

INTERACTIONS AND INTERSECTIONS: UNDERSTANDING BUILT HERITAGE AS A CULTURAL PHENOMENON SHAPED BY THE NATURAL SETTING

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1. Introduction

Geography shapes human history and witnesses transformations. Across human history, landscapes have nurtured life, shaped human aspirations, offered refuge, and anchored spiritual expression. Landscape is in constant transition with the natural processes that are at work and is continuously being transformed by human activity. This human-nature relationship can be understood through five chronological phases:

- Prehistoric communities revered natural elements and held landscapes in sacred regard, reflecting a deep spiritual connection with their environment.
- Pastoral societies observed and studied natural systems, developed practices of domestication, and engaged in ritualistic traditions that aligned closely with ecological cycles and the rhythms of the land.
- Historic settlements and dynastic civilizations not only explored the functional aspects of their environment but also expressed reverence for nature through artistic and symbolic means. Their existence celebrated natural elements through architectural and cultural forms such as rock-cut caves, temples, forts, fortified towns, water systems, and gardens.
- Industrial societies embraced mechanization and began to harness natural resources primarily for utility and economic gain. This era is characterized by the commodification of natural elements and a shift towards extractive practices.
- In the 20th century, an increasing convergence of environmental science and the humanities gave rise to a renewed scholarly and practical interest in traditional ecological knowledge and conservation-based methodologies. This era is characterized by a deliberate attempt to reconcile the imperatives of modern development with principles of sustainability, aiming to restore a more balanced and symbiotic relationship between humans and nature.

Building on this paradigm, the discourse on conservation and heritage evolved to encompass both cultural and ecological dimensions as integral to sustainable development. Globally, heritage conservation began to reflect an awareness of the interconnectedness between cultural identity and environmental stewardship.

In Europe, this manifested through formal preservation practices focused on architectural continuity and historical authenticity. In contrast, Asian contexts – particularly in India – emphasized living heritage, where traditions, landscapes, and community practices remain active and adaptive. Here, conservation is often embedded in everyday

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life, with sacred groves, water systems, and vernacular architecture illustrating a holistic engagement with nature. As global frameworks incorporated diverse epistemologies, there has been a growing recognition of indigenous knowledge systems and regional conservation ethics. This shift underscores the need for inclusive, context-sensitive approaches that value both tangible and intangible heritage, fostering models of conservation that are culturally rooted, ecologically responsive, and globally relevant.

2. Literature review and study region profile

Heritage conservation has marked a significant field of study for almost ten decades. The significance of cultural and natural heritage has been well established through numerous international conventions, charters, guidelines and legislative provisions for its protection, conservation and management. The inclusion of archeological sites and intangible heritage underlines the significance of relics and living cultures too, with their role in identifying and preserving socio-cultural roots. Christopher Tweed and Margaret Sutherland [1] underline the significance of heritage as a major component contributing to quality of life. Responsive architecture emerges from the context by giving meaning to the human-nature relationship. Built heritage thus cannot be considered separable from its historical and geographical setting; it is integrated with the tangible fabric and the craft traditions that support it (Articles 7–8, Venice Charter 1964). In discussing regional identity and built heritage, Heath [2] highlights the concept of contextual references and visual memory. Prof. Dr. Rana Singh [3] advocates that built structures and traditions are resultant of the ‘continuous evolutionary drama’ between the cosmic form of nature and earthly presence of humans. David and Thomas [4] present the idea of landscape archeology as a field of human engagement, and a physical and environmental context for human behavior and representation of cultures. Understanding the qualification of built environment with reference to heritage thus initiates the discussion.

The UNESCO World Heritage Convention considers built heritage (single building, group / complex, component or remnant) as a significant component of cultural heritage. There is an idea of site and buffer zone that refers to the ‘immediate setting, views and associated functional area’ around the designated built heritage. There are conservation and management guidelines for both demarcations. The Ancient Monuments and Archaeological Sites and Remains Act, 1958, in India, considers a prohibited area within 100 meters, and a regulatory area within 200 meters, of the designated heritage. Yet the demarcation of boundaries in both situations – the UNESCO buffer zone and ASI prohibited and regulated zone – remains a complex and ambiguous task [5]. In the review of the legal protection of heritage [5] ICOMOS guidelines state that archeology is based on material evidence and built heritage works on value systems and people’s perception and aspirations, thus highlighting the need to review what we perceive as heritage and what we protect. By appreciating the landmark Majuli Act and studies around the Hampi heritage site, the immediate concern of redefining the heritage is clearly mentioned [6]. Tweed and Sutherland [1] argue that environmental and climatic studies are considered as the predominant dimension of sustainability, and their study strongly encourages the significance of socio-cultural aspects associated with heritage as an important dimension of sustainability. Denis Byrne [7] advocates on the idea of heritage corridors and the transnational influences. Susan Marsden questions the label of history associated with heritage while the study examines ways for reinterpretation and explores a holistic way for considering sustainability, built environment and heritage. In addition, Ankita Saxena [8] brings in the insights of biodiversity conservation as an inclusive value of built environment and heritage perspective.

