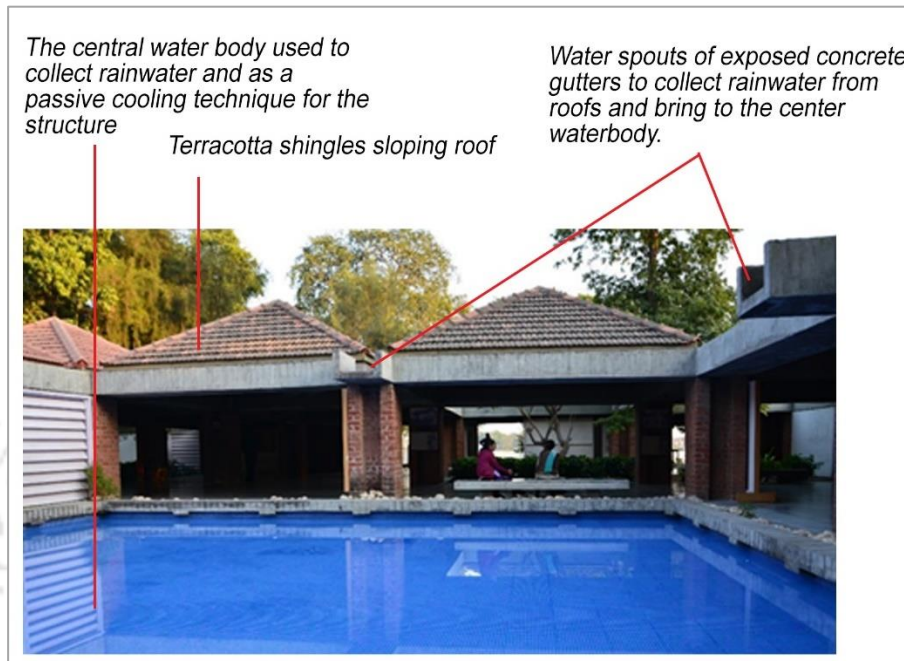


Figure 113. The Gandhi Smarak Sangrahalaya at Sabarmati Ashram, Ahmedabad, Gujarat. The sloping roof and waterbody in the courtyard have become its unique identity features to collect the rainwater. The concept of water is derived from the 'bawari' or step-wells.



Figure 112. A building from the Gandhi Ashram, Ahmedabad, Gujarat being used as a museum for the life and artifacts of Mahatama Gandhi. The building highlights the use of terracotta shingles for roofing material.

But with the changing environment and weather conditions, the vernacular architectural practices can lose relevance. The temperature pattern within cities is different due to larger city limits and micro-climatic effects of various urban design components. The strategies that may work in the heritage-built environments in historic periods might not be relevant in the new extended spaces. Thus, critical regionalism needs to be followed by extracting the essence of the historic architectural and construction style.

3.2.2 When a new development happens in a city with historic built environments, do we need to create a new identity or reinforce the already existing one?

We see in some cases that a city has a traditional and cultural identity, for example, Jaipur, Rajasthan. The city has architectural importance due to the City Palace, Amer Fort, Albert Hall, and the Walled City area. To match the identity of the city architect Balakrishnan V. Doshi came up with the guidelines for urban expansion. A new location for the city growth was planned by the name Vidyadhar Nagar, and special by-laws are written for it in the Jaipur Development Authority Guidelines. The aim of creating separate guidelines for this satellite expansion was to maintain the heritage identity of the city. The guidelines replicated the city plan and regulated the elevation design. The picture shown in figure 114 below shows the inspiration for the architectural identity of Vidyadhar Nagar.

The iconic Jaipur Pink color, also known as Gerua

The traditional architectural elements that give identity to the city

Shop frontages, unique to the Walled city of Jaipur



Figure 114. The Chaura Rasta Market of the Walled City of Jaipur, Rajasthan. It is the city's heritage district and showcases the beautiful traditional maru-gurjara style architecture of Rajasthan.

Amidst this historically significant city with built heritage, several new remarkable built structures have been sensitive to the city's history. One such example is the Jawahar Kala Kendra by architect Charles Correa. He has understood the essence of the historic built environment and cleverly used construction material to maintain the city's identity by abstracting the arches and the city plan from the original, as seen in figure 115.



Figure 115. Jawahar Kala Kendra, Jaipur is an example of abstraction of the city identity in the built form. Here, the architect has used the architectural elements and the city plan to represent the city.

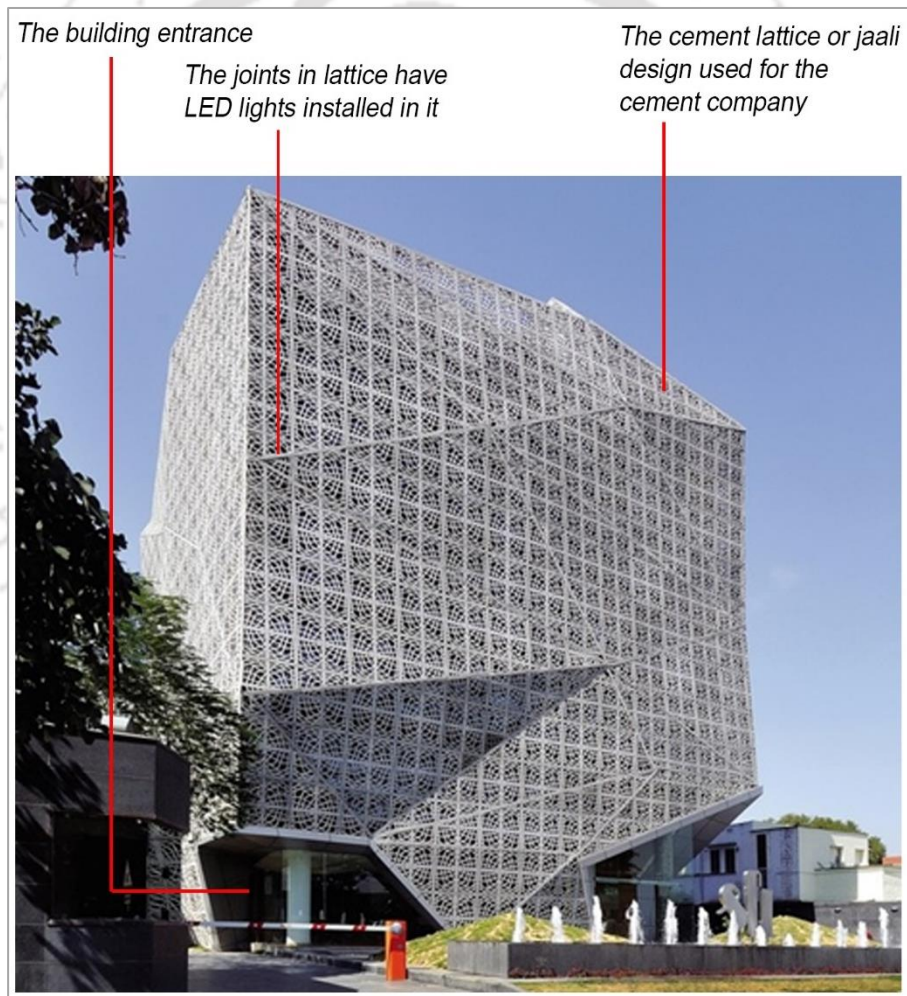


Figure 116. The Shree Cement Office building at Jaipur, Rajasthan. It is a post-modernist building with cement latticework inspired by the traditional architectural elements of Jaipur.

At the same location, not far from the iconic Jawahar Kala Kendra and the Walled City area, are two new buildings that are popular for their extravagant modern and post-modern exteriors. These buildings use different materials than the city's construction style yet are highly successful in attracting attention from tourists and residents. The first building is the Shree Cement Office Building done by Sanjay Puri Architects, a post-modernist architecture building. It is covered in latticework, inlaid with LED lights, paying homage to the *jaali* design used in the traditional architecture but modernizing it through the lattice pattern, shown in figure 116.

The second building in this discussion is the World Trade Park of Jaipur, a commercial building with offices and a shopping mall. The building is a modern-style building with no connection to the architecture or construction style of the city. The building is seen as a statement to show the city's move towards new developments and a new era. The building is completely covered in blue glass, as seen in figure 117, which is not a good material for natural cooling in the hot-arid climate zone. Yet, due to the mandatory requirement of air-conditioned interior space, glass seems to be a good option.

The choice of the architectural styles remains in the architect's hands, but the resident's perception of the place also matters. As we see in the case of Jaipur, the users are open to accepting modern styles, too, while maintaining the heritage identity. These buildings are a massive success for attracting tourists, just like the city's heritage precincts. Thus, the question has arisen if the modern and the historic can exist together without overshadowing one another. And if yes, then is it possible that a city's heritage and modern identity can coexist.

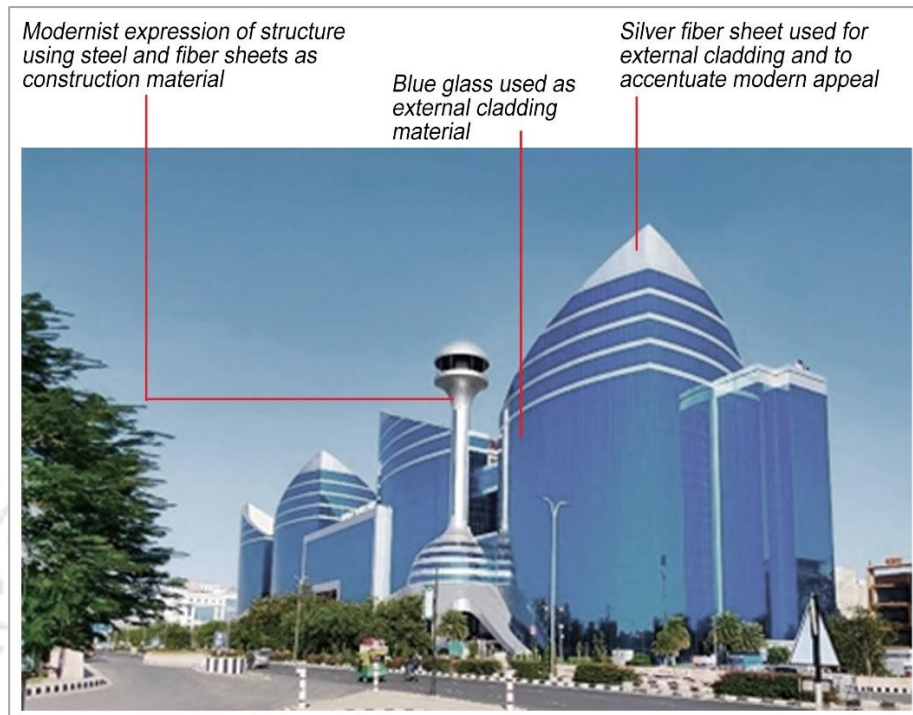


Figure 117. The World Trade Park building of Jaipur, Rajasthan, makes a bold statement about the city's modernity.

