VISHRAM GHAT, MATHURA, INDIA:
A CONSERVATION MODEL FOR GHAT RESTORATION IN INDIA

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ABSTRACT
River Yamuna flowing through the northern India figures prominently in the visual and performing arts of Braj, a cultural landscape associated with the life of young Krishna, the Hindu god. This cultural heritage is sustained by ritual behaviors that commemorate her mythic role in bathing, worshipping, and circumambulating the land-water interface of steps known as ghats. Vishram Ghat in Mathura, the birth place of Krishna according to the mythology, is much celebrated, attracting pilgrimage on a large scale. Here Yamuna’s cultural heritage is enacted in public life as a living tradition through many festivals and circumambulatory tours. The landscape of ghats includes temples and shrines facing the river. Built and rebuilt over centuries, ghats have facilitated bathing in and worship of Yamuna, are featured in songs and are part of visual culture of Braj. Their dilapidation in recent times and pollution of the river is resulting in a steady loss of heritage and weakening of ties that bind the community with the river. This thesis proposes a conservation model for Vishram Ghat, addressing the issues that threaten its tangible heritage as well as its intangible heritage rooted in the landscape. Restoration of ghats and environmental remediation would be significant steps in conservation of heritage. This thesis analyzes the existing conditions, cultural and historic contexts, examines the existing design typologies, and develops a sustainable conservation plan to resolve the pressing issues that threaten the cultural heritage of Yamuna.
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CHAPTER 1: INTRODUCTION

Heritage is not an inquiry into the past but a celebration of it, not an effort to know what actually happened but a profession of faith in a past tailored to present day purposes. (Lowenthal, 1998)

This thesis examines the ‘Vishram Ghat’, a sacred riverfront in India on the banks of river Yamuna at Mathura that is considered to be the birth place of the Hindu God Krishna. Every year it attracts millions of visitors, a large number of whom are domestic pilgrims from Uttar Pradesh, Rajasthan, West Bengal and Gujarat. Presently, this site is in a dilapidated state and the tourism pressure on it is ever increasing, with serious impacts on the health of the sacred river Yamuna. It is a prime religious destination, with the religious practices themselves contributing to environmental pollution. To resolve the conflict between usage and conservation, this site requires immediate attention. This thesis addresses the requirements of pilgrimage and protection and management of riverfront landscapes through eco-cultural design interventions based on revealing cultural beliefs and practices and at the same time restoring the health of the river.

The region of Braj, in northern India, presently extends its cultural boundary onto three different states—Uttar Pradesh, Rajasthan and Haryana [Figure 1.1]. Among the many Hindu sites in India, Braj is considered sacred by all Vishnu followers. Situated on the banks of River Yamuna in Braj, in the state of Uttar Pradesh, is the city of Mathura, the birth place of Krishna. In Hinduism, Krishna is described as the human manifestation of Lord Vishnu, the protector of the world. Mathura is a densely populated, medieval city that hosts most of the Braj pilgrimage and thus suffers many of the effects of that pilgrimage traffic. Hinduism, with its unique religious association with rivers, has engendered numerous sacred waterfronts in various parts of India. In Mathura, there is Vishram Ghat (Vishram= rest, ghat= steps along a river), a site of high cultural and religious significance that is among the most visited sites by pilgrims and visitors from all over India.
Background

In the center of the twenty-four ghats on the banks of river Yamuna, the sacred Vishram Ghat is located marking a spot where Krishna ‘rested’ after slaying the tyrant Kamsa, and the place where he was eventually cremated. Presently, this spot is associated with several sacred shrines and a small open court emphasized by marble arches. The water of Yamuna is supposed to be both pure and purifying, and hence, this site also is important for ritualistic bathing and offerings. This is the spot where the priests and the pilgrims offer spirited and uplifting prayer songs and ‘mantras’ with shimmering brass oil lamps every morning at five to the river Yamuna, who in turn, glistens with the light of these lamps and seems to offer her prayers to Krishna along with the people who summon her divinity[Figure 1.2]. The Mathura ‘parikrama’ or circumambulation begins at Vishram Ghat and moves northwards (Haberman, 1994).

The first problem affecting the site is caused by the increasing tourism. The holy city of Mathura is more popular than all other pilgrimage sites in Braj. For nine months, festivals follow in succession and because of this, the city experiences heavy influx of visitors, most of them being domestic pilgrims. However, the monsoon months see most visitations for it is during this season that Krishna’s birthday is celebrated. Thousands of devotees flock to this ghat in this season. Offerings such as flowers, oil lamps, and milk to the river are immense and pollute the water of Yamuna. The ritualistic bathing adds to the spread of contamination of the water. Besides pollution, the ghat infrastructure is pressurized with the heavy tourism activity (Bhargava, 2006).

A second problem is congested community life. Historically Mathura was a village occupied by a community of cow herders. The community was small and river was pure. Women came to the ‘panghats’, ghats where they filled their urns with water for drinking and household use. The cremation of dead bodies was carried out at the Vishram Ghat (Growse, 1978). The connection with the river was intimate since it was considered pure. When occurring
at a small scale, the river was undamaged, but activities by millions in the present times with growing population, high industrial and sewage pollution, have proven fatal to the health of the river and hence to the health of the local community and aquatic life. River water has a transparency of only 0.2m, mosquitoes are a big menace. One kilometer upstream is a major sewage outlet that dumps untreated sewage into the river. Consequently, large amounts of solids get deposited on the bank. The sanitation problem is grim and needs immediate attention (Bhargava, 2006).

Yamuna faces a religious crisis merged with an ecological crisis. Haberman calls Yamuna the ‘River of death’ to explain its current situation (Haberman, 2006, p. 74). Reports published by the Central Pollution Control Board indicate a steady decline in the water quality since appearance of serious contamination in the water of the river in the late 1970s. The Yamuna Action Plan identifies modified flow systems, barrages, diversion of river water to irrigation canals, and the cumulative discharge of domestic, industrial & agricultural wastewaters as combined reasons for the plight of the river [Figure 1.3]. Pollution level in Yamuna is a matter of concern for all environmentalists as the effluents pouring into the river not only disturb the ecosystem damaging its biodiversity and making it unfit for everyday engagements, but also affect the intangible heritage associated with it. In other words, rituals are slowly vanishing as people reject the water of this holy river.

Finally, the material fabric of the site is in bad condition (Ravindran, 1990). The site at Vishram Ghat is old, dating back to the Mughal reign. This site is in dilapidated condition with the steps wearing out and pressing sanitation problems. There are unsightly conditions of waste, crematory practices and the foul smell of the polluted water of the river. It is unable to accommodate the enormous number of visitors every year. Its fabric (materials like stone, important shrines, walkways, arches) needs to be preserved and the infrastructure of the landscape needs to be expanded to meet the current requirements.
The River Ganges, like Yamuna, is revered deeply by Hindu devotees. In the state of Uttarakhand, in the city of Haridwar, a ghat named Har ki Pauri is a ghat with similar significance as that of Vishram Ghat.¹ It is believed that ‘Ganga’ flows in this region in its purest form, and that bathing in Hark ki Pauri will cleanse all human sins. Every twelve years millions of visitors gather here for world’s largest congregation, the ‘Kumbh mela’, a religious gathering of millions (Engineers, 2007). This mammoth convention has serious bio-physical impacts on this site. The lack of public amenities and sanitation are important issues and need to be addressed to accommodate the increased usage. The Urban Development Department Government of Uttarakhand receives huge grants from the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) for its infrastructure expansion. The agenda of heritage protection is the top priority for religious tourism which is the lifeline of the city. Har-Ki-Pauri Ghat has been renovated multiple times in the past to accommodate increasing pilgrim activities at the site, and yet, it still needs further expansion and development. Some of the important temples on the ghats also have been renovated but there are many temples and heritage structures in the ghat area as well as in the town which are being defaced by the rampant residential and commercial encroachments. INTACH has identified twenty seven structures that are a potential cultural resource for further restoration and conservation. Besides infrastructural development, the developers are increasingly thinking about interpretative design. According to INTACH, it has been classified as a ‘Religious Sensitive Area’, and encroachment on the ghat area is seen as a growing problem (Engineers, 2007). The problem here, akin to Vishram Ghat, is that while there have been variety of design interventions and facility development, no long term heritage conservation strategy has been developed so far for Har ki Pauri. This is a precedent study that describes a similar set of problems, but not a solution.