As the concept of heritage continues to evolve across multiple dimensions, there is a growing emphasis on the inclusive and interconnected nature of cultural assets. This evolving perspective recognizes that heritage cannot be understood in isolation but must be seen as a dynamic interplay of various elements, including traditions, landscapes, and collective memory. In the Indian context, scholarly discourse reveals that the often-assumed dualism between nature and culture is largely absent. Indian heritage tends to reflect an integrated worldview, where natural and cultural elements coexist and are perceived as part of a unified whole. Notably, the UNESCO World Heritage List rarely reflects the idea of cultural landscapes in the Indian setting. Furthermore, India currently lacks comprehensive legislative provisions to safeguard such landscapes. These gaps highlight the urgent need for this study, which aims to advocate for a more inclusive and context-sensitive understanding of heritage.

There exists a varied and valuable heritage of local and national significance that often remains overshadowed due to the proximity of well-recognized World Heritage Sites and places of national significance. These lesser known yet culturally rich sites face neglect, underrepresentation, and insufficient conservation effort leading to an imbalance in heritage management. This study underscores the critical necessity for a comprehensive and context-specific framework for the identification, conservation, and management of heritage. A place-specific strategy would ensure that the unique characteristics, historical narratives, and cultural values of these heritage sites are preserved and promoted and would help in reinforcing regional identity while contributing to the broader national and global heritage discourse.

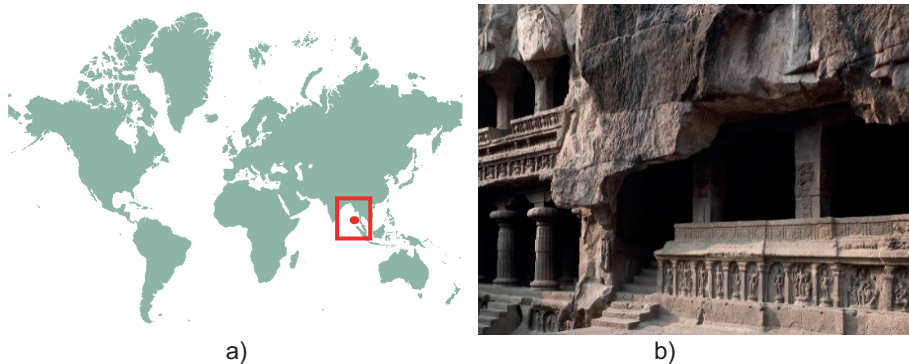


Figure 1. a) Location of India and region of study (source: Wikipedia); b) Ellora Caves showcase ancient India's rock-cut art and cultural synthesis.

The Daulatabad-Khuldabad region, situated in the Aurangabad district of Maharashtra, holds a pivotal geo-cultural position within the Deccan plateau – as illustrated in figure 1 – a historically contested yet integrative zone linking northern and southern India. Its early religious significance is marked by the enduring presence of Buddhism and Jainism, exemplified in the monastic cave complexes of nearby Ellora. This pluralistic heritage was further shaped by powerful Hindu dynasties such as the *Satavahanas*, *Chalukyas*, and *Rashtrakutas*, who laid the foundations for religious architecture, temple patronage, and hydraulic systems. The *Yadava* dynasty (9th–14th centuries), ruling from Devgiri (later Daulatabad), advanced

these legacies by fostering regional governance, vernacular culture, and a fortified urban capital. Daulatabad's strategic location soon attracted the Delhi Sultanate, and Muhammad bin *Tughlaq's* brief relocation of the imperial capital there underscored its geopolitical value. Over subsequent centuries, control passed to the *Bahmani* and Ahmednagar Sultanates, the Mughals, and the Marathas, with notable intervention by the *Holkars*. Sacred sites active across dynastic transitions illustrate the continuity of ritual landscapes. This long and layered history positions the region as a dynamic case study for understanding political shifts, religious syncretism, and cultural resilience in peninsular India.