3.2.3 Can the community image of a city be separated from its place identity, or can they exist together yet be different?

A city is not developed in a day or two. Historic cities have evolved and have been influenced by many factors. The layering of urban fabric happens over time through different activities that happen in a particular space and the change in space usage. A study was done in the historic area of the Srirangam temple at Tiruchirapalli, Tamil Nadu, as a part of M.Arch. thesis study. Figure 118 shows one built environment from Tiruchirapalli's Srirangam Temple Complex. According to the city's residents, the architecture of the place has a low effect on the place's identity. The residents and tourists were shown pictures of

architectural elements from their main street to check their awareness of the architecture of their built environment.



Figure 118. An image from the courtyard of Srirangam Temple Complex. It shows the plain stone-carved features at human eye level and highly decorated and painted figurines at the top level of the structure.

Almost none of the residents could recognize even the most easily visible architectural elements from their environment, existing at the eye level. The results indicated that the place had no architectural elements that create place identity. Yet, all respondents picked the colors of the temple for the most commonly used colors in the buildings. It must be noted that almost all the buildings in the heritage precincts of the temple complex are white in color, and only the temple has different colors. But the tourists were aware of all the architectural elements and also the color used on buildings.

Thus, a city may have a very different place identity and a mental image for users. It becomes a question of what would be taken as the final mental image during urban expansion. The designers and architects will

have to look at the city's development process and understand how the image and identity have been acquired before deciding.

3.2.4 Identity migration

Within India, increasingly large numbers of Indians are looking toward Western nations, searching for what they perceive as a better quality of life. Lifestyle migration is an international phenomenon, and many countries experience their youth moving towards it. The thought of lifestyle migration has led to identity migration, and diversity is dying. Identity migration is led by the idea of socialism, where everything needs to be the same for all. This practice has pushed our societies and cultures to look the same, feel the same and experience the same. (Torkington, 2012) The question arises about the role of a local place in this identity migration process and in constructing individual and collective place identities.

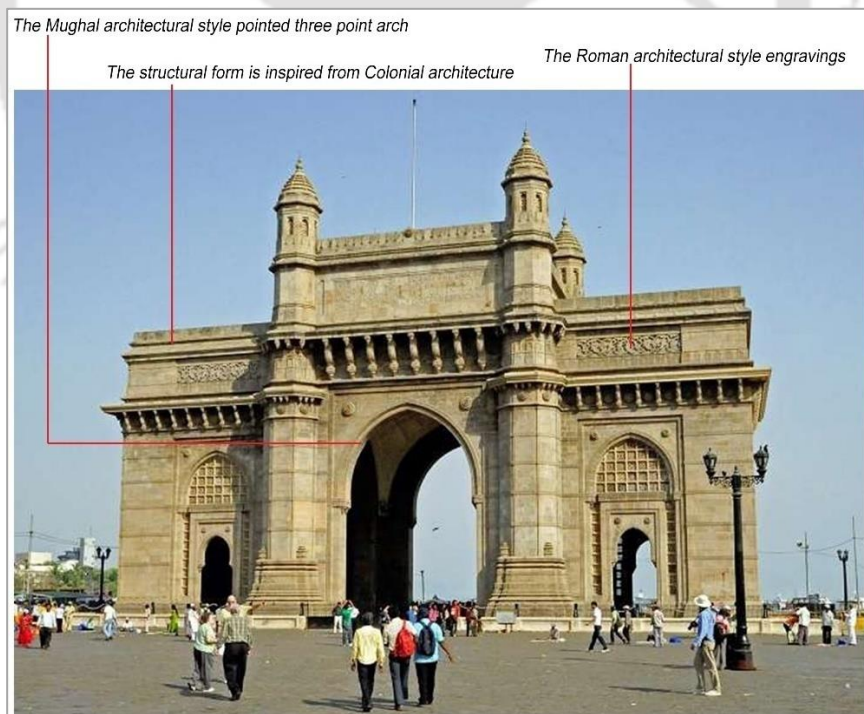


Figure 119. Gateway of India, Mumbai, Maharashtra mark the entrance to the country for the Western world, coming from the sea route.

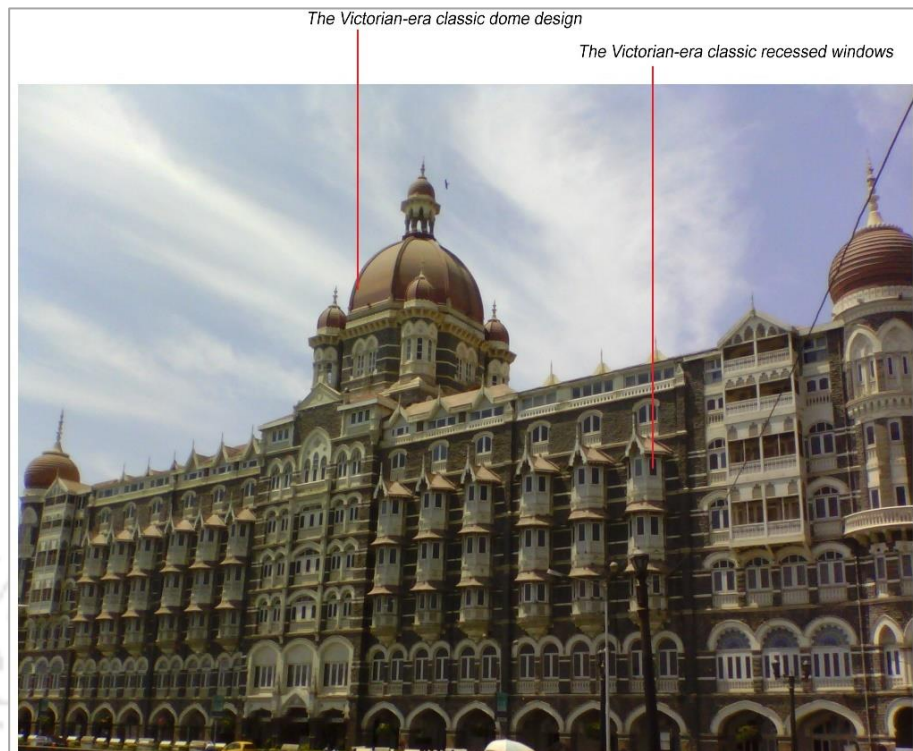


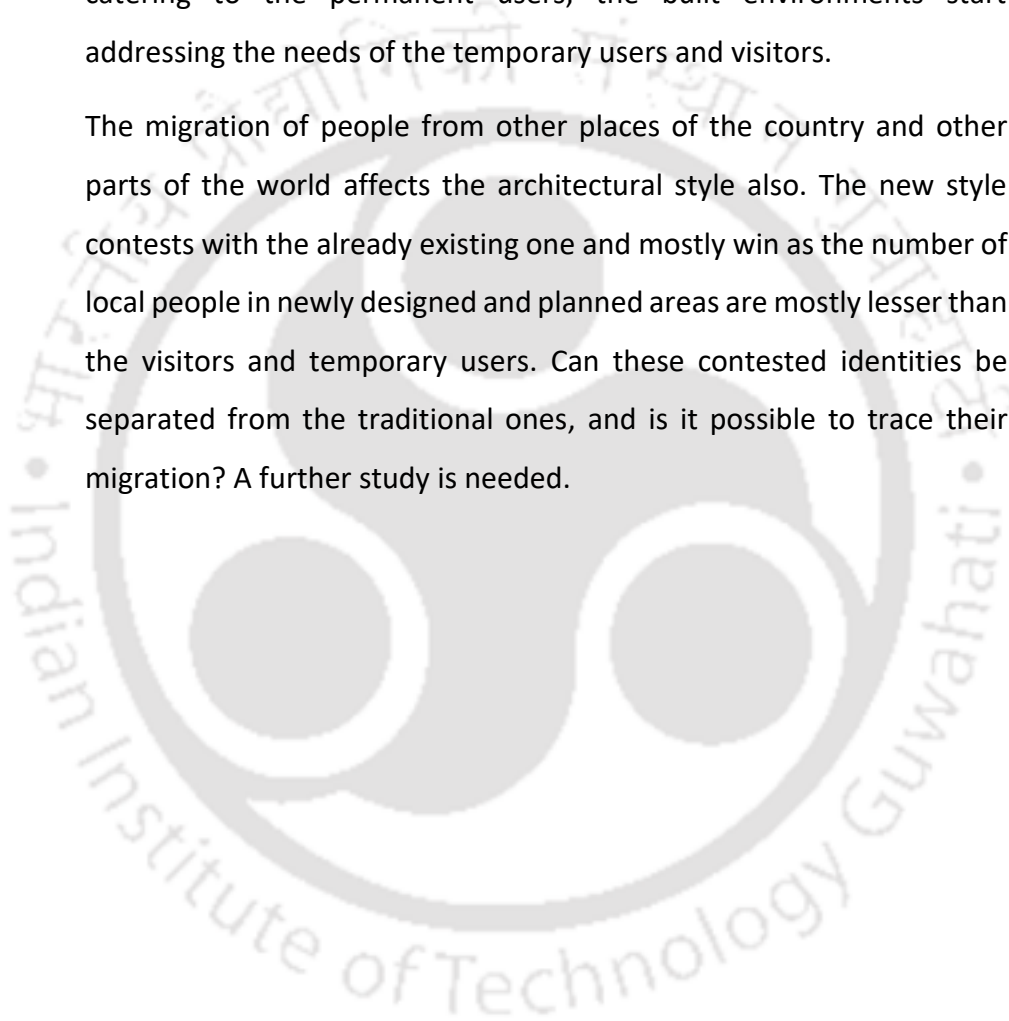
Figure 120. The Taj Mahal Palace Hotel of Mumbai grandly showcases the colonial style of architecture practiced in India.

The Gateway of India at Mumbai has a historical significance and is built in colonial architectural style with some influences from the Mughal architecture, seen in figure 119. The famous Taj Mahal Palace Hotel of Mumbai, seen in figure 120, is also an example of colonial architecture practiced in India. The dome at the hotel's top is a classic example of a Victorian-era architectural style.

The two buildings have become an icon to the city and helped the place to develop its distinctive place identity. But if we take a look at the history of the city, the traditional dwelling units of the city are quite special too. These buildings were called *Wada* and marked by a large entrance gateway. These units necessarily had big courtyards and arched corridors. The entrance doorways are made of wood and have carvings telling folklores.

The city's metropolitan identity has forced the city's traditional architectural identity on its back foot. Due to urbanization, the place has users with more tourist interests, and their cognitive linkage is low. The identities visitors have from their homes and the westernized mindset force a place to migrate from the localized architecture. From catering to the permanent users, the built environments start addressing the needs of the temporary users and visitors.