Several initiatives have emerged from various government and non-government organizations both, at the central and state level in India to improve the conditions of the site (Haberman, 2006). The Yamuna action plan, started by the government in 1993 focuses on the
environmental protection of the river with respect to 17 towns along Yamuna in northern India including New Delhi. Uttar Pradesh Tourism Development Corporation (UPTDC) has been constantly trying to protect, facilitate and promote tourist activities in its Braj tourism circuit.\textsuperscript{2} They aim at preserving their heritage sites and developing their interpretive qualities.

**Scope**

This thesis focuses on these issues of preservation of the built structures, improving the sanitation and waste management, capacity enhancement and improving community and tourist activity conditions on Vishram Ghat, Mathura. These goals are proposed to be achieved through planning, policy and design interventions. Yamuna’s ecological health needs to be addressed at a landscape scale that accommodates ecological processes for the problems to be resolved. This thesis does not address this issue at the larger regional scale. Rather, it attempts to resolve the problems at the site level, proposing interventions that are in interest of the visitors and community dependent on the landscape. It makes suggestions for improving the health of the river at a planning and policy level with the help of proper visitor management measures (like circulation, distribution of activities and restrictions on entrance). In addition, the thesis proposes an interpretive framework for the site assuming that environmental measures taken by the YAP and the sanitary plan of Mathura Vrindavan Development Authority (MVDA) will reach fruition. Furthermore, there is a conscious attempt to upgrade the current system into a much more sustainable one. The problem at this site is relevant to a larger area of study for similar sites (ghats) along rivers like Ganga and Yamuna.

The conservation design for ghats of Mathura is based on analysis of existing physical conditions of the river banks, study of ritual behavior, and idealized cultural landscapes. This plan attempts to accommodate all pressing issues with the help of design interventions based on the findings from initial site visit, visual analysis, and precedent studies. Literature review and analysis of historic paintings and photographs were done to study the evolution and adaptation of the landscape that led to the understanding of its idealized and functional vocabulary. The
time-tested architectural landscape design vocabulary is applied in the plan to conserve the overall character of the ghats. Idealized pastoral banks of the river are planned to be restored while simultaneously opening up alternative ritual spaces to in order to decongest the existing ghat landscape. Water quality plays a very important role in the ritual behavior associated with the landscapes. Hence, this plan proposes environmental measures at site level for safer ritual engagement with the river.
Figure 1.1: Cultural boundary of Braj

Figure 1.2: Evening prayers at Vishram Ghat (Aarti)

Figure 1.3: A volunteer clearing ghat edges of solid waste for ritual bathing
CHAPTER 2: DATA COLLECTION AND SITE MAPPINGS

The banks of River Yamuna at Mathura in western part of Uttar Pradesh state [Figure 2.1] are the focus of study. According to 2001 census, Mathura has a population of 2, 98,827. The city is densely populated with 621 people per sq. km over an area of 3329.4 sq. km. Yamuna originates in the Mussoorie range of lower Himalayas and flows to the northern plains through seven States of Uttranchal, Himachal Pradesh, Uttar Pradesh (U.P.), Haryana, Delhi, Rajasthan and Madhya Pradesh (M.P.). Its watershed is spread over 366,220 sq. kms. The urban fabric is organic which is to say, unplanned. Vishram Ghat is located at the center, with twelve other ghats to its north and eleven ghats to its south [Figure 2.2]. The layouts of these ghats are important since they are a path of circumambulation. The pilgrims going on the Mathura ‘parikrama’ or circumambulation move northwards from the stone steps of Vishram ghat, go up to Kans Khar, turn west, circumambulate and come back to the Vishram Ghat through the southern ghats.

Specifically, the site is centered at Vishram Ghat as shown in the plan and extends a mile to the north and south [Figure 2.3]. A narrow circulation spine (in yellow) defines this city edge, along which many privately owned residences, small commercial developments like shops and dharamshalas (guest houses) have developed. The movement pattern is currently restricted due to the unplanned growth and encroachments. The site circumambulation that begins at Vishram Ghat is usually carried along this spine.

Site observations

In May 2010, a field study was conducted to analyze the site and its conditions. Mathura was hot and dry in May and the pilgrimage wasn’t at its peak. However, a considerable amount of activity happened across the ghat stretch. Site observation provided a good opportunity to understand the significance of particular spots along the ghats. Additionally, the extreme hot weather helped in locating favorable locations and preferred seating areas. A seasonal analysis of seating preferences could be done to understand seating patterns in greater detail; however,
this study does not cover this aspect. To understand the usage of the site better, identifying and classifying the important activities that took place at the site was carried out. After developing a comprehensive taxonomic chart, these activities were distributed at the river, ghat and the street level to understand the user interaction more clearly by color coding them. Primarily, five types of user interactions were identified—commercial, pilgrim, tourist, volunteer and community activities. The behavior mapping plan located these areas on the plan [Figure 2.4]. Interestingly, despite the weather, the entire stretch of the ghat was used during most parts of the day for a variety of activities. This plan also helps locate the areas where activities identified earlier are concentrated. However, it was important to understand the reasons these sites had concentrated activities. Firstly, the pilgrim activities were concentrated at Vishram Ghat where most important shrines are located. Consequently, ritual related commercial activities concentrated around this area. Boating activities too are concentrated in this area. However, the pattern found along the ghats on the south of Vishram Ghat was slightly different. Whilst worship activities centered at Vishram Ghat, pilgrims organize activities requiring larger gathering area close to shrines on the south [Figure 2.5]. However, all along the ghats mallahs (boatmen) stall their boats for tourists and pilgrim activities. They also tend to use the burjes (piers) for stalling their boats [Figure 2.6].

The southern stretch of the ghats was recently constructed by the Jal Nigam, a state governmental organization that works in collaboration with the MVDA for the development and upkeep of the city. The steps have been reconstructed in red sandstone and some shrines have been restored. Several kiosks have been constructed at the Bengali Ghat in the south [Figure 2.7]. The kiosks are successful as resting areas since they offer shade and good view of the river. The shrines at Vishram Ghat have colonnaded shaded verandahs that act as seating areas for visitors [Figure 2.8]. A large corrugated steel shed has been installed right above the Vishram Ghat court for shade. The ghats to the north are not continuous and dilapidated. However, its old ghats offer a glimpse of the original design vocabulary i.e. zenana ghat
modules and *burjes* that are otherwise obscured in the other stretches of ghats due to encroachments and newly constructed structures [Figure 2.9].

A photographic documentation revealed the overall site conditions. Assembling a panorama showing ghat conditions and identifying structures of heritage value was useful in estimating the problem with the material fabric [Figure 2.10]. Open areas and under developed sections were identified that require design interventions to improve the functionality and legibility of the sites. The figure ground and the ground figure maps [Figure 2.11] were useful in understanding the spatial organization of the ghats and, the density and orientation of the streets along the river. The landscape view shed is linear, with constructed steps on the south and is punctuated with older smaller ghat sections.

Mapping the riverbank was necessary to design interventions. The eastern ghat stretch has an undeveloped soft meandering edge. This bank is occasionally used by pilgrims for organized ritual activities like *kirtan* (singing religious songs in groups). This flood plain has a natural levee formation with an elongated mound with an elevation change of approximately six feet [Figure 2.12]. A number of small settlements have emerged as a result of increased commercial activities, primarily including boating on the eastern bank. The west bank indicates several historically existing promontories. These high points were used to build important buildings such as the Kans Fort [Figure 2.13]. The city is medieval and its circulation system is like capillaries comprising of densely, inward looking courtyard houses with narrow streets called *galis* [Figure 2.14].