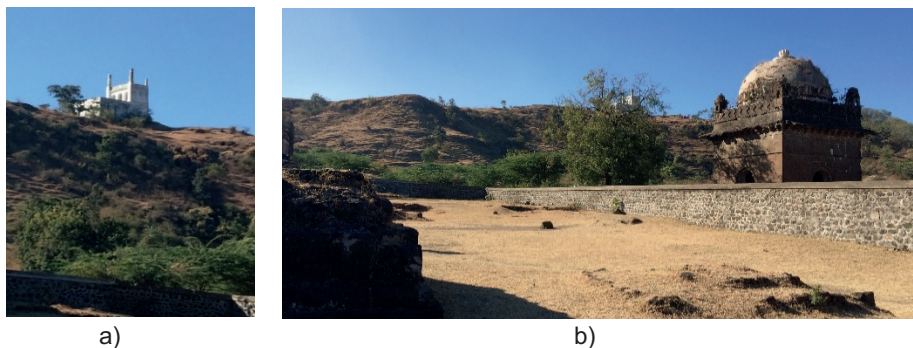


Figure 2. a) *Idgah*; b) the tomb complex indicating the sacred importance of *Khuldabad*.

Framed by the striking basaltic formations of the Deccan Traps, the Daulatabad-Khuldabad corridor presents a distinctive heritage landscape where geology and human ingenuity converge. Figures 2 and 3 show the significant places of discussion in the region such as sacred lakes, tomb garden and complex, *Idgah* (open-air Eid prayer ground with a qibla wall and a small prayer structure/*mihrab* niche). The natural topography – fortified hills, volcanic ridges, and elevated plateaus – not only dictated settlement patterns but also inspired architectural adaptation, as seen in the formidable hillfort of Daulatabad. The region is equally notable for its advanced pre-modern water management systems: rock-cut cisterns, stepped wells, and aqueducts ingeniously responded to the demands of a semi-arid environment while integrating functionality with ritual and aesthetic values. These systems supported both defensive and sacred architectures, establishing connections with the spiritual traditions of the region. *Khuldabad*, known as the “Valley of Saints,” became a prominent Sufi center and imperial necropolis, further anchoring the region’s sacred geography. Its proximity to the UNESCO World Heritage Site of *Ellora* places it within a broader network of artistic and religious expression, while historic trade and pilgrimage routes contributed to the diffusion of gardens, Indo-Islamic tombs, and vernacular design. Together, the geological distinctiveness, hydrological innovation, and multi-religious heritage, affirm the region’s value as a vital lens through which to explore cultural continuity, spatial adaptation, and conservation challenges in South Asia’s evolving cultural landscape.



Figure 3. Satellite image indicating notable heritage sites in the region (Source: google earth).

Illustrated in Figure 2, Khuldabad, located within the elevated and forested contours of the Western Ghats, presents a naturally secluded area with temperate environmental conditions that have contributed to its historical role as a preferred site for spiritual retreat and royal patronage, particularly among Sufi mystics and the Mughal elite [9]. Positioned in the foothills near Daulatabad, Kagzipura's agriculturally productive plains and reliable water access has fostered the growth of local crafts, particularly paper-making, and enabled its integration into the economic and cultural circuits connecting Aurangabad and Khuldabad. In contrast, Mhaismal's elevated and lush setting within the Western Ghats offered a cool, pleasant climate for seasonal habitation, showing how the environment shaped patterns of retreat, settlement, and cultural life in the Deccan. The interconnection of places in discussion and their contextual reference is indicated in Figure 3.

3. Research objectives

An interpretive approach to built heritage conservation provides a critical framework for understanding the evolving relationship between human societies and their environments, thereby offering a lens through which broader cultural landscapes can be comprehended. Through the preservation and analysis of historic structures, conservation becomes a mode of inquiry – uncovering the multilayered narratives inscribed in the spatial, temporal, and social fabric of place. The research objectives are thus framed through the lens of cultural landscape theory, focusing on the interactions and intersections that shape heritage in spatial, social, and temporal dimensions. These objectives aim to examine the dynamic processes that inform the production, perception, and transformation of cultural landscapes, with particular attention to the Daulatabad–Khuldabad region as a representative case.