The migration of people from other places of the country and other parts of the world affects the architectural style also. The new style contests with the already existing one and mostly win as the number of local people in newly designed and planned areas are mostly lesser than the visitors and temporary users. Can these contested identities be separated from the traditional ones, and is it possible to trace their migration? A further study is needed.



3.3 Salient Features

Cultural heritage includes the sites, artifacts, and practices a society regards as historical, influential, and worthy of conservation. It is currently popular and has scholarly attention worldwide, and its conceptual scope is expanding. Most researchers emphasize its functions for supporting ethnic, national, and elite interests, but others point to its creative and emotional sides. We can consider the cultural heritage as a legacy left from the past generations to be carried forward for future generations. The intangible and tangible cultural heritage characterize and identify a society's unique character.

The results of this study revolve around two main concepts, the perception of people towards a city's heritage and the way of using the identity-creating elements. This study has focused on users' perception of a space and development guidelines to cater to their emotional needs. The following two features can be taken as a derivative from this study.

3.3.1 Abstraction for appreciation

During a thematic and planned expansion, the planners and architects need to maintain this cultural heritage identity without overcrowding the visual platter for the space users. The excessive use of the visual architectural elements may render the space monotonous and less appealing. It might also cause the critical architectural heritage to lose importance because of the abundance of the same style. In other cases, the cultural heritage may not be directly used in the built environment as it can be context-specific. To counter such situations, we give the concept of abstraction of the identity creating elements from a heritage-built environment. This way, we can retain the heritage

importance of the historic built form or cultural factors yet do justice to the users' current needs.

During urban expansion or creating a new built environment to appreciate the beauty of the existing built environment inside a city, we propose the idea of abstraction of identity. In this study, we have discussed methods to determine the identity-creating features for a place through user surveys. In the case of the cities that have distinctive natural resources, like the three cases of site study, we may use the abstraction of the whole scene, not only the architectural style. We suggest that smaller architectural elements derived from the built environments unique to a city can be used to appreciate the architectural heritage in the new space.

3.3.2 Replication for utility

We have seen from the case study of Bikaner that the residents feel that for creating a tourism destination, the architectural elements from the historic district must be replicated. The repetitions of visual images of the streets through streetscapes or facades, or, in this case, the architectural elements of ornamentation depend on both similarities and differences concerning the new usage. The replication borrows unique elements from the architecture of the existing place through reference to it, although in contextual separation from it. Thus, each time an element like a niche is repeated, while expressed in a new time/space, its meaning can slightly change as per the new area of application.

In addition, repeating an element intensifies the meaning of the repeated element. However, it also foregrounds and strengthens the

different parts where it is used and contrasts time when it was used with them and when separately. It brings forward the difference in construction materials and artistic abilities of the eras. It reinforces the identity of the existing city in the newly constructed space with a similar utility as the original.

The repetition of different architectural ornaments provides us with new understandings of the importance of reiterated material for a culture and its emotional meaning to the society and its users. Various forms of repetition strategies challenge and encourage a discussion on the intangibility of the heritage. To investigate these repetitions as means of cultural preservation and conversation, we need to explore the impact and meaning of these architectural components.

When we consider urban expansion for utility purposes, like creating a new colony, the designers and planners may take architectural façades from the residential area of the original place. If we are to restore the architectural identity of a tourism city by constructing a tourism destination, replicating the iconic built environment at an appropriate scale would be the solution.

3.4 Concluding remarks for the study

Urban expansion of a city to cater to the contemporary space requirements of its residents is a natural process. The human establishment expands while maintaining its unique identities. The sense of place and belonging has played a major role in maintaining the place identity as everyone wants to belong to their surroundings. During a planned expansion, the architectural heritage of a place must be used in the new space to maintain its place identity.

The study has taken a qualitative approach to enquire into the identity of the heritage cities and the user's perception of them. A city's built heritage can be studied to identify the more minor architectural elements that create its unique identity. The users of a place relate to the architecture of historic built environments and prefer to maintain them while expanding. For utilitarian use of these visual architectural elements, they can be replicated from the original streetscape and abstracted to appreciate the heritage.

Thus to conclude, we can say that the architecture of a place impacts its place identity. The cultural heritage of a historical city can be tangible and intangible. To protect this heritage, we must consider the historicity of a place as its heritage and save it. The protection can happen by preserving the historic buildings, conserving their built environment, and considering it a living heritage scape. During urban expansion or rejuvenation, the architecture of a heritage precinct can be replicated or abstracted, as per the user's perceptions. The identity-creating elements may be replicated from the original precinct for utility-based use of architectural heritage. And for appreciation of the beauty of the heritage, its identity creating visual architectural features may be abstracted.

Any study would be incomplete without acknowledging the factors that posed challenges for the study. Some of the obstacles were overcome, whereas some have been addressed in the next section as the study limitations. The further queries, combined with this study's limitations, helped us see the future scope of work discussed after the limitations section. This study provides a base for future research by eliminating the limitations discussed in 'way forward.'

3.5 Limitations of this study

The major limitation of this study comes with the timing of the COVID-19 pandemic. The pandemic has influenced our lives in many ways, and there is an attitude change in the general public. Here I would like to acknowledge the adjustments made to the site study and feedback work due to various related reasons. One primary reason was the travel restrictions, and the other came from the fear of interacting with strangers due to the spread of the virus.

This would acknowledge the value to the thesis if those research activities were not curtailed by reducing the number of respondents. We faced difficulties in finding and interacting with tourists. We tried our level best by contacting the tourists who had already visited the places under study and considering their opinions. For the study of the residents, we faced issues with the curfews and containment zone. It is to this that we reduced the number of respondents to fifty, here also.

Another limitation is that the study was done for natural lighting only. We have not considered that spaces look different in natural and artificial lighting. The facades shown to respondents the visual data collected for each city were done in natural daylight. We have found

that artificial light affects the street façades and the user perception of the urban spaces through literature reviews. We have come across several examples where a change in streetlight color changed the user behavior and perception of urban built space. If we are to encompass artificial lighting in this study, the foreground becomes the main component of the built area, and the rest falls into the background. Thus, further investigation is required in this field with differently lit built urban environments.

As we discussed previously, the study is done alone for the daytime. It not only means that the lighting of space changes, but at times, the space usage also changes. As discussed before in the further queries section, we will have to look into the place identity of live spaces that transition in different activities at different times of the day. The perception of the built environment will be different for different people but similar when categorized according to their timing of usage.

The other issue faced while doing this study was the lack of understanding of regional and colloquial languages. For the study done at the Kamakhya railway station, we faced trouble understanding the regional language and communicating with the respondents. So, we had to limit the survey to people who could speak and understand Hindi or English. Hence we had used convenience purposive sampling. Similarly, in the case of the study in Bikaner and Rajasthan, the selection of respondents was based on their understanding of the two languages and the regional language. But the people who were not comfortable with the three languages were left out of the sampling.

With all the limitations mentioned above, one major challenge faced was the lack of artistic understanding of creating art pieces. The challenge was faced during the design recommendations for the three

studies. Creating design solutions that reflect the identity of the Kamkhya temple involved expertise in the field of painting. But a lack of professional knowledge and experience in digital design creation hindered it. For this reason, we suggest that for future studies in the topic, an experienced artist may be involved at the design recommendation stage.



3.6 Way Forward

This study shows us the importance of the sense of belonging and place and their effects on the place identity. We have discussed the impact of the architecture of the built environment on the place identity of a city. The perception of a place influences the place identity, and collective identity can be used during urban expansion or rejuvenation. With this study, we have observed several opportunities for future works.

The scope of future studies lies in applying this research in the practical fields of urban planning. It finds its applications in tourism by creating its brand value and marketing it. The identity-creating features of architectural heritage can be directly used to advertise the city as a heritage tourism destination and reinforce its brand image. A strong brand value encourages tourism and promotes economic growth. Figure 121 shows the tourism brand image of Uttar Pradesh, India, where the tourism department has used monuments to create a banner for the Uttar Pradesh State Tourism Development Corporation Ltd. We see the Taj Mahal of Agra, Rumi Darwaza of Lucknow, etc.

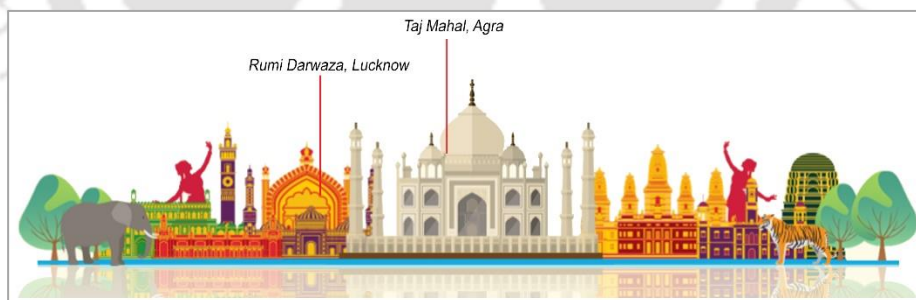


Figure 121. The Uttar Pradesh State Tourism Development Corporation Ltd. has used the monuments to make a banner for the state. It contains one of the seven wonders of the world, Taj Mahal of Agra, Uttar Pradesh. Image source: UPSTDC website. <https://upstdc.co.in/Booking/HotelBooking>.

In figure 122, we see the use of a Kamakhya Devi Temple's built environment of Assam on the website banner of Assam Tourism Development Corporation Ltd. We see that the temple's main dome is always used in the background of the image and the back dome is in the foreground. A further study is required into this matter as it brings out the issue of architectural identity with respect to the architectural style or the common perception of the place.

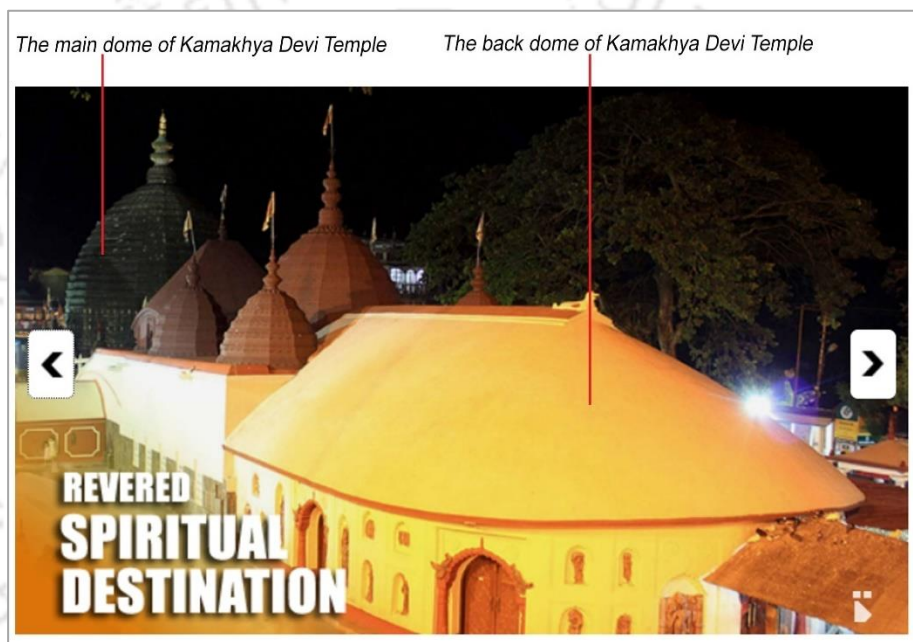


Figure 122. The picture of Kamakhya Devi Temple being used at the Assam Government, Department of Tourism website. The back dome is seen in the foreground, and the main dome is in the background. Image source: <https://tourism.assam.gov.in/>

In figure 123, we see the use of a heritage-built environment of Jaipur at the Rajasthan State Tourism Development Corporation Ltd. Website banner. Figure 124 shows a picture of the Kerala Tourism Development Corporation Ltd. website offering a marketing strategy of eco-resort.