**Interviews**

Semi-structured informal interviews were conducted on the field to understand the level of awareness people have regarding the condition of the river and what additions/facilities they required. A total of ten interviews were conducted including three local residents who worked on the ghats, two men running businesses in the area and five visitors. The interviews were useful in preparing an inventory of facilities and focus of design interventions. The participants
exhibited significant knowledge and empathy towards Yamuna’s condition. All the local residents interviewed were actively involved in multiple community-based advocacy endeavors to protect the river. Interestingly, they appeared to have collaborated efficiently within their respective communities and often worked as stewards of their respective stretch of ghats. Such ethic of stewardship is remarkable and can be of great value in structuring a management plan for the ghats. Their common concerns were reduced flow of the river due to Gokul Barrage downstream, cleanliness of ghats, enforcement of laws against dumping of holy materials in Yamuna, inadequate rest facilities and changing areas for women, and overcrowding during peak season. One of the participants showed concerns about the cremation practices. Many Hindus still believe in cremating bodies of infants in the river without burning them. This practice poses health hazards upon those who bathe in the river. However this practice has reduced considerably in the past years, it is hard to predict its extinction or advocate alternative practices because of religious reasons.

The business men reported similar concerns in addition to deteriorating community health. There was insignificant effect on their annual revenue despite of these conditions. As discussed earlier, most visitors were domestic pilgrims who had major concerns about inadequate rest stops, changing areas for women, visitor center facilities, and overcrowding. Although aware, they showed considerably lesser knowledge about the river’s condition than the local residents.
FIGURES

Figure 2.1: Banks of Yamuna at Mathura

Figure 2.2: Ghats of Mathura (source: K.T. Ravindran, 1990)

Figure 2.3: Vishram Ghat (source: K.T. Ravindran, 1990)
Figure 2.4: Behavior Mapping (cont.)
Figure 2.10: Photographic documentation visual analysis

Figure 2.11: Figure ground and Ground figure maps
Figure 2.12: East bank of Yamuna across Vishram Ghat

Figure 2.13: Kans Fort

Figure 2.14: Narrow streets or galis
UNESCO’s convention concerning the protection of the World Cultural and Natural Heritage in 1972 defines cultural heritage as sites that are “…works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.” (Convention Concerning The Protection Of The World Cultural And Natural Heritage, 1972). This definition befits Mathura’s ghats with their unique ethnological value and history. Hence, these ghats require attention as this view of nature and river is representative of many other sites in India. The legends differ from region to region, but the rituals are analogous. These sacred destinations are called tirthas in Hindu culture (Sinha, 2006).

**Intangible heritage**

Intangible Heritage can be defined as a sum of aesthetic, spiritual, symbolic or other social values that may be associated with a site, rituals, music, dance, local know-how, language or oral traditions that are enacted in the ‘cultural spaces’ as living traditions (Deacon, 2004). In 2003, UNESCO defined this term as follows:

> The “intangible cultural heritage” means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. (Convention Concerning The Protection Of The World Cultural And Natural Heritage, 1972)

The west has been slow in recognizing community-defined values and associates heritage with expert-defined values like architectural style and historic significance. However, in countries with ancient history, non-material heritage is widely considered heritage-worthy (Deacon, 2004). The intangible heritage of Mathura can be categorized into three types namely— performing arts, art of making (traditional craftsmanship) and the oral traditions (and
expressions, including language as a vehicle of the intangible cultural heritage). On the streets of Mathura, one may find priests and local people singing songs and chanting hymns in praise of Krishna or Yamuna, or about Krishna’s *lilas* [Figure 3.1]. The oral traditions are predominantly in Hindi, Brajbhasha, or in Gujarati. They are transferred from generation to generation and though social interaction. The art of making is wide ranged. Brass industry is predominant of all arts as one may find markets flooded with brass items. These items mostly are lamps, plates, idols and similar worship accessories.

**Cultural views of Krishna in Braj**

The Bhāgvat Purāṇa narrates the story of Krishna in detail starting from his birth to his eventual migration from Mathura. He was born in the community of Yādavas or the cow herders. According to Hindu Mythology, the Bhāgvat Gītā was recited by Lord Krishna to Arjuna, (a Pandava prince for whom Krishna acted as a chariot driver during the epic war of Mahabharatha).

> Whenever and wherever there is a decline in religious practice, O descendant of Bharata, and a predominant rise of irreligion--at that time I descend Myself. -Bhagvad gita, chapter 4. verse 7 (Aragarananda, 1999)

Lord Krishna is seen by all Hindus as the embodiment of love and a protector of the world. When Krishna was born, the ruler of Mathura at that time was Kamsa, a brutal king who was ultimately ostracized by his people. According to a prophecy, Kamsa was doomed to be killed by his nephew, Krishna (which was one of the purposes of Vishnu’s human manifestation). It is believed that in Mathura, Vrindavan, Gokul and other smaller villages in the Braj region are the places where Krishna spent his childhood and adolescence, a life story often narrated in the form of marvelous stories of play, mischief, love, friendship, combats with demons that Kamsa sent to kill him, all with utter innocence of a child and supernatural valor (Aragarananda, 1999).

Historians like Thapar (1989) contest the plausibility of this story as insufficient material evidence is available to describe the early history of Mathura. The history is attempted to be knit
through the evidence of continual social forces within the Braj or the Vraja region (Thapar, 1989). Critics argue the existence of Krishna and the myths associated with his life. However, history loses ground in this context; the beliefs of people ground Krishna’s reality in Mathura.

Sinha (2006) subscribes to the idea that simultaneously held, coexisting views of nature may be present in India. She prefaces this discussion with the help of the term ‘natural archetypes.’ These archetypes are embedded in the social memory via the grand narratives of the epics. Braj region according to the legends is pastoral and animistic. For Hindus, it’s a sacred region—an *axis mundi*—which is why pilgrims flock this land of myths (Sinha, 2006).

**Cultural views of Yamuna in Braj**

According to legends, Yamuna is a dark goddess, who is a lover of Krishna and the sister of Yama the God of death (Haberman, 2006). Through her meandering streams, Yamuna arranges for all the joyous games of Radha (the female companion of Krishna) and Krishna on her banks (Kakar, 1985). There are twenty-four small ghats in Mathura with which the stories of Krishna and Radha are associated. It is believed by the devotees that these encounters were for real, and hence the legends are still kept alive today through the prayers and performances by the devotees. Haberman’s (2006) intensive research on the views of Yamuna yielded the manifold perceptions of the river in the minds of its devotees, especially the people of Braj. People have a great reverence for the river in their hearts and address her as ‘Sri Yamunaji’ or ‘Yamuna Maiya’ meaning mother Goddess. She is seen as a divine giver. Devotees perform worship rituals and cry out “Jai Yamune!” (Glory to you, O Yamuna) (Haberman, 2006, p. 99).

The holy Yamuna acquires a specific sacred dimension in the Braj landscape and is associated with the life of young Krishna. Here ‘Yamuna theology and worship has been most fully developed’ (Haberman, 2006, p. 94) in relation with Krishna. Krishna and Yamuna are essentially male and female aspects of the same divinity—they share the same dark color and are supreme lovers. She is viewed as the very embodiment of divine love, selfless and bountiful.
In popular art she is depicted as a dark, beautiful damsel holding a garland of flowers in a verdant landscape, running impatiently to meet Krishna [Figure 3.2].

As the daughter of the sun-god Vivasat and sister of Yama, the god of death, she is powerful as a giver of life and protector against death (Haberman, 2006). She is also seen as life-giving, purifying and as a protective divine force in both phenomenal and iconographic forms [Figure 3.3]. Yamuna figures prominently in the visual culture of Braj in her iconographic form which can be found in the temples dedicated to her in Mathura, Vrindavan, and Gokul on her banks. She is worshipped in this form as a goddess with Krishna depicted as Giriraj in the form of Mount Govardhan [Figure 3.4]. Other temples show her goddess form flanked by images of her brother Yama (god of death) and those of Krishna, his brother Balaram, and their parents Devaki and Vasudev (Haberman, 2006).

Yamuna is also worshipped in its phenomenal form in conjunction to its iconographic form. Idol of Yamuna is carried in a flower-bedecked boat on its stream in the festival of Phul Dhol in late March and in Jal Yatra in late June at Vishram Ghat [Figure 3.5]. The festival of Yam Dutiya affirms the bond between Yama, god of death and his sister Yamuna who protects her devotees from death. On this occasion brothers and sisters bathe in the water of Yamuna, holding hands and praying for a long and healthful life. Yamuna Jayanti celebrates Yamuna’s birthday. These festivals provide occasions to worship Yamuna in rituals that bring devotees to her waters as well as to her temples lining her banks (Ravindran, 1990). “Yamunashtakam”, a Sanskrit hymn composed by the sixteenth century saint Vallabhacharya extolling her divinity, is sung on these festivals and while carrying out everyday rituals (Haberman, 2006).