- **Analyze Socio-Cultural Dynamics**
Tracing the interaction between communities, traditions, and the built environment to understand how cultural landscapes serve as active agents in the construction of social identity and practices of place-making. This includes exploring how intangible cultural expressions are anchored in, and expressed through, tangible heritage.
- **Examine Layered Histories**
Investigate the stratification of historical processes – both anthropogenic and natural – embedded within the landscape to trace the evolution of heritage narratives over time. Emphasis is placed on how successive cultural, political, and environmental interventions have shaped the spatial and symbolic meanings of the region.
- **Evaluate Cross-Scale Influences**
Assess the impact of broader local, regional, and global forces – such as trade, migration, policy, and tourism – on the shaping, preservation, or transformation of heritage. This involves situating local heritage practices within wider frameworks of cultural circulation, governance, and development (Figure 4).

4. Methodology

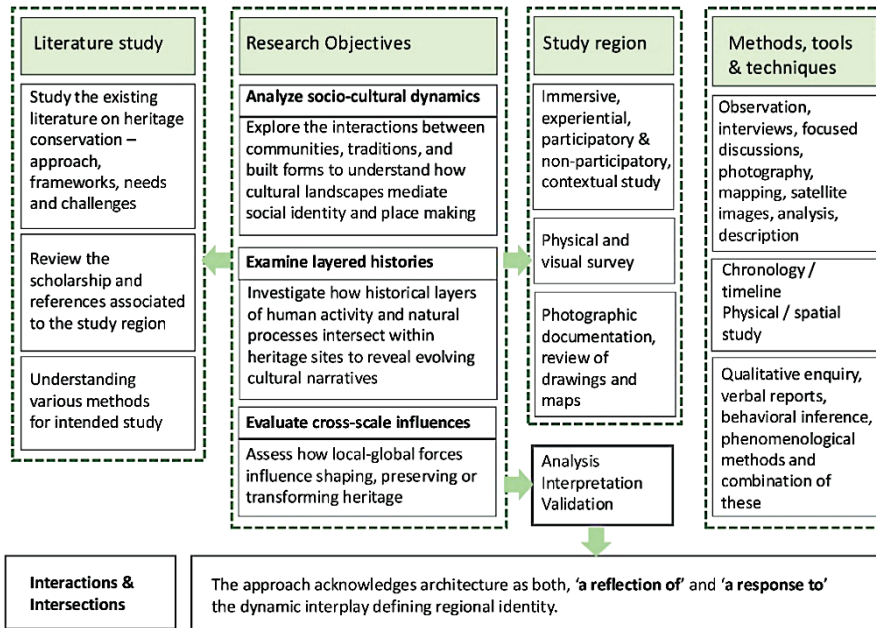


Figure 4. Diagrammatic representation of the conducted research.

The relationship between socio-cultural practices and the natural environment represents an ongoing and reciprocal interaction that shapes the formation of cultural landscapes. Natural features – such as topography, climate, and resource availability – influence patterns of settlement, architectural expression, and local economic systems. In turn, cultural practices, belief systems, and traditional knowledge engage with and reinterpret these natural elements through rituals, craftsmanship, and land-use strategies. This interaction not only sustains indigenous knowledge systems and artisanal traditions but also faces increasing vulnerability due to processes of urbanization and ecological degradation, necessitating holistic and integrated conservation frameworks. Points of intersection between culture and nature represent critical junctures where adaptation, negotiation, and transformation occur. Through agricultural practices, sacred geographies, and vernacular architectural forms, societies actively modify and respond to their environments, reflecting a symbiotic relationship between human agency and ecological context. Recognizing and preserving these intersections is essential for maintaining ecological balance, cultural continuity, and community resilience.