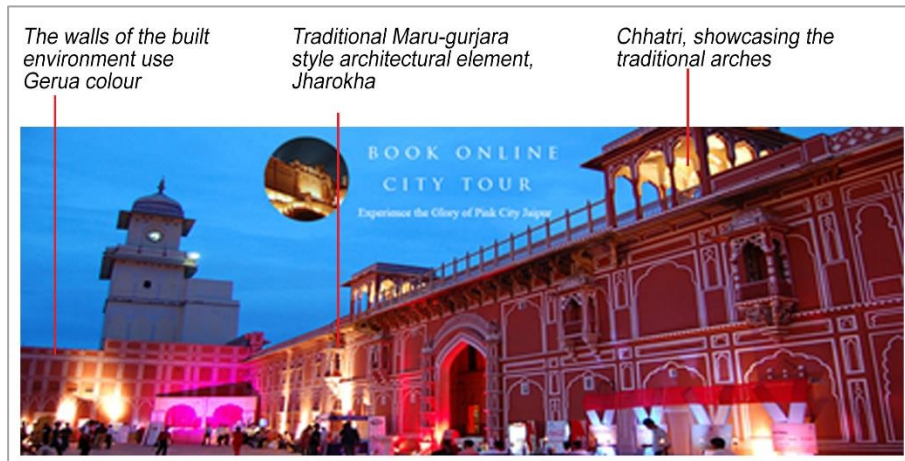


Figure 123. The city tour advertisement of Jaipur on Rajasthan State Tourism Development Corporation Ltd. It shows the use of heritage precincts for tourism development purposes. Image source: <https://rtdc.tourism.rajasthan.gov.in/>



Figure 124. The eco-tourism advertisement on the Kerala Tourism Development Corporation website. Image source: <https://www.ktdc.com/>

This idea of heritage and eco-tourism exists for most Indian states. But a comprehensive outlook combining both aspects for a state and its common identity concerning its tourism potential need to be explored in future studies. It will help in restoring the sense of place in the minds of the residents. It will also enrich the tourists' experience of the place and increase its brand value.

Every city has some form of urban installation that reflects the city's unique features and commemorates the glorious past. In figure 125, we see one such expression of showcasing two of Udaipur's landmarks by creating visual frames with sitting vantage points. From these points, one can observe the Neemach Mata Temple on a hilltop and the Nehru Garden island in the Fatehsagar lake. The Nehru Garden has beautiful traditional architectural elements and is a popular destination for tourists and locals, as seen in figure 126. Artists can creatively express the place identity of a city in a better way than planners and architects. Hence a future study for the creative expression of the identity creating elements and their use as urban identity creators.

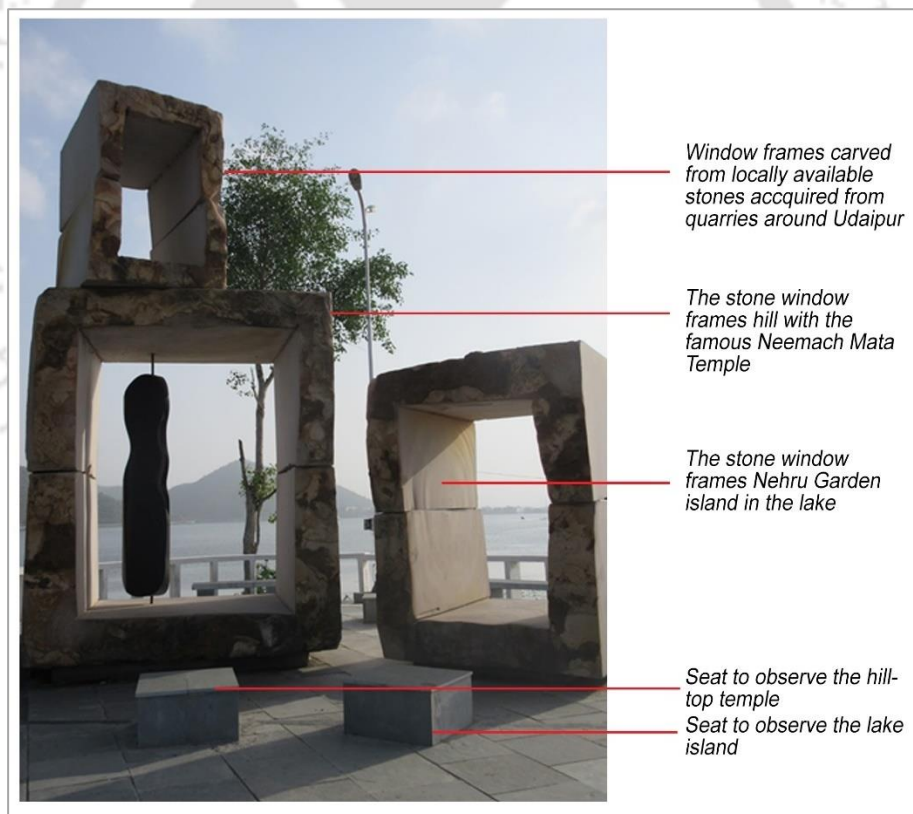


Figure 125. The sculptures at Fatehsagar lakeside at Udaipur, Rajasthan. The two bottom sculpture windows frame two critical landmarks of the area.

A place also tends to behave differently at day and night times. At night the level of interaction of users and the physical setting is limited to the immediate surroundings. Whereas, during the daytime, when there is natural light, the visual extent of the physical environment extends. This leads to a more extensive visual canvas, and other objects also affect the place identity. Hence the study of place identity and architecture can be continued to examine the factors in daylight and artificial light.

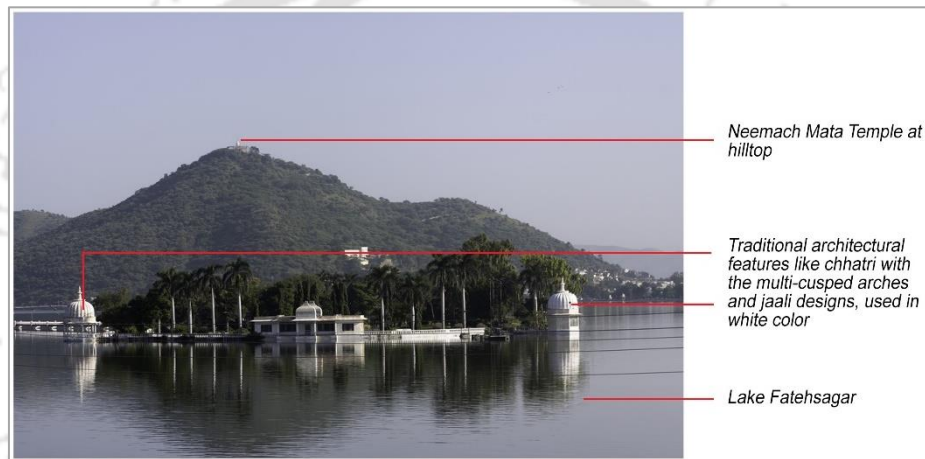


Figure 126. The Nehru Garden island inside lake Fatehsagar at Udaipur, Rajasthan, showcases the city's natural and architectural beauty.

A built space's physical and functional aspects determine the level of connection a person has with their environment. The historic built environments carry the past information and take the message to the future. Protection of historic architectural settings of the built environments can be a tool for cultural continuation. Cultural heritage conservation and community development are interlinked and interdependent. The heritage-built environments install a commonplace identity among the users of a place. This identity can be extracted to develop mementos and souvenirs for the place. The visitors may carry the identity markers when they visit a city with a heritage reputation.

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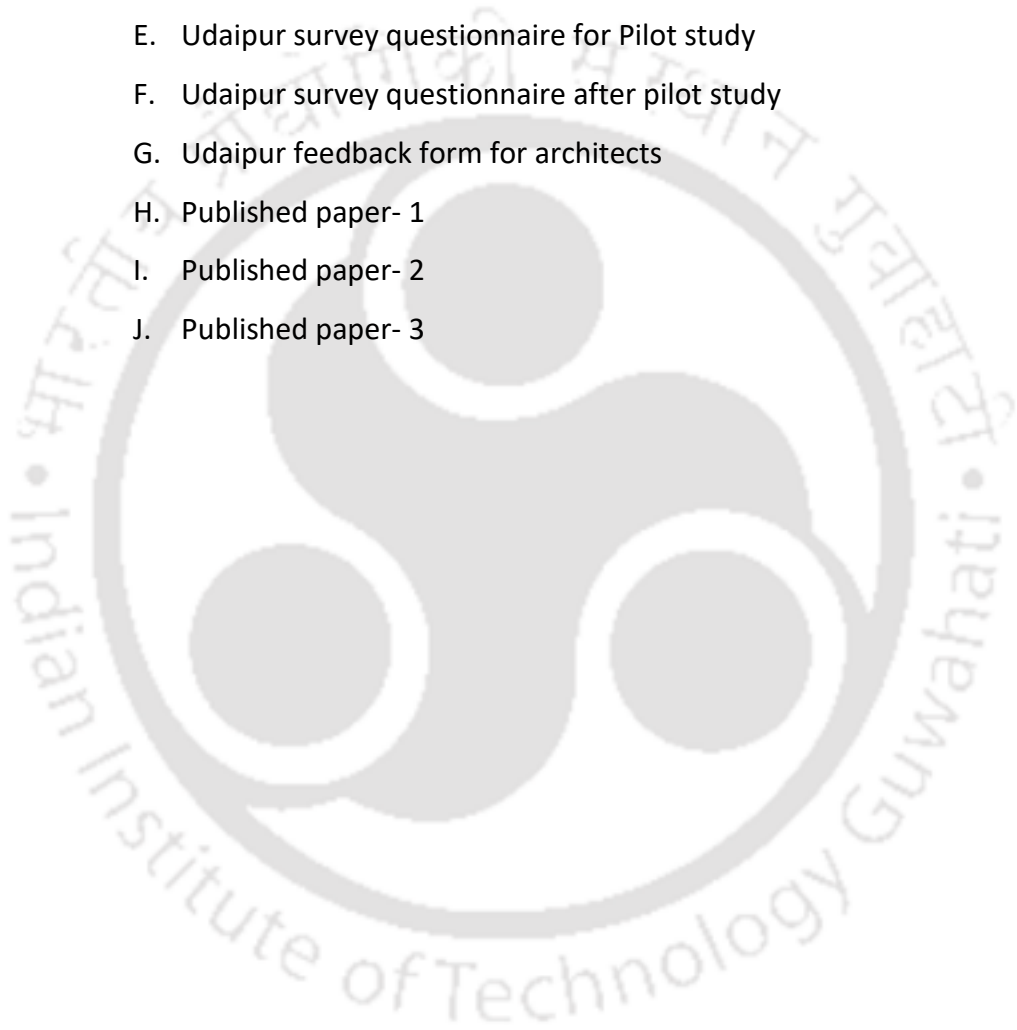
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Annexure