Braj bhasha is a dialect that originated in Braj and is spoken widely all over northern India. In the sixteenth century, many poets such as Surdas, Haridas, and Nanddas have composed verses in Brajbhasha in honor of Yamuna. This was a period when the Braj region experienced a religious and cultural renaissance (Vajpai, 1980). Yamuna’s banks in Mathura
and Vrindavan are the subject of poems and songs. They are also settings of raas-lila, a dance drama that combines songs set to stories from Krishna’s adolescence. The oral traditions describe this dance-drama that is Krishna’s cosmic dance with his lovers of Braj. Spatially, it is a circular organization with Krishna and Radha at its center and the women at the periphery. The legends suggest that Krishna took multiple manifestations to dance with each of the women in this dance form. This dance form is performed all over Braj repeatedly on all religious festivals and seasons [Figure 3.6]. According to mythology, Vasudev transported the newly born Krishna from the prison in Mathura to Gokul when Yamuna, in high spate at the time, miraculously calmed down to ease the crossing (Crooke, 1900). In another legend, young Krishna subdued and then danced on Kaliya Naga’s hood. Kaliya was a serpent that dwelled in the depths of Yamuna and had been poisoning Yamuna’s waters (Crooke, 1900). Vrindavan’s ghats are described in these poems as the setting of chirharan— when Krishna stole clothes of the gopis (cowherdesses) and hid in the branches of the Kadamb tree as they bathed in the Yamuna (Emeneau, 1989). These events have been illustrated in innumerable songs, paintings, and modern forms of pictorial arts like comic-books, calendars and films. Krishna’s amorous play with Radha and other gopis on Yamuna banks is the subject of a rare and remarkable congruence between word and image in magnificent poetry and gorgeous paintings for close to 600 years.

Visual depiction of Yamuna in paintings is most notable in eighteenth century Pahari paintings of the hill states and Rajasthani paintings of the western India. These paintings are inspired by the famous twelfth century poem Gita-Govinda by Jayadeva (Randhawa, 1963) (Vatsyayan, 1987). Jayadeva’s romantic poetry is intensely rendered through depictions of nature and landscape in Kangra paintings and Mewar manuscript paintings. Although Kangra paintings use greater depth and perspective in comparison to the paintings from the court of Mewar that are stylistically flat, they share the same vision of Yamuna. Majority of these paintings use Yamuna’s banks as their setting. The river is featured in the foreground,
background and diagonally cutting through the frame. The banks are verdant with colorful
foliage and populated with bowers with blossoming flowers, birds and animals. They are Eden
like natural gardens in eternal spring time serving as ideal settings of amorous plays, leisure
and sorrowful parting.

The cultural views of Yamuna and its ghats is an intangible heritage that is transmitted
from one generation to another through oral traditions, music, dance forms, festivals and art.
Local popular art of jhankis (tableau), sanjhi (floral art and sand paintings), posters and chitrapat
(cloth hangings)—are mnemonic aids in building such a cultural memory. This memory is
internal and imagined. However, the phenomenal form of Yamuna and the aligning ghats are
landscapes that have the greatest impact on shaping place memory.

Spaces becomes memorable in two ways: through formal structures with special
coherence or power, and through events that take place rooted in a location—
events that happen with such intensity, or are so frequently repeated, that they
lend vividness to what surrounds them and invoke our memories of that place.
(Lyndon, 2009)

Rituals commemorate Yamuna’s divine powers through bathing, worshipping, and
circumambulating her banks thereby directly engaging the landscape through vision,
kineasthetic and haptic modes of bodily experiences (Sinha & Ruggles, 2004). Festivals and
performance of raas-lila on her banks are opportunities for repeated enactment of Yamuna and
Krishna narratives in place (Pandey, 1974). They are sensual, embodied experiences of the
landscape creating richly layered collective memories. Living traditions are based upon
intergenerational transmission and enactment of these personal and collective memories
drawing their power from the place

**Culture and environmental aesthetics**

Cultural expectations can change when familiar aesthetic conventions are used
to frame the novel appearance of ecological function. (Nassauer, 1997)

Joan Iverson Nassauer (1997) has introduced an interesting theory of present day
cultural necessities in relation to human environment. Nassauer believes that ecological health
of a landscape should be an indispensable cultural necessity. She calls it the ‘aesthetics of care’ as an expectation that stem cultural values of stewardship, work ethic, personal pride and contributions to the community (Nassauer, 1997). She contends that a North American front yard is typical despite of variety of taste in different communities because the cultural expectation for their appearance is uniform. Hence, individual ownership could mean aggregation and not necessarily fragmentation. It is a property that the community collectively considers worthy of attention and hence it has an aesthetic association. As people with this aesthetic sensibility move, this property is perceivable throughout the landscape at a much larger scale than originally apparent (Nassauer, 1997).

It is imperative that we understand the role of design in stitching a heritage fabric into an urban city. Hester (2006) describes the design of ‘enabling’, ‘resilient’ and ‘impelling’ forms for a city. He concentrates on physical design interventions for a city to achieve ‘ecological democracy’ which is fundamentally a basic sustainable and satisfying way of living. According to his theory, participatory approach and urban design are not the only ways of creating such forms. In most of his case study projects, there is an inspiration of traditional culture. Although Hester’s study area is primarily the Western world, the seeds of ecological sustainability can be found in small medieval cities in other parts of the world where these cities have evolved from a compact sustainable urban model. Mathura’s density, rituals and community participation are analogous to a neighborhood with shared public spaces that are a part of their traditional living. The city and the ghat landscape together have a pre-existing, sustainable relationship that is hard to be restored in present times. However, an opportunity exists to restore ecological democracy of the pre-modern era as cultural beliefs and much of the physical fabric of the ghats are still intact. The rituals associated with the ghats are vital to the heritage of the city of Mathura. It is an important culture that has sustained for ages in Braj region and needs to be protected from vanishing. Although the devotees carry out their rituals even in poor conditions, public health and belief are at stake.
‘Enabling’ forms facilitate social interaction and hence ease the connection between people and public setting. The public setting can become everyday landscapes of habitation, and hence, instill a sense of responsibility in the minds of its users. The public setting becomes a shared territory of which its stakeholders become stewards (Hester, 2006, p. 8). In the context of Mathura, its community is bound by religious belief and Vishram Ghat is their shared space. The devotees of the community care for the landscape in their own rights and capacity. Creating enabling forms will not only facilitate the tourism and intangible heritage, but will capacitate the community to steward the landscape in a more coherent way.

According to Hester (2006, p. 9) ‘resilient’ forms are ecologically resilient landscapes embedded in the city that shouldn’t rely on technological fixes to function during pulses of the environment. ‘Resilient form,’ according to Hester, ‘turns density and smallness from scorn to advantage and limits the extent of urbanization within the bounds of a region, thus enhancing sustainability and providing healthy doses of natural magic for everyday life.’ Besides large landscape pilgrimage that has deleterious environmental effects, Mathura’s major predicament is its high development density responsible for many encroachments. However, these encroachments, to some extent, support a sustainable commerce that caters to the demands of religious tourism in Vishram Ghat area.

Hester takes an optimistic stand with regard to reciprocal stewardship of the landscape with his idea of ‘impelling’ forms as opposed to ‘compelling’ forms. Landscapes should evoke sensitivity in the minds of its users. It should help users ascribe themselves within the ecosystem and invite them to act as its stewards (Hester, 2006). This concept is appealing, but its success may depend on variables like locality, user group and number of users of a landscape.

Heritage at risk
Yamuna is now called the ‘River of death’ in numerous reports, books and articles in newspaper and magazines (Haberman, 2006). The river is fouled with human and industrial
waste and the barrage downstream of Mathura slows down the river further. Taking a boat ride southward from Vishram Ghat may mean a nauseous journey that testifies a situation exacerbated by human negligence. Haberman’s work explains this crisis heartbreakingly, yet optimistically.