Architecture and built heritage exemplify both interaction and intersection, as responsive expressions of environmental adaptation and as material embodiments of socio-cultural values. Within the paradigm of cultural landscapes, built heritage emerges as a site of convergence – where environmental transformation and cultural articulation meet. This study engages with these conceptual frameworks through a

case study of the Deccan plateau in west-central India, a region marked by centuries of layered heritage shaped by its strategic geography and ecological features. In addition to proposing a holistic approach for the identification and conservation of heritage assets, the study contributes to the documentation of lesser-known and currently inaccessible sites, broadening the scope of regional heritage discourse. The investigation is grounded in phenomenological methods and supported by archival research. Findings are organized as an experiential narrative structured around the following evaluative dimensions:

- Contextual Relevance
- Integrity with the Landscape
- Representation of Emotions and Faith

5. Results from the region of study

5.1. Heritage imprints in the Indian context

India's geography is diverse, featuring the Himalayan mountain range in the north, vast plains like the Indo-Gangetic Plain, extensive deserts in the west (Rajasthan), and the coastal plains along the eastern and western coasts, and historically, India has been home to ancient civilizations such as the Indus Valley Civilization (c. 3300–1300 BCE). Over the centuries, it has seen the rise and fall of powerful empires like the Maurya, Gupta, and Mughal dynasties, along with the influence of various cultures and religions, including Hinduism, Buddhism, Islam, and Christianity, shaping India's rich and diverse heritage. This diversity manifests in varied festivals, cuisine, art forms, and local customs, contributing to a rich, pluralistic society where multiple identities coexist harmoniously. This diversity has greatly influenced its architectural identity. From the Himalayan heights to the coastal plains, different terrains have shaped regional architectural styles. Mountainous regions feature temples and forts with unique designs, the plains are known for intricate temples, palaces, and colonial buildings. The deserts of Rajasthan fostered the development of forts and *havelis* (royal residences) while the coastal regions saw the rise of port cities with distinct architecture. Local materials and climate-responsive designs have led to the evolution of various regional styles, making India's architecture a blend of cultural and environmental influences.

The medieval history of the Deccan region of Maharashtra is marked by the rise and fall of several powerful dynasties. These rulers significantly influenced the region's architecture, blending Hindu, Islamic, and regional styles. Notable examples include the rock-cut temples of Ellora and Ajanta, majestic forts like Daulatabad and Raigad, and the mausoleum of Gol Gumbaz, designed under the Bijapur Sultanate. The Maratha Empire further left its architectural mark with fortifications, palaces, and temples, blending military functionality with cultural expression.

5.2. Daulatabad-Khuldabad heritage precinct in Aurangabad district, India

The Daulatabad–Khuldabad region is a historically and culturally rich landscape in the Deccan, notable for its strategic significance and architectural heritage. Daulatabad, historically known as Devgiri, emerged as a key medieval capital, initially under the *Yadava* dynasty and later integrated into the Delhi Sultanate. Its fortified complex, perched atop a conical hill, exemplifies sophisticated military planning, featuring intricate gateways, concentric defensive walls, and a commanding view of the surrounding plains. The fort gained

particular prominence during the *Tughlaq* dynasty, when Sultan Muhammad bin *Tughlaq* temporarily relocated the capital of the Delhi Sultanate to Daulatabad – an ambitious yet short-lived political experiment. Situated at the base of the fort, Khuldabad is distinguished by its strong Sufi traditions. The town is home to several revered shrines, including that of *Hazrat Zainuddin Shirazi*, a prominent *Chishti* saint, and the modest tomb of Aurangzeb, the last Mughal emperor, whose burial site remains an important pilgrimage destination. The architectural fabric of the region – comprising mosques, mausoleums, and other monuments – demonstrates a unique fusion of Islamic and regional styles, reflecting the cultural interactions over the centuries.

Together, Daulatabad and Khuldabad form a significant heritage precinct that encapsulates the political, religious, and architectural developments of the Deccan from the medieval period onward. The area not only holds immense value for historical inquiry but also continues to attract pilgrims and tourists, offering a vivid representation of the confluence of dynastic power, spiritual legacy, and regional identity within the broader narrative of India's past.

5.3. Understanding the regional landscape structure, cultural context and evolution of built forms

Marking a significant presence in the Deccan, the current landscape displays a layered interaction between natural and cultural elements. Its geographical features – hills, valleys, forests, and grasslands overlying amygdaloidal basalt – have historically sustained both ecological and cultural development. Over time, successive cultural influences have shaped the region's identity. While the exact origin of settlement remains unclear, the ancient trade and pilgrimage route *Dakshinapatha* [10] points to human activity by the mid-1st millennium CE. A key landmark on this route is the UNESCO World Heritage Site of the Kailash temple within the Ellora cave complex, constructed between the 6th and 13th centuries CE. The nearby *Grishneshwar* temple at *Verul* (Ellora), one of the twelve *Jyotirlingas* (the 12 principal shrines of Lord Shiva in India, symbolizing his divine light), further emphasizes the site's religious significance. In addition to Hindu temples, the Ellora complex includes Buddhist and Jain caves, reflecting spiritual diversity. Historical records also note the influence of the *Mahanibhav* sect.