- A. Bikaner survey questionnaire
- B. Bikaner feedback form for architects
- C. Guwahati survey questionnaire
- D. Guwahati feedback form for architects
- E. Udaipur survey questionnaire for Pilot study
- F. Udaipur survey questionnaire after pilot study
- G. Udaipur feedback form for architects
- H. Published paper- 1
- I. Published paper- 2
- J. Published paper- 3



Annexure A- Questionnaire for the Bikaner Study

The study aims to investigate the identity of Indian cities according to users' perceptions of the place. The objective of the survey is to check if Bikaner has a strong identity in people's minds and if that identity needs to be maintained during the urban expansion of the city.

We appreciate you letting us know who you are. Your identity will not be disclosed unless you allow us to. The data we collect will be used only for this research.

SOMYA MISHRA

Research Scholar

Department of Design

Indian Institute of Technology Guwahati

Section- A

1. Name:
2. Age:
3. Reason of travel:
4. Frequency of travel:
5. Well- known to Bikaner:

Section- B

1. What, according to you, is Bikaner famous for?
2. What is the must-visit destination for tourists? (the first destination that comes to your mind)
.....
3. Do you think the Rampuria haveli complex is a major tourist attraction?
 Yes No Maybe
4. Do you think the Rampuria haveli complex is an architecturally important urban space?
 Yes No Maybe
5. Do you think temples of the area of Bikaner are and identity-creating feature?
 Yes No Maybe
6. Please select the options that you think Bikaner is famous for :
 - a. Junagarh Fort
 - b. Laxmi Niwas Palace
 - c. *Rampuria Haveli* Complex
 - d. Karni Mata Temple
 - e. *Laxminath* Temple

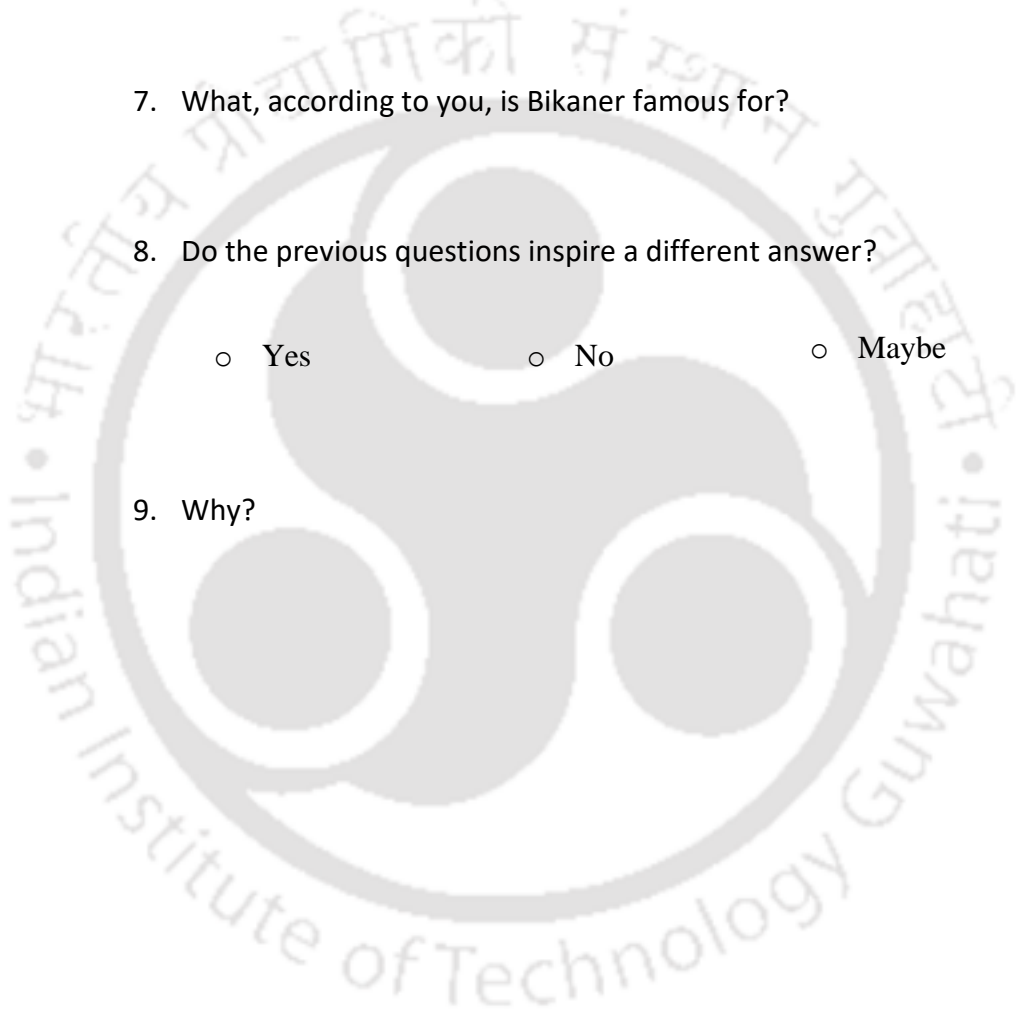
- f. *Bhandasar Jain Temple*
- g. *Lalgarh Palace*
- h. *Bikaneri namkeen*
- i. *Bikaneri Bhujiya*
- j. *Bikaji sweets*
- k. Others:.....

7. What, according to you, is Bikaner famous for?

8. Do the previous questions inspire a different answer?

- Yes
- No
- Maybe

9. Why?



Annexure B- Bikaner feedback form for architects

Feedback Form

Bikaner City Identity Design

This study aims to identify the architectural elements that create a visual identity of the city Bikaner. We attempt to build a visual identity of the city that, according to the residents, connects them most with the city. To confirm our findings and establish our conclusions, we request you to kindly provide your crucial insight on the decisions made based on data collected over the past two years by conducting on-site resident surveys. We believe that your experience and contribution in elaborating the traditional architecture of Bikaner would benefit this study. We request your feedback and valuable inputs in consolidating the conclusions and summarizing the outcomes definitively.

Declaration: The information collected for this study will be used for research purposes only. Your identity would not be revealed unless you allow us to publish it with the study outcomes.

Section- A

Name (optional):

Occupation:

Number of years working in the field:

Years of stay in Bikaner:

Do you want to keep your identity anonymous: Yes/ No

Section- B

Please check the following statements in the context of Bikaner City's future expansion and development while maintaining its architectural identity, and comment on their applicability.

S. No.	Inference	Yes	No	Maybe
1.	A façade with traditional architectural elements combined with the narrow streets and big			

	open <i>chowks</i> is the correct identity of the city.			
2.	If not, then what would a correct depiction be?			
3.	<i>Chajjas, Jharokhas, etc.</i> , shall be only in traditional style with red sandstone cladding.			
4.	All building entrances must have a niche, locally known as <i>aliya</i> designed as shown in figure (a), to keep an oil lamp, <i>deepak</i> .			
5.	The exterior surfaces must have motifs of flowers, as shown in figure (b), and must be replicated at other places to restore the heritage identity of the city.			
6.	On all exposed elevations of the buildings, the surface shall be finished in red sandstone and			

	carved with intricate patterns, like shown in figure (c).			
7.	All houses must be opening to an open road intersection, creating a node popularly known as a <i>chowk</i> .			
8.	All the <i>chowks</i> must have a community gathering space and street furniture known as a <i>patta</i> to sit. This will keep the <i>patta sanskriti</i> alive.			

Other remarks and comments

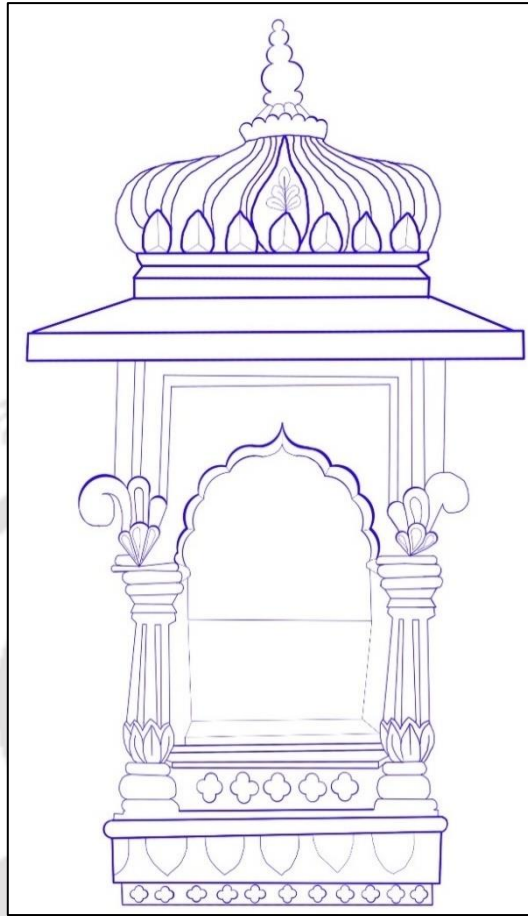


Figure a. Traditional 'aaliya' design most preferred by residents as an identity creating architecture element