The City Development Plan (CDP) of Mathura is funded by the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Under this plan, 13 million USD is planned to be spent by the year 2011-2012 to improve the drainage, sewerage and solid waste management. Although it is not the only area of Mathura needing attention, the city’s share in polluting the river may go down drastically under this initiative. Under this master plan, the existing sewage system will be reinforced with new, larger capacity sewer lines that are treated at three sewage treatment plants along the west bank of Yamuna. Presently, the STPs are dysfunctional and most of the drains empty into the river directly. Only 30% of the city has sewage drains with the result that the 13 nalas drain nearly 27 MLD of sewage into the Yamuna (Bhargava, 2006). The Yamuna Action Plan has identified the various Bio Oxygen Demand (BOD) levels and Dissolved Oxygen (DO) levels in the major stretches along Yamuna to assess the quality of water. Unfortunately, in a majority of the towns under the plan, the BOD levels are alarmingly high making the river water unfit for bathing purposes.

The YAP mainly targets the main culprit as Delhi— which is upstream and is the major source of contaminants of the river water. Every day it dumps over 600 million liters of untreated sewage into the river besides toxic industrial wastes. The study by YAP shows that BOD level in Mathura is 6.0 which is 3.0 units above the desired level of bathing [Figure 3.7]. Compared to water conditions upstream and at Agra downstream, this BOD level appears to be lower, but the health risks are high. However, an environmental remedy strategy may be feasible.

Bharghava (2006) made an intensive observation of sources of pollutants and their levels in the river water in the Mathura region. He identified domestic waste water, industrial
wastes, pollutants from agricultural activities and solid wastes including dumping of holy materials in the river as major sources of pollution in this stretch. He proposes up gradation of existing sewage treatment techniques, solid waste management, better agricultural practices, construction of public toilets, and construction of proper crematoria and development of holy pond for bathing. He also proposes planning and zoning of waste water outfall, development of park area where aeration ponds for sewage treatment could be located. Afforestation along the eastern bank in order to control siltation and agricultural runoffs is another strategy that he proposes. At management level, he proposes legislations and fines for those who generate point source pollution. However, enforcement of such a law can be difficult because of the large number of visitors and amidst the ritual activities.

The YAP is considering constructed wetlands to treat the river water as well as increase biodiversity and create habitats for various organisms. Figure 3.8 exhibits the conceptual construct of this system (Mittal, Jain, Jamwal, & Mouchel, 2006). This technology belongs to natural systems of purification and besides being cost efficient, it has numerous other advantages like creation of habitat and removal of nutrients from the water. This strategy has been tested in the Yamuna Biodiversity Park in Delhi and has succeeded in all of the above. Additionally, it attracts migratory birds during monsoons. Agrarian landscapes of Uttar Pradesh are also known for natural wetlands that attract large water birds like Painted Storks, Asian Openbills and Wolly necked Storks (Gopisundar, 2006).

The effluents pouring into the river not only disturb its ecosystem damaging biodiversity but also affect direct human engagement with it. “The current degradation of Yamuna, however, is not just an ecological problem” writes Haberman (2006, p.1), “it also involves a religious crisis, bringing into question the very nature of divinity.” Ironically, the most polluted section of the river runs through Braj region where it is most revered resulting in a steady loss of heritage and weakening of ties that bind the community with the river. The river front ecology has severely altered and the past two decades have seen an increase in flood events. Shady trees
have disappeared from the ghats and the leatherback turtle, vehicle of Yamuna in symbolic representations, can be hardly seen.

**Heritage management**

Hester (2006, p.364) introduced the concept of ‘reciprocal stewardship’ in the light of active community building. He defines stewardship as “actions taken to maintain, restore and improve one’s community, the landscape, and larger eco system.” This sensibility can be motivated by local knowledge and ecological principles. He also suggests a variety in voluntary stewardship activities. A variety will help persuade people with different abilities.

The UNESCO convention of cultural heritage of 1972 discusses that the threats to heritage structures is not only the traditional causes of decay, but also changes in socio economic conditions that may aggravate phenomena that could cause destruction to the heritage. Ghats of Mathura have suffered ravages of time, but more than that, the industrialization of India has caused the river Yamuna irreparable damage. The polluted water is affecting the intangible heritage that exists within the landscape of Mathura as people’s interaction with the river has decreased tremendously. For believers who bathe in the water anyway, there is a major health risk. The agenda of this thesis is conformal to the UNESCO’s consideration that protection of natural and cultural heritage requires effective organization in accordance with modern scientific methods (Convention Concerning The Protection Of The World Cultural And Natural Heritage, 1972).

Environmentalists and designers can contest these interpretations, but at the same time, expand it. Deacon (2004, p. 317) suggests that conservation of heritage sites heavily relies on symbolic interpretation of the meanings and significance of the site. These interpretations intensify symbolic branding of heritage sites which is core to its management. It is important to conserve the material fabric, but that is not sufficient to protect the intangible heritage. A crucial part of conservation lies in the way it is interpreted, educational programs research and
employment practices. Mathura’s ghats sustain an intangible culture that need to be interpreted and upheld through planning and policy.

One may argue that since sites associated with heritage are perceived as a ‘resource’ in the present global world, this thesis too aims at capitalizing upon a heritage landscape. Yudice (2003, pp. 25-26) cynically contends that the ‘expediency of culture’ should not be merely understood as a perversion of culture or its politicization. Rather, it is an industry of urban development— wherein nations Disneyfy and patronize culture by facilitating its ‘consumption in tourism.’ Mathura’s present status is dilemmatic—the pilgrimage is least facilitated, the river water is contaminated; yet, millions of believers visit this land of myths. The landscape is stressed and the rituals are at risk. Mathura’s ghats lend to the local economy through all year round pilgrimage. The primary intention of conserving this riverfront is not only to relieve the stress on its fabric and facilitate heritage tourism but also to protect the living traditions that are undergoing a slow but steady mutation. Pilgrims no more interact with the river freely. They tend to stay close to the edges and bathe infrequently. The chunari Manorath, a ritual involving stretching saris from one bank to the other as if draping the goddess, is becoming more popular as does not involve bathing.

Giovanni Francesco Mascari, Maria Mautone, Laura Moltedo and Paolo Salonia (2009) offer an insight into the types of interactions between landscapes, heritage and culture as following:

The landscapes interact either as ‘Landscape’s cultures’ [ the ‘top-down’ direction, with reference to conceptual, cognitive and socio-economic paradigms (implicitly or explicitly) enabling the processes concerning Heritage Landscapes.] and ‘ Heritage landscapes’[ the ‘bottom-up’ direction, with reference to the (concrete or virtual) contexts of the Cultural Heritage, together with products and processes to which are associated social, economic and knowledge objectives characterizing one, or more than one, Landscape's Culture (as expression of a common cultural background)] that occur across the following two frameworks-the knowledge framework corresponding to the space-time associated to the requirements, creation and utilization of the cultural objects under consideration and the valorization framework corresponding to the space-time associated with the monitoring, conservation and fruition of the cultural objects as emerging from the knowledge framework. (Mascari, Mutone, Moltedo, & Salonia, 2009)
This is helpful in understanding the heritage landscape of Mathura at the systems level. Landscape’s culture—the ‘top down’ levels under which the ritual activities and behavior have evolved as a function of social factors, are indicative of the landscape’s function and failures. Landscape’s cultures stem from the ‘bottom-up’ heritage landscapes that are suggestive of the context of cultural heritage of Mathura, its ‘cultural objects,’ and social processes. ‘Cultural objects’ of the ghat landscapes are the space-time associated forms that sustain the rituals of the landscapes.
Figure 3.1: Priest at ghat

Figure 3.2: Popular depiction of Yamuna in Braj

Figure 3.3: Yamuna in iconographic form in temple
Figure 3.4: Yamuna with Mt. Govardhan in backdrop
classical Kangra painting

Figure 3.5: Festival of Jal Yatra

Figure 3.6: Performances in Braj
Figure 3.7: BOD Levels at different locations along Yamuna

Figure 3.8: Constructed wetlands for treating polluted water
CHAPTER 4: LANDSCAPE VOCABULARY

The intangible heritage is supported by the tangible heritage at Mathura. In the absence of either, the heritage as a whole is rendered incomplete. At problems level, the mutated ecology of the river feeds into the ritual behavior which is slowly, yet steadily mutating and may eventually vanish. Intangible heritage has become a legitimate concern for preservationists since the declaration of ENAME charter and UNESCO’s convention on intangible heritage. The diagram shows rituals, their time/season and whether or not the Yamuna’s water is central to these rituals. Given the present condition of the river, we have begun seeing a decline in river-related rituals which is about 45% of all the rituals [Figure 4.1].