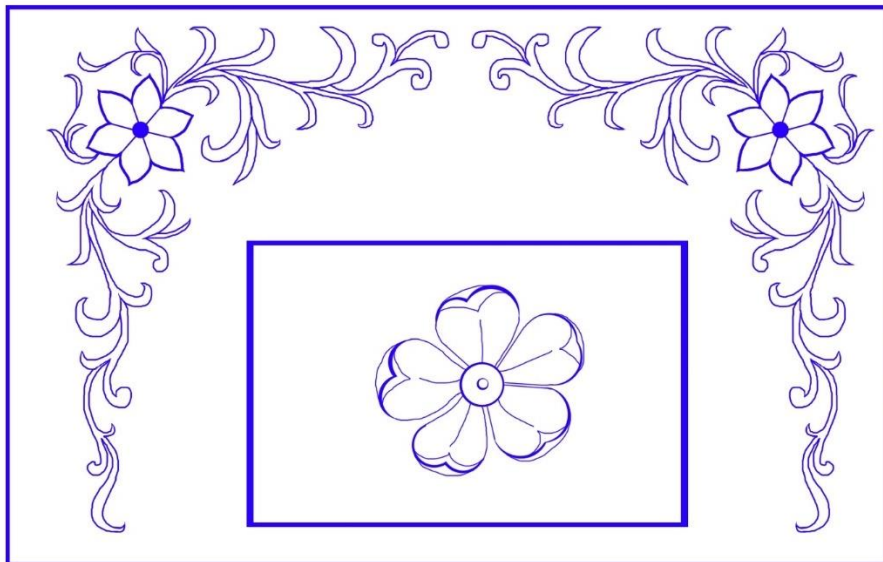


Figure b. Traditional Flower motifs used on exterior surfaces of Bikaner

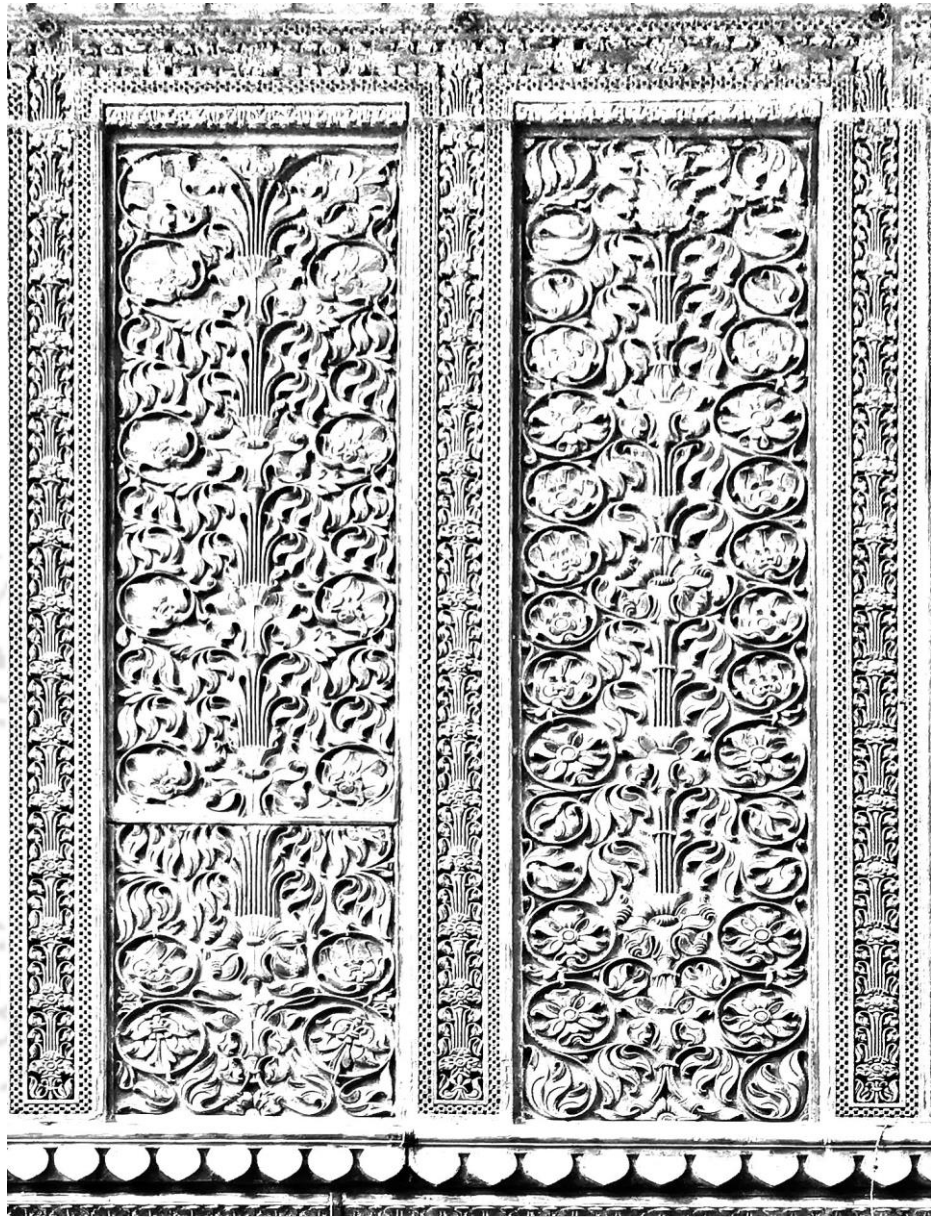


Figure c. Intricate wall carving design of mostly seen in Bikaner City, most preferred architectural element in identity creation, as per the people's perception

Annexure B- Questionnaire for the Guwahati Study

The study aims to investigate the identity of Indian cities according to users' perceptions of the place. The objective of the survey is to check if the Kamakhya Temple has a strong identity in people's minds and if that identity needs to be reflected in designing the Kamkhya railway station.

We appreciate you letting us know who you are. Your identity will not be disclosed unless you allow us to. The data we collect will be used only for this research.

SOMYA MISHRA

Research Scholar

Department of Design

Indian Institute of Technology Guwahati

Section- A

1. Name:
 2. Age:
 3. Reason of travel:
 4. Frequency of travel:
 5. Well- known to Guwahati City:
-

Section- B

1. Do you think Kamakhya Railway Station is a representation of a gateway to Guwahati?
 Yes No Maybe
 2. Do you think Kamakhya Railway Station represents Assam?
 Yes No Maybe
 3. Do you think the visual design of the Kamakhya Railway Station correctly represents the physical attributes of Guwahati city?
 Yes No Maybe
 4. Does the Kamakhya Railway Station design represent the Kamakhya Temple?
 Yes No Maybe
 5. Does Kamakhya Railway Station design represent the city?
 Yes No Maybe
 6. Does Kamakhya Railway Station and Guwahati City Railway Station look similar or seem to be from the same city?
 Yes No Maybe
-

Section- C

1. Do you think a Railway Station must represent the city's culture?
 Yes No Maybe
2. Do you think Kamakhya Railway Station can represent the city's culture in terms of its natural beauty?

- Yes No Maybe

3. Should Kamakhya Railway Station represent the temple's identity?

- Yes No Maybe

4. Do we need to showcase the identity of the temple in Kamakhya Railway Station design for the commuters for the tourists?

- Yes No Maybe

5. Can we depict Kamakhya Devi idol at the railway station?

- Yes No Maybe

6. Should the identity be abstracted?

- Yes No Maybe

According to you, how can abstraction happen?

Annexure D- Guwahati Feedback Form for Architects

Feedback Form

Guwahati City Identity Design

This study aims to identify the architectural elements that create a visual identity of the city Guwahati. We attempt to build a visual identity of the city through built architectural elements that, according to the residents, connect them most with the city's culture. Our main finding for this study relies on the result from the survey that people see Kamakhya Temple as the main source for cultural identity and want it to be used more frequently in the urban design for Guwahati city. To confirm our findings and establish our conclusions, we request you to kindly provide your crucial insight on the decisions made based on data collected over the past two years by conducting on-site resident surveys. We believe that your experience and contribution in elaborating the culture-based architecture of Guwahati would benefit this study. We request your feedback and valuable inputs in consolidating the conclusions and summarizing the outcomes definitively.

Declaration: The information collected for this study will be used for research purposes only. Your identity would not be revealed unless you allow us to publish it with the study outcomes.

Section- A

1. Name (optional):
2. Occupation:
3. Number of years working in the field:
4. Years of stay in Guwahati:
5. Do you want to keep your identity anonymous: Yes/ No

Section- B

Please check the following statements in the context of Guwahati City's future expansion and development while maintaining its architectural identity, and comment on their applicability.

S. No.	Inference	Yes	No	Maybe
1.	The geographical context of Guwahati, the green vegetation, wildlife and the river Brahmaputra, are the best identity creators of the city.			
2.	If not, then what would a correct depiction be?			
3.	Apart from the geographical elements mentioned in point 1, the city has a strong cultural identity in context of the Kamakhya Devi Temple.			
4.	To showcase the cultural identity in built form, abstract form of the Goddess can be used as a part of visual design for the Kamakhya Railway Station.			
5.	The sculpture shown in figure 1 designed with an inspiration from the Goddess can be a part of the city's urban design.			

Other remarks and comments



Figure d. Abstract sculpture generated using the identity of the Goddess Kamakhya to be used as an installation for urban design

Annexure E- Questionnaire for the Udaipur Study

The study aims to investigate the place identity of Indian cities according to users' perceptions of the place. The study's primary objectives are to conduct a user-centric evaluation of the architecture of the street façade of Udaipur's heritage precinct, prioritize the architectural elements of the street façade, and validate it.

We appreciate you letting us know who you are. Your identity will not be disclosed unless you allow us to. We don't want to spam you in any way, and the data we collect will be used only for this research.

SOMYA MISHRA

Research Scholar

Department of Design

Indian Institute of Technology Guwahati

By now, you must probably wonder why we chose you as our respondent. We are looking for a local or migrant resident/ tourist who has a fair knowledge of the city. The residents have spent quite some time in the place and are familiar with it. At the same time, a tourist has a fair amount of knowledge of the city and has seen significant places while navigating through the streets.

And that's why you are a perfect fit!

We would like you to grant us permission to use this data for the above-mentioned study. Kindly let us know if we need to keep your identity anonymous by ticking in the box below.

- Keep my identity anonymous.

[Respondent's Name and Signature]

SECTION A

- 1) Name (Optional)
 - 2) Age
 - 3) Place of residence
 - 4) For how long have you lived there?
 - 5) Do you know the area well?
 - 6) For how long you have been coming here?
-

SECTION B

- 1) What is the identity of the city?
 - a) Commercial Town
 - b) Industrial Town
 - c) Residential Town
 - d) Temple Town
 - e) Tourist Town
 - f) Port Town
 - g) Education Hub
 - h) Other:
- 2) What is the major activity you see happening?
 - a) Shopping
 - b) Pedestrian Walking
 - c) People residing
 - d) Religious activities
 - e) Tourism
 - f) Eating
 - g) Other:

- 3) What is the average building height?
- a) Single Storey
 - b) Double Storey
 - c) G+ 2
 - d) G+ 3 or more
- 4) What is the average road width?
- a) Less than 9'
 - b) 9'- 12'
 - c) 15'- 30'
 - d) 40'- 50'
 - e) more than 100'
- 5) Do you have problem in knowing what comes next on the street?
(Visibility)
- a) Yes
 - b) No
- 6) Do you experience lack of privacy for buildings on roadside?
(Setbacks and screening)
- a) Yes
 - b) No
- 7) Do you have any issues regarding safety and security on the roads?
(Eyes on streets)
- a) Yes
 - b) No

- 8) Do you feel the streets are too cramped, street width to building height ratio? (Sky view angle)
- a) Yes
 - b) No
- 9) What can be plan form of the buildings, as seen from the outside?
- a) Outward- with courtyard
 - b) Inward- with courtyard
 - c) Outward- without courtyard
 - d) Inward- without courtyard
- 10) The skyline has.....?
- a) High-rise, flat roofs with traditional elements
 - b) Low-rise, flat roofs with traditional elements
 - c) High-rise, flat roofs without traditional elements
 - d) Low-rise, flat roofs without traditional elements
- 11) Do you see some relation in buildings on one street?
- a) Yes
 - b) No
- 12) What is the relation?
- a) Building Heights
 - b) Colours
 - c) Frontage
 - d) Windows
 - e) Ornamentation
 - f) Doors
 - g) Columns

- h) Built use
- i) Others.....

13) What built-use pattern you see most in the city?

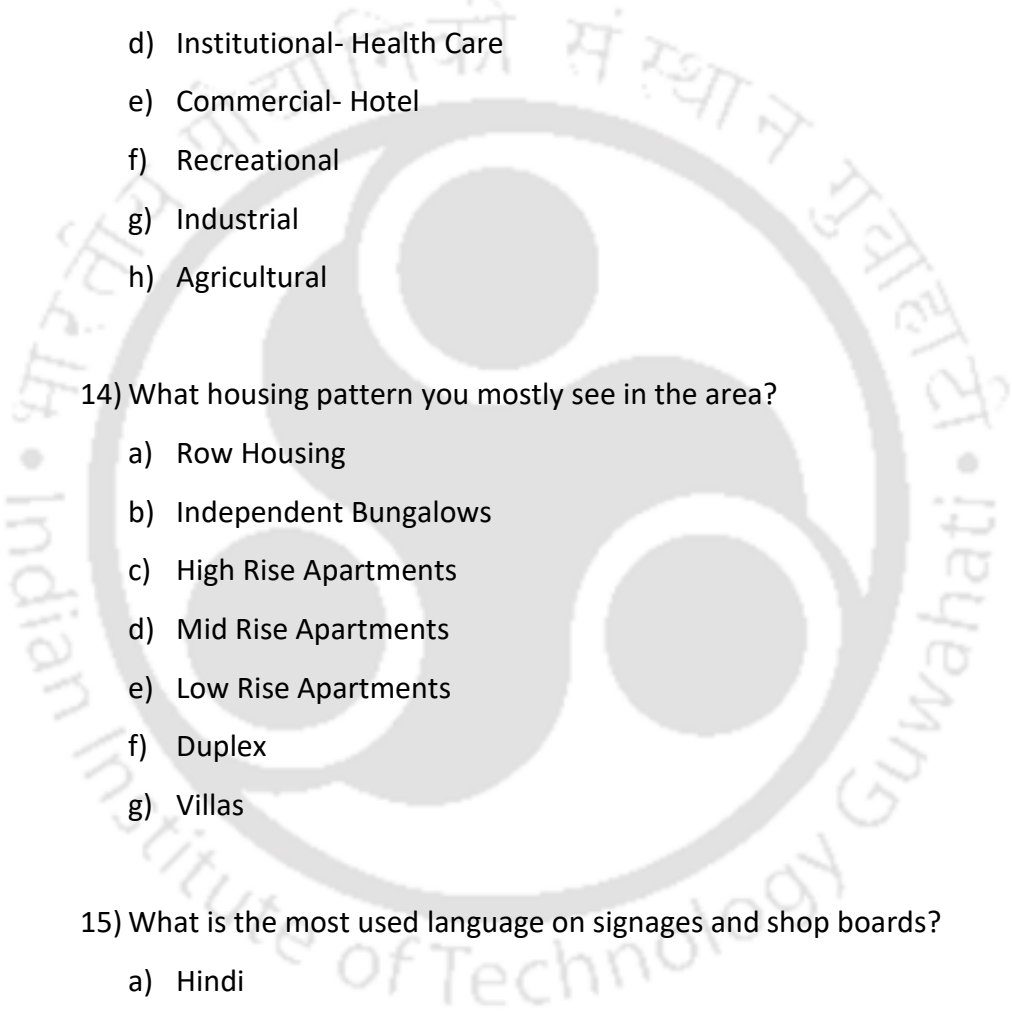
- a) Residential
- b) Commercial
- c) Institutional- Educational
- d) Institutional- Health Care
- e) Commercial- Hotel
- f) Recreational
- g) Industrial
- h) Agricultural

14) What housing pattern you mostly see in the area?

- a) Row Housing
- b) Independent Bungalows
- c) High Rise Apartments
- d) Mid Rise Apartments
- e) Low Rise Apartments
- f) Duplex
- g) Villas







15) What is the most used language on signages and shop boards?

- a) Hindi
- b) English
- c) Mewari
- d) Marwari
- e) Others:.....



SECTION C

1) Do you think the following colour palette is appropriate for Udaipur city?

Palette	Yes	Maybe	No
			
			
			
			
			
			

2) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

3) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

4) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

5) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

6) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

7) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

8) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

9) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

10) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

11) Do you think the following façade is appropriate for Udaipur city?
And specify the reason for your selection.



Yes	Maybe	No

SECTION D

- 1) Do you see a relationship in the various buildings seen in the images?
 - a) YES
 - b) NO
- 2) Do you think the relationship is because of the following elements?

Element	Yes	Maybe	No	Reason
Bay of Windows				
Porch/ Veranda				
Canopies				
Balconies/ Decks				
Roof Decks				
A. Style				
Roof form- typical shape				
Roof Material				
Wall Texture				
Siding Style/ Material				
Trim Style/ Material				
Details				
Railings				

Foundation				
Store Front				
Colour Scheme				
Fenestration				
Window Style				
Window Material				
Window Shape				
Door Style				
Door Material				
Door Shape				
Landscape and Site Work				
Trees and Shrubs				
Fences and Rails				
Retaining/ Boundary Walls				

SECTION- E

1. Do you think maintaining the visual identity of a place is important? If Yes, how can we express the identity?

Annexure F- Udaipur Feedback Form for Architects

Feedback Form

Udaipur City Identity Design

This study aims to identify the architectural elements that create a visual identity of the city Udaipur. We attempt to build a visual identity of the city that, according to the residents, connects them most with the city. To confirm our findings and establish our conclusions, we request you to kindly provide your crucial insight on the decisions made based on data collected over the past two years by conducting on-site resident surveys. We believe that your experience and contribution in elaborating the traditional architecture of Udaipur would benefit this study. We request your feedback and valuable inputs in consolidating the conclusions and summarizing the outcomes definitively.

Declaration: The information collected for this study will be used for research purposes only. Your identity would not be revealed unless you allow us to publish it with the study outcomes.

Section- A

Name (optional):

Occupation:

Number of years working in the field:

Years of stay in Udaipur:

Do you want to keep your identity anonymous: Yes/ No

Section- B

Please check the following statements in the context of Udaipur City's future expansion and development while maintaining its architectural identity, and comment on their applicability.

S. No.	Inference	Yes	No	Maybe
1.	A façade with traditional architectural elements combined with the backdrop of lakes and			

	hills is a correct depiction of Udaipur.			
2.	If not, then what would a correct depiction be?			
3.	<i>Chajjas, Jharokhas, etc., shall be only in traditional style with exposed stone brackets.</i>			
4.	The traditional cornice design (shown in figure e) must be used at all floor levels.			
5.	On all exposed elevations of the buildings, the surface shall be finished in smooth plaster and painted in Udaipur white color.			
6.	Boundary walls should be painted in Udaipur cream colour.			
7.	11400mm or 12300mm shall be identified as skyline derived from			

	the parapet's inclusion in the Walled City area.			
8.	All the buildings on the street must follow the same gridlines.			
9.	The longitudinal grid lines and the levels shall be prominently marked on the sides of all plans and elevations or sections respectively to be designed and reallocated as the observance of the above requirements.			
10.	Do the points mentioned above facilitate the identity restoration of the city?			
11.	With the change in climate, we expect to see a change in the architectural style of Udaipur			
12.	The image shown in figure f is generated by following the suggestions mentioned above. Do you think it correctly depicts Udaipur?			
Other remarks and comments				

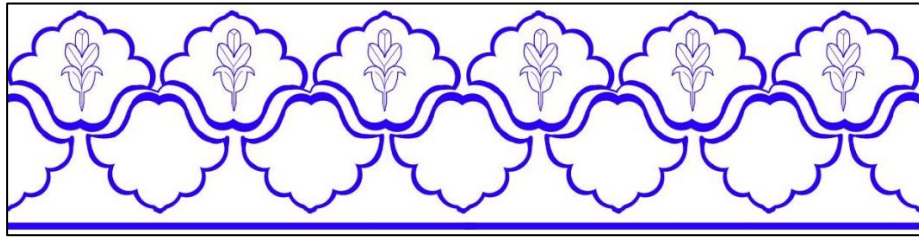


Figure e. Cornice design of Udaipur City, most preferred architectural element in identity creation, as per the people's perception



Figure f. The facade generated for Udaipur streets using suggestions mentioned in the questionnaire

List of published works

1. Mishra, S., & Chakrabarti, D. (2021, February). Common place-identity of Indian towns through historic marketplaces: a case of Lucknow. In ISUF 2020 Virtual Conference Proceedings (Vol. 1).
2. Mishra, S., & Chakrabarti, D. (2021, January). Design of a Railway Station: Creative Expression of Cultural Heritage Identity. In International Conference on Research into Design (pp. 619-629). Springer, Singapore.
3. Mishra S., Chakrabarti D., Krishanan C. (2020) Cognition in Place: Dialogues of Architecture and Identity. In ACED SEANES 2020 Virtual Conference Proceedings.
4. Krishanan C., Chakrabarti D., Mishra S. (2020) Colour preference for bus interiors doing pilgrimages in India- A survey based study. In ACED SEANES 2020 Virtual Conference Proceedings.
5. Mishra S., Chakrabarti D. (2021) Informal Urban Spaces and Place-Identity. In HWWE'21 Conference Proceedings.

Under process:

1. The Architectural Heritage of Udaipur City: An Investigation into Identity of the Built
Somya Mishra and Prof. Debkumar Chakrabarti

Annexure G- Published Paper 1

Presented paper on 'Common Place- Identity of Indian Towns through Historic Marketplaces: A Case of Lucknow' at 27th International Seminar on Urban Form organized by the University of Utah, College of Architecture+ Planning, Salt Lake City, Utah, USA 1- 4 September 2020.