Design vocabulary

Every year millions of pilgrims make their way to this holy city and the landscape is immensely pressurized. Interestingly, this site is a palimpsest of mythological beliefs, rituals and forms that got sustained through the landscape despite the political and cultural hegemony of Islam in the region until the 19th century (Sharma, 1983). Growse (1973) mentions that despite of plundering and destruction of the city, Mathura remained a land of pilgrimage. The architectural character of the landscape even today is strongly reminiscent of the amalgamations; yet in the minds of its visitors it simply represents a coherent Hindu belief system. The paradox here is that this is an originally self-evolving landscape that grew organically, rather than an integrated design or representation. On glancing across the landscape, we not only find shrines and temples but also mosques and Islamic style domes, arches and pavilions that are mostly used for Hindu rituals [Figure 4.2]. The cultural impacts have constantly oriented and rearranged the fabric for a mutual coexistence as well as led them to depict a synthetic reconciliatory style. Exploring the interaction patterns between the users and the landscape as a whole and how everyday interaction between users and their environment get internalized is important to the project.
The aesthetics of a landscape should also evolve as a function of the ecological change through design (Nassauer, 1997). It is important that we care for a landscape. And, it is important to bring a landscape to the attention of the people who are using it to be able to demand care from them. In this thesis, the design explores the possibilities of stimulating awareness through the design of Vishram Ghat so that it is automatically cared for by its everyday as well as less frequent users. I agree with Nassauer’s idea (1997) that pleasurable aesthetic expectation is a cultural necessity and that it makes a landscape acquire attention of the community. Hester’s (2006) concepts of reciprocal stewardship and creation of enabling, impelling and resilient forms were applied to western sites. However, it appears to be an appropriate theory to understand and manipulate the social dynamics prevailing in Mathura. Vishram Ghat can be treated as a community infrastructure that caters to the community who in turn, will act as stewards of the landscape.

The landscape design should also stem from traditional ways of using a space and views of nature. The relationship between the landscape’s heritage and the nature are important to understand the sacred landscape aesthetics of Hinduism. Since religion is so closely related to nature in Hinduism, the evolving landscapes are often an oscillation between natural archetypes and cultural narratives (Sinha, 2006). Natural and spatial archetypes in the visual representation of Braj should be an integral part of the conservation scheme. Braj has age old traditions and the conservation should of the embedded design vocabularies. Also, the number of stake holders in the conservation is large and their scales vary in the maintenance of the public landscape. The pastoral image of the Braj landscape was not only an image of Krishna’s pastimes, but also a symbol of the harmony in nature i.e. ecological balance. In popular art too, along with Krishna, Yamuna’s banks are depicted to be soft, verdant and full of fauna. These images tell us a lot about the way Yamuna is internalized in the minds of people even today. An important challenge of this project was to reclaim the image of that landscape through design interventions.
Architectural vocabulary

In order to make any design decisions, knowing the embedded design vocabulary is important. To be able to decode the pertinent forms and meanings, an archival research of period paintings and images from the past two centuries was carried out. The British Library possesses a number of these artifacts that were made by European and Indian painters during the colonial period. These paintings not only shed light on the existing vocabulary—which is a syncretic style of Rajput and Mughal architecture, but also on the topography and vegetation patterns[Figure 4.3]. The architecture mostly consisted of burjes, arches, domes and jalis. The transitional elements between ghats at street level were steps. The ghats themselves had a design vocabulary. The steps are transformed into corners and private bathing areas. Public ghats are intercepted by zenana ghats made especially for women. More often than the zenana ghats, they are intercepted by burjes that have shaded verandah-like sitting areas. The top of the burjes are accessible from the street level. Following are the descriptions of some of the important elements of the landscape:

**Burj:** A burj is an octagonal pier that is usually at the corner of forts. They also allude to tall tower. However, in context of Mathura’s ghats, these are stylized, functional projections into the water that is accessible from the street level and the last step of the ghat. The sides of Burj are usually in the form of shaded areas where women or widows sought shelter traditionally. Sati Burj is an important historic structure and the only element in the form of a tower in the landscape [Figure 4.4].

**Zenana ghats:** A prototypical ghat (here) that allows women to access the river in a private way. Flanked by Burj on two sides usually, a stairway from street level leads into a shaded area open to the river, but secluded visually [Figure 4.5].

**Chhatris:** Syncretic style domes- may be hemispherical or onion shaped; may be ribbed. They are usually used as roofing element on pavilions and temple shrines [Figure 4.6].
Landscape vocabulary—between mythology and reality

Yamuna banks in Braj are characterized by two kinds of landscapes—hard urban edge of ghats and the softer pastoral settings of groves. The two—urban and pastoral—are archetypal forms or ideal landscape types of land-water interface. Although historically grounded they have become seemingly timeless in their hold on popular imagination through the ages and have inspired much devotional fervor (Sinha, 2006). Pastoral landscapes line the Yamuna banks elsewhere in Braj; those of Vrindavan are legendary in their iconic appeal. Their archetypal form, much celebrated in poetry and songs, is of a clearing in a grove (kunj), with the Yamuna flowing close by (Kakar, 1985). They invite raas-lila, singing sankirtan (devotional chanting), and storytelling during ban yatra (pilgrimage of Braj circuit). The following poems written by various Vaishnava poets are taken from Haberman’s translation:

Shri Yamuna favors her devotees and grants entrance into the love bower. 
There Krishna, the Supreme Connoisseur of Love, makes love night and day. 
To what extent can one describe that gathering of love?
Hearing Krishna’s flute, the river stopped flowing and the women of Braj became enraptured.
No one can resist its sound.
Chaturbhujadas says: Yamuna is like a lotus, 
My mind buzzes around her like a bumblebee. (Haberman, 2006, p. 207).

She is lined with lovely bowers always used for Krishna’s love play.
She glistens with pollen from the blossoms of kadamba tree growing on her banks (Haberman, 2006, p. 201).

Passionate fragrances flowing into her warm water from Krishna’s body attract swarm of bees.
She wears a garland of champaka flowers that have fallen from Radha’s wavy hair. (Haberman, 2006, p. 201)

Hence, the landscape vocabulary is fairly loose and pliable, as we try to understand the pastoral landscape of the Braj territory. The mythology indicates natural archetypical bodies of water with prolific fauna and clearing in the forests as settings of Krishna’s erotic play. Krishna’s lillas are also set on verdant ghats of Yamuna. Nature is symbolic of erotic feeling in the legends. Raas-lila, as discussed earlier, is the anecdotal play of Krishna that gets acted out over
and over again in almost all art forms in Braj (Sinha, Landscapes in India: Forms and Meanings, 2006). The setting for the raas-lila usually has a very significant spatial association. It is acted out in a circular organization with Krishna at the center and his female lovers dancing at the circumference of the organization. In present times, nature is revered—a locative form of religiousness is prevalent in this area (Eck, 2006). The sexual connotations embedded in the mythological landscapes have metamorphosed into transcendental views of nature (Sinha 2006, Kakar 1985). These views of nature are merged in traditional artistic representations. However, pilgrimage revolves around the idea of a sacred landscape. For the believers it is the sacred land where the supreme godhead—Krishna acted out his lila. Krishna consciousness is ubiquitous in the landscape ecology of cultural landscape, rooted in the myths of Krishna and Yamuna.

The landscape of Vishram Ghat in reality is remote from mythical descriptions. The river water is befouled; the ghat has no signs of shady trees. This landscape was home to numerous birds and wildlife. The exotic leatherback turtle is on the verge of extinction (YAP). The ecology is severely altered and in the past two decades flood events have increased. For conservation purposes, although it is impossible to recreate the mythological landscapes, we can attempt to use the generic traits of the landscapes as a design module. Circular clearings amidst cluster of shaded trees mentioned in the legends and, shallow, seasonal rain fed ponds with native flower seeds that spring in dry seasons can be an option for conserving the archetypical module.

**Vocabulary of association- orientation, vision, movement and haptic perception**

The act of ‘seeing’ the iconic form of the deity is synonymous to ‘seeing’ the truth in Hinduism. This ‘point of view’ or ‘perspective’ is present in the teachings of Hinduism (Eck, 2006). This act of experiencing or connecting with the sacred entity is called ‘darshan.’ It is a mutual gaze between the deity and the devotee. This concept can be extrapolated to define the experiential quality of the ghat landscape. Most of the rituals involve orientation, focus and viewing. Hinduism lacks directional orientation like Islam, but orientation is facilitated by viewing
an axis mundi or any established physical location of a sacred entity, which becomes the focus of vision. The ability of a physical space to facilitate this orientation and vision makes it powerful within a Hindu landscape. At Vishram Ghat, the concept of darshan is bidirectional. Devotees use the ghats as a ‘setting’ that facilitates the darshan of Yamuna [Figure 4.7]. Conversely, when they are in the water or on the opposite bank, they use the river as a setting that facilitates the darshan of shrines on the Vishram Ghat that become the subject.

Movement within the landscape of Braj is primarily associated with the act of circumambulation or parikrama. The movement allows the pilgrims to experience the landscape completely as the lines of vision or darshan are continuously redefined. It allows the body to associate with the landscape dynamically. This experience is essential to the physical design vocabulary as the linearity of the ghats is objectively defined by this ritual.

Haptic perception can be defined as the experience of an object through touching or the sensation of the skin. This perception is crucial to the ghats of Mathura as people descend the steps bare-foot and submerge their bodies in the holy water. This ritual needs to be taken into account as the physical design can effectively alter this experience with the use of different materials. The sensory perception of water is a matter of concern in design as the water presently is heavily polluted and solid waste particles can be felt under the bare feet if one descends the steps.
FIGURES

Figure 4.1: Rituals of Vishram Ghat

Figure 4.2: Syncretic architecture of Vishram Ghat
Figure 4.3: Time Line showing historic images of ghats and existing vocabulary (contd.)
Figure 4.4: Sati Burj

Figure 4.5: Zenana Ghats for women

Figure 4.6: Chhatris

Figure 4.7: Devotees performing darshan
CHAPTER 5: THE CONSERVATION PLAN

The landscape conservation plan for ghats of Mathura is an attempt to restore the imagined and reconcile it with the historic landscape while aiming at solving the problems of maintenance, congestion, river’s health and threatened rituals. Study of embedded historic and idealized design vocabulary guided the conservation plan. Analysis of historic photographs in addition to the inventory of existing ghat conditions has helped identification of physical structures requiring preservation. Literature review revealed that the series of northern and southern ghats are first mentioned in the section Mathuramahatmya in Varahpurana (Bhāskara, 1994).

The Archaeological Survey of India protects the Kans Fort in the north. Proposed list of buildings to be preserved include Mahadev Temple at Ganga Kishan Ghat built in early 1850s, the mosque at Daula Maula Ghat in 1875 CE, Sati Burj at Sati Ghat named after the Maharani of Jaipur built by Raja Bhagwan Das in 1570 CE, and the ancient Kans Fort rebuilt by Raja Man Singh of Jaipur in the sixteenth century (Growse, 1978). The two large cenotaphs on the river bank built in 1581 CE and 1638 CE were restored by Growse, the collector of Mathura in 1875 CE, who also widened and paved the street along the river bank and repaired many ghats.

There has been a specific site study of Vishram Ghat in 1991 initiated by Indian National Trust for Art and Cultural Heritage (INTACH). K.T. Ravindran (1990) undertook this study and published a book on restoration proposal for Mathura and Vrindavan ghats. His study is detailed and thorough and the proposal is clear. His plans effectively satisfy his aims of cleaning up the edges of the ghat, reconfiguring ghat levels to accommodate more tourists, providing better boat facilities and better public education. Almost twenty years have passed since that proposal was published and yet nothing has been implemented and the conditions have only worsened. The reason for this is partially due to lack of planning and funds. However, in the past decade, the UPTDC and JNNURM have prioritized the protection of heritage landscape of Mathura. Also, this study took into account only a part of the 1.5 mile ghat stretch and plans for the central
Vishram Ghat only. The proposed thesis addresses the entire ghat stretch looking at the landscape in entirety—as an urban edge that is embedded within heritage fabric. The environmental component of the heritage is studied and ways to address the problem are proposed in this thesis.

**Design strategies**

The first design strategy is to distribute the incoming traffic. Currently entire traffic comes to the Vishram Ghat from the major roads on the west bank. Large numbers of visitors coming from Delhi arrive on the west bank via train or road transportation. Developing a landscape on the eastern bank would not only help us create a buffer zone, but also distribute the traffic. The 2021 master plan for the city aims at reducing the traffic in a similar manner. This plan proposes a large parking area on the east bank. The east bank is crucial in the conservation of Mathura’s ghats since it is strategic for creation of a buffer ring. If maintained, this buffer can protect the west bank from future encroachments. We propose to designate this zone as Yamuna Heritage Zone [Figure 5.1]. It is also an opportunity to reclaim the idealized pastoral landscape of Yamuna Riverfront celebrated in legendary narratives and visual representations. Depictions of Krishna and *gopīs* (cowherdess) dancing in the clearing in the grove with the Yamuna flowing nearby have sustained the imagined landscape of Braj for centuries among believers. This vision guides the landscape design for environmental remediation of east bank. Improving the legibility of the ghats, using embedded design vocabulary and reestablishing the landscape vocabulary is central to this conservation plan. Use of constructed wetlands will help achieve aesthetics of ecology [Figure 5.2]. Introduction of rest stop nodes all along the western ghat address the issues of congestion and bottlenecking at entrance of Vishram Ghat site. Opening views on either bank will facilitate the viewing of sacred shrines. The east bank will be a reflection of the mythological landscape with ecological functioning of the wetland.

On the west bank widening of the parikrama on the northern stretch will facilitate circumambulation. Nodes will allow larger resting, activity and gathering areas. Design
interventions including extending the steps, introduction of private bathing tanks, and building of more burjes as view decks and rest stops for pilgrims are proposed. Zenana ghats used exclusively by women are visually secluded by burjes flanking the descending steps from the street level. New zenana ghats with clean bathing tanks are proposed between Vishram and Daula Maula Ghat given the large number of female devotees [Figure 5.3]. The Kans fort situated on a promontory has a large open space at its foothill. The plan proposes a wooded trail in this area with displays of life size brass sculptures depicting Krishna’s lilas made by local sculpture artists. Situated at the end of the parikrama path in the north, this park will invite visitors for alternative activities in the landscape. At historic sites such as Sati Burj and the mosque at Daula Maula Ghat, shaded tree squares are proposed for festival gatherings [Figure 5.4].

The two banks are connected through a foot bridge connecting the parking area and the train halt. The topography of the east bank has a natural levee formation as a result of flood events. This levee facilitated the planning of a series of constructed wetlands [Figure 5.5]. These wetlands will be fed from the river water through mechanical means. Wetlands have nutrient and toxin removal capabilities and their success has been demonstrated in context of Yamuna in Delhi. Wetlands have been constructed in the Yamuna Biodiversity Park in the Yamuna floodplain in Delhi and have succeeded in improving water quality and biodiversity. They have also played an important role in attracting the migratory bird population from Siberia (Khudsar, 2009).

Water from the last wetland is fed into the bathing tanks. These tanks are built on plaza like ghats that will act like plazas during the dry seasons and appear as ghats during the monsoon as the water rises. These wetlands and cluster of trees surround small rain fed depressions will be encountered along the pathway on east bank opening up views towards the Vishram Ghat. Large kiosks that intercept these pathways will act as ritual spaces during festivals [Figure 5.6].
**Future of the plan**

This plan addresses a multifaceted phenomenon of increasing pilgrimage, ecology, and heritage preservation. The plan can be prioritized and phased according to fund availability. Most interventions on east bank are low impact low budget. Acquisition and grading of land can be followed by construction and functioning of the parking lot. The wetlands can be slowly established with plantation of clusters and bowers. Plazas can be constructed to facilitate ritual gatherings that presently happen in an unorganized manner on the bank. As plantations mature, the bathing tanks can start operating after management has been commissioned.