The paper is published as a part of conference proceedings 'ISUF 2020: Cities in the Twenty-First Century'.



COMMON PLACE- IDENTITY OF INDIAN TOWNS THROUGH HISTORIC MARKETPLACES: A CASE OF LUCKNOW

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Prof. Debkumar Chakrabarti, Professor, Indian Institute of Technology Guwahati, India

ABSTRACT

An identity of a place finds root in its skeletal features, associated activities, and the various experiences form critical features of that place. In Indian cities, marketplaces with their specific and unique architectural features have played an important role in an area's economic and social driving engines and become an integral part of the cultural geography. It is a result of the multi-cultural wealth of India through which we experience a peaceful co-existence and merging of different beliefs, religions, and traditions for decades. With an in-depth comparative analysis, the different aspects of various influences can be assessed and provide a basis for sustainable refurbishment and planning for the historical bazaars with maintaining its original identity and modern functions.

The conservation and enhancement of individual as well as collective parts of the historic built environment and their settings contribute to the wellbeing of communities, to the region's economy, and the enjoyment of visitors. This paper looks into finding elements that create a common place-identity of historic Indian city Lucknow, a medieval city that lives through modern changes. It expresses the salient architectural heritage in the built environment of marketplaces of Lucknow, that needs to be restored for heritage preservation with current usage. Keywords: Place-identity, Indian Heritage Architecture, Historic Marketplaces, Lucknow.

INTRODUCTION

In modern times the unplanned development in historic cities has destroyed the view- scape of the otherwise beautifully designed aesthetics. As Lynch has pointed out, life is not impossible in such places, but the quality of life can be better if the urban quality is maintained. Moreover, view- scape of a heritage precinct- has an essential role to play to have an understanding of this historic environment in towns and cities (Lynch, 1960). There are several studies on the perceived quality of the urban environment that tries to establish a harmonious relationship between the architecture of this view-scape that include streetscape and landmarks, and people around it.

In the Indian context, studies and research focusing on the visibility of historic streetscapes and the preservation of their view are not given importance. But there is a need for such research to protect the views and to sustain the cultural as well as the architectural identity of a city. These landmarks are constantly threatened by surrounding urban development, which obscures the traditionally enjoyed views. This study attempts to fill that gap by studying the architectural elements that become its identity in the present scenario. The benefits are:

- It allows the designers to pick better options from all available alternatives for façade design in historical cities of India. The outcomes of the study will enable designers to identify the identifying features that people relate to from all façade elements.

Annexure H- Published Paper 2

Presented paper on Cognition in Place: Dialogues of Architecture and Identity' at ACED- SEANES 2020 organized by the Asian Council of Ergonomics and Design and the Southeast Asian Network of Ergonomics Societies from 2 to 4 December 2020.

The paper is published as a part of conference proceedings.





Cognition in Place: Dialogues of Architecture and Identity

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Abstract. A sense of place is seen as natural. Some consider the sense of place as a survival instinct, while others believe it to be a territorial instinct. Environmental psychologists argue that physical settings play a significant role in creating an image of a place in the minds of their users. The built environment of an area has a substantial impact on the creation of the identity of that place. In cities of architectural value, the built environment shapes an image of the city in the minds of residents and visitors. According to Kevin Lynch, a city can be imagined by its residents by five elements, namely, paths, edges, districts, nodes, and landmarks. The tourism business can extract the image created at these locations and market it to strengthen the identity. This paper summarises a study done in Bikaner, India, a city famous for its historic buildings and traditional food. Thirty-five people were enquired about the identity of the city and how they relate to it. The results show that the architecture of the city plays an essential role in creating a place identity.

Keywords: Architectural Identity, Cognition, Place Identity, Bikaner.

1 Introduction

Architecture is a medium for place identity creation. Places are doubly constructed: most are built or, in some way, physically carved out. They are also interpreted, narrated, perceived, felt, understood, and imagined. The relationship between people and the environment is a field of study for environmental psychologists. Place attachment is described as the feelings we acquire towards places with great familiarity, places we belong to and have an affinity with. When place attachment grows, we start to identify ourselves with the place, both on a larger scale (nationality, city, etc.) and at a smaller scale (neighborhood, homes, or rooms). This heightened attachment results in self-concepts based on places.

Annexure I- Published Paper 3

Design of a Railway Station: Creative Expression of Cultural Heritage Identity.

In International Conference on Research into Design (pp. 619-629).
Springer, Singapore.



Chapter 51

Design of a Railway Station: Creative Expression of Cultural Heritage Identity



Somya Mishra and Debkumar Chakrabarti

Abstract By the mid-nineteenth century, the railway had established itself as an essential part of life in the industrial era, and the railway station took on an increasingly characteristic appearance. Architects have amended the industrial aspect of the train sheds through a more traditional façade design. The station buildings are fighting for a place among the league of theatres, museums, and city halls. The role of embellishments is mostly neglected in governance policies for railway stations, even though the architecture and spatial planning are considered. The visual design is monographic and ignores the context of visitors. Establishing the diverse iconography that must develop for decoration of railway stations is a part of an extensive study to showcase cultural heritage with creativity. City marketing has grown into an established field of research and an academic subdiscipline. This article explores visual design elements of the Kamakhya Railway Station that acts as a gateway to the Indian city Guwahati of Assam for people with the intent of visiting the Kamakhya temple. The study proposes a suggestion for the railway station's visual design with a focus on tourism. Finally, it points to areas for further research and exploration.

51.1 Introduction

Indian Railways owns and manages one of the largest railway networks of the world, with over 64,000 route kilometers and 7,000 stations. The Ministry of Railways under the Government of India oversees the operation of this 64,000 km railways, and there are 16 zonal railways headed by their general managers. The Indian Railways carries more than 17.5 million passengers every day, and some of the major railway stations handle 100–200 million passengers per annum [1]. Most of the railway stations have been built over 100 years ago and have a limited and aging infrastructure that handles

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Annexure J- Published Paper 4

Preference for bus interiors doing pilgrimages in India- A survey based study.

ACED- SEANES 2020 organized by the Asian Council of Ergonomics and Design and the Southeast Asian Network of Ergonomics Societies from 2 to 4 December 2020.

The paper is published as a part of conference proceedings.





Colour preference for bus interiors doing pilgrimages – A survey based study

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Abstract: Colour and its effects on human mind have always been a fascinating area of research for decades. Plenty of research outputs are available in these areas too. The colours and its effects on human psychology is of paramount importance to designers too. Especially in the case of automotive designers, the colour and its effects are of extreme importance while designing the interiors as users spent a considerable time inside the vehicles. While vehicles such as cars and all are designed with these factors in mind, large commercial vehicles such as buses may not have considered these aspects. This is primarily due to the fact that in India, majority of buses are not coming with factory fitted bodies but instead they use bodies built by coach builders. The problem with these body builders is that they are focussing more on low cost rather than any cognitive ergonomical aspects. This study aims to find out the most preferable colour system by fellow passengers particularly pilgrims, the perception of mental comfort. The study uses open ended questionnaire survey with around 83 respondents from all parts of India. It tries to find the preferable colour for seats, ceiling, floor and window glasses.

Keywords: Bus interior design, cognitive comfort, colour psychology

Introduction

Colour and its influence on the mental comfort of an individual or user is always been a research area for many. Colour has a very influential role in design. Be it product design scenario, or social media user interface design [1], or game design [2] or any modes of design the colour and the effects of it on the emotional responses of human [3] is a fascinating area. Even virtual reality based studies have been performed to analyse the colour and its effects on human mind [4]. There are a number of articles and research papers available worldwide about colours and its intriguing nature. This was known to mankind centuries ago, and India was no exception. A country with a vibrant culture was always known to be using the colours in the most effective way and texts like “chitrasutra” proves it. However, the complex nature of colours and its effect on human being is still a fascinating area of exploration. In what way colours have an effect on the mental comfort of individuals is a major concern of designers, be it the architects, interior designers, or automobile designers. Automobile designers while designing the vehicle interior design gives paramount importance to colours and its selection. As majority of the time, the traveller spends inside the vehicle, the selection of interior colour is of great priority. All the major automobile manufacturers have proper research

Annexure K- Published Work 5

Informal Urban Spaces and Place- Identity

Presented paper at HWWE 21 conference.





Informal Urban Spaces and Place Identity

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Abstract: Urban informality is a critical aspect of spatial and urban planning. Urban theories often remain rooted in the idea of the utopian garden city, but several historic cities showcase outstanding examples of organic city planning and effectively respond to informality. In these contexts, the 'unplanned informality' is an exception to the formal order during the spatial regeneration of Indian cities and towns of heritage importance. Often the informality of these unplanned spaces has a strong impact on residents' minds and contributes to the place identity of the city. In the Indian context, the western concept of a strict master plan and setbacks are less relevant as rigid planning for future expansion is not sufficiently flexible and resilient to successfully deliver sustainable outcomes for the community. Therefore, an improved way of thinking is required: a new, integrated approach to urban planning that considers the unpredictable nature of community development and accommodates elements of change like contemporary activities. This study is done in the historically rich city of Bikaner in India. A survey of residents to understand the cognitive ergonomics issue shows that they want new urban design guidelines to be sensitive to the city's context. The multiple informal urban spaces in organic planning of the heritage precincts create an identity for residents and need to be preserved. Including these informal spaces in new planning guidelines would result in culturally sensitive built spaces that can strengthen the sense of place identity in the community and help in place branding.

Keywords: Place identity, Informal urban space, Urban informality, City branding, Historic town, Organic city plan.

Annexure L- Publication Work 6

Under process for Sustainable Cities and Society Journal of Elsevier

The Architectural Heritage of Udaipur City: An Investigation into Identity of the Built

Somya Mishra and Prof. Debkumar Chakrabarti

Abstract

The city residents interact with their built environment and interpret their experiences according to their perceptions. These experiences create an image in users' minds and are unique. The collective image in the residents' minds establishes an identity of the place. The place identity can be used in the future urban expansion of a city or the development of a tourist destination. The primary physical contributing factors in identity creation are traditions, culture, food, built environment, activities, geography, etc. This study is done in Udaipur city, a historic town of the North-western state of India, Rajasthan, famous for its royal culture, traditions, heritage architecture, and natural beauty. This study identifies architectural dimensions of the place that play a crucial role in creating its place- identity through the user survey. The study is done with three sections of users, the permanent and temporary residents and the tourists, to identify the city image in their minds. It is found that the architecture of the place impacts that image, and more minor architectural elements from the heritage precincts of the city create place identity. The natural setting of Udaipur with lakes and hills combined with the palatial architecture is the common place-identity and must be replicated, where ever possible, for utility purposes. The smaller architectural elements from the larger built heritage precincts may be abstracted for appreciation and reused in tourism development.

Keywords: Place identity, City image, Urban design, Built heritage, Udaipur.