**Management plan**

This plan will not be realized without appropriate management. The proposed scenario for management will allow stewardship opportunities. Under this plan the Archaeological survey of India shall protect the historic fabric and maintain the Kans Fort Park. NGOs and the state government will work hand in hand managing the ghats. This involves collaboration between NGOs and property owners along the ghats. These owner can be appointed as river guardians and be responsible for river policing, cleanliness and upkeep of their stretch of ghats. The guidelines for maintenance should be defined by the ASI. Properties aligning the ghats will follow standard maintenance guidelines and timelines, and will be funded for their upkeep by the tourism board. The east bank/khaddar area after initial construction will be managed by local management groups commissioned by UPSTDC on biannual contract basis. Municipality will work along with respective ghat stewards for collection and disposal of solid waste generated on the site.
Figure 5.1: Design strategies

Figure 5.2: Design strategies- aesthetics of ecology
Figure 5.3: Proposed typologies

Figure 5.4: Tree squares and nodes (cont.)
Figure 5.6: Conservation Master Plan
CHAPTER 6: DISCUSSION

Landscape conservation theories are constantly evolving as a result of discourses in the field. Conservation of intangible heritage has gained stimulus in the past decade and is being addressed by conservationists all across the globe. The connections between culture and nature are being examined as a basis for physical interventions by designers. Yamuna’s ecological condition calls for similar attention and approach. River Yamuna has a historical significance in terms of development of cities. It is mentioned in almost all historic accounts as Delhi’s major asset. It has played an important role in the political history, social culture and economy in northern India. Haberman describes his experience on the ghats of Vrindavan in 1981 as a river so wide that he could barely see the opposite shore. The River was magnificent with turtles on white sandy banks, hunting kingfishers flying above the stream, large silvery flat fish surfacing during bright days, fruit bats chasing bugs, and a wide range of aquatic birds ranging from Brahminy ducks, bar-headed geese, spoon bills and herons wading in the shallows of sandbars. Young boys would jump off the burjes, diving and surfacing up merrily (Haberman, 2006, p. 90). However, in the past three decades it has been severely abused and exploited as a result of industrialization, mismanagement and unabated population pressure.

Originating at Yamunotri in Garhwal Himalayas, the river presently flows in segments and is trapped at various stations. As a result, during the dry seasons of the year, there are sections of the river that are completely dry. The Tajewala Barrage located 108 miles downstream from Yamunotri traps the river flow to channelize it into the Eastern and Western Yamuna Canal. The Wazirabad Barrage located about 138 miles downstream of Tajewla Barrage in the National Capital Region, forms a reservoir accounting for about 70 percent of water supply in Delhi. Okhla Barrage is 14 miles downstream of Wazirabad with imposing gates where Yamuna is completely blocked off and what flows from there is a small sewer-like stream comprising of untreated industrial waste and domestic waste water (Haberman, 2006, p. 77). There are two more Barrages at Gokul and Agra that hold back the river water similarly. Gokul
Barrage is downstream from Mathura and with the gates dropped, Yamuna stagnates upstream worsening the problem by slowing down the river water contaminated with tons of human waste.

This project is a result of prioritization of goals for a landscape in crisis. The conditions are poor and execution of the master plan may not be the first step in rescuing the ghats. This problem is complex in nature as the different views of the river result in different attitudes towards it. Ruggles and Sinha (2004) discuss two cultural views of Yamuna at Agra and in Braj. While Yamuna is made accessible through ghats in Braj for ritual purposes, Mughal pavilions at Agra affirm the separation between viewer and the object of appreciation. The river is considered holy at Mathura by Hindus. However, by Islamic rulers it was considered scenery worthy of adoration at Agra. These views still exist at their respective destinations because of the landscape they are set in. These landscapes—of ghats and pavilions foster views of piety and pleasure respectively (Sinha & Ruggles, 2004). However, there may be other views that have simultaneously evolved as a result of social, economic or environmental changes. New ways of viewing Yamuna have come about in the past few decades. Like Ganges, Yamuna is also seen as an agricultural resource. The green revolution of the 1960s brought about new modes of cultivation and irrigation in north Indian states. While the country enjoyed the extraordinary produce, the rivers perished. Dozens of canals siphoned out water from their streams for irrigating farmlands. Toxic pesticides, insecticides and fertilizers made their way back into the streams destroying the river ecosystems and biodiversity. As engineered dams stagnate the water curbing the self-purifying capacities of Yamuna, increasing population in urban areas mar the water quality further by dumping their sewage in it. New Delhi which is upstream is the major culprit; where Yamuna has merely reduced to a sewer. The attitude of the residents of Delhi towards Yamuna has consequently changed to that of ignorance and pity.

Small communities dependent on the river like the *dhobis* (washer men) suffer due to lack of clean water for washing clothes. Ironically, the most polluted section of the river runs through Braj region where it is most revered. Although the residents are aware of the condition
of the river, their devotion is strong. However, there is an evident shift in the way the devotees of Yamuna engaged with it. They lament at the way the river is perishing and knowing that “the only water that reaches Vrindaban is that which passes either through a factory or a human body.” (Haberman, 2006, p. 77). In a personal communication, a local guide from Mathura said, “Yamuna is dying due to pollution. This makes us sad, for we worship her.”

Pollution level in Yamuna is a matter of concern for all environmentalists as the effluents pouring into the river not only disturbs the ecosystem damaging its biodiversity and making it unfit for everyday engagements, but also affect the intangible heritage associated with it as people. In other words, these rituals are slowly vanishing as people reject the water of this holy river. D.S. Bhargava (2006) believes that the ‘quality restoration’ of Yamuna has to be an interdisciplinary endeavor because of its religious associations. As an environmentalist, he proposes possible strategies for restoring the ‘ailing river.’ This proposal is interesting since it rationalizes to remediate the problems at Mathura and not upstream. However, the framework of his proposal can be successfully applied to similar sites elsewhere along Yamuna in conjunction to the proposed conservation plan.

This project provokes us to think of how present cultures have distanced themselves from these inherently essential water systems of survival. Recognizing river systems as lifelines of all great civilizations, it's a contrasting view of current era that superimposes its technological advancements to control the river landscapes by aligning its recreational and commercial activities with them. This project is developed around the significance of the river system as a sustainer of not only cultural practices, but also the city. The twin idea of the river as a subject as well as a setting is important for understanding this Hindu landscape. Other ghat landscapes of northern India are based on this twin idea as well. Most ghats in question are situated on the right banks of the river with vast expanses of pastoral land on the opposite bank. This broad typology offers a window of opportunity for conservation planners. The proposed conservation
model can be followed in the study of the social, cultural and ecological dynamics of ghat landscapes and program spaces for the future. With these kinds of programs in place increasing religious tourism can be accommodated in an economically and environmentally sustainable manner. Ecological democracy of the kind that traditional culture of Braj practiced in its harmonious co-existence with the natural and built environment can once again flourish (Hester, 2006). The appropriation of a time tested design vocabulary of impelling form of the ghats and resilient landscape of ephemeral natural pools and groves will encourage an ethic of stewardship wherein lies the key to revitalization of material fabric and cultural traditions.
ENDNOTES

1 www.incredibleindia.org is the official tourism website for India. Amongst its heritage
destination, it features Har-Ki-Pauri as one of its major destination for viewing the Ganges.


3 The legends of Krishna are widely known by most Hindus in India. It is a form of an oral
history which gets transmitted from generation to generation without much mutation. These
legends were narrated by interviewees of the local Chaturvedi community. Also see (Crooke,
1900), (Sinha, Landscapes in India: Forms and Meanings, 2006), (Haberman, Journey Through
The Twelve Forests, 1994), (Haberman, River of Love in an Age of Pollution, 2006).
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APPENDIX : VIDEO DOCUMENTATION

During the site study, a video documentary was made to analyze the existing conditions, architecture, activities and problems of the site. This video captures glimpses from everyday activities and rituals of the site. It introduces the project explaining its background and legends associated with the landscape, and analyze the architectural character and important issues associated with Vishram Ghat. This material may be found a video file named “APPENDIX I_Video Documentation.avi.”