Climatically, the area lies in the Western Ghats' rain-shadow and is part of the Upper Godavari micro-watershed, drained by tributaries like the Shivena and Purna rivers [11]. Basaltic scarps and rock outcrops form a complex terrain, supporting water systems and seasonal cultivation.

a. Devgiri or Daulatabad fort

Believed to have been constructed in the 12th century by Bhillama, the fifth Yadav king, Devgiri fort has experienced a history spanning 760 years, since the area has been ruled by over eight dynasties including Hindu rulers, the Sultans of Delhi, the Marathas, the Mughals and the Nizams where each of them has altered, added to and expanded the fort and the township till they came to acquire their present size – an area of roughly six square miles [12]. Constructed on the Devgiri hill, about 200 meters high, the fort was surrounded by three concentric circles of fortification, called kots (Amberkot, Mahakot and Kalakot), which made it virtually impossible to penetrate. It represents a mixed fort type – “Mishra Durg” – which signifies it as a combination of land and hill supported by a water system.

Hill

- Visual connection with surroundings.
- Superiority helps in keeping control over low land.
- Natural defense advantage because of height.

Land

- The landward side, being more exposed, would have required additional defensive mechanisms to ensure adequate protection. Acts as a buffer or transition zone between entrance and hill.
- Space to accommodate settlement.
- Various styles of architecture subsequently developed, as the later dynasties of the Deccan succeeded one another, and strove to surpass their predecessors in architectural magnificence in their respective capitals

Water system

- There are two cisterns cut into the rock for storing rainwater, in addition to three large tanks at different altitudes, which were later renamed *Parion-Ka-Talab*, *Hauz-A-Qutlaq* and *Ab-Pash-Darra*.
- About 100 wells including stepwells in the vicinity of the suburbs.

Daulatabad is thus entrenched in its setting, drawing its strength from using every feature of its surrounding landscape to its advantage and therefore presenting a successful example of fort design as understood through the topographical study overlaid with historical record, illustrated through figures 5, 6 and 7.



Figure 5. Rear view: core hillock of Daulatabad fort.



a)



b)

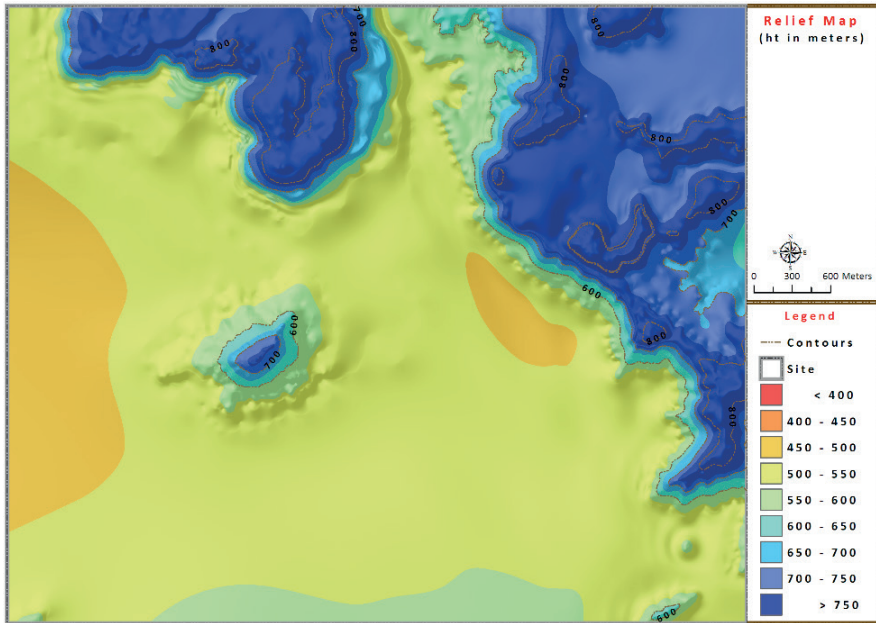


c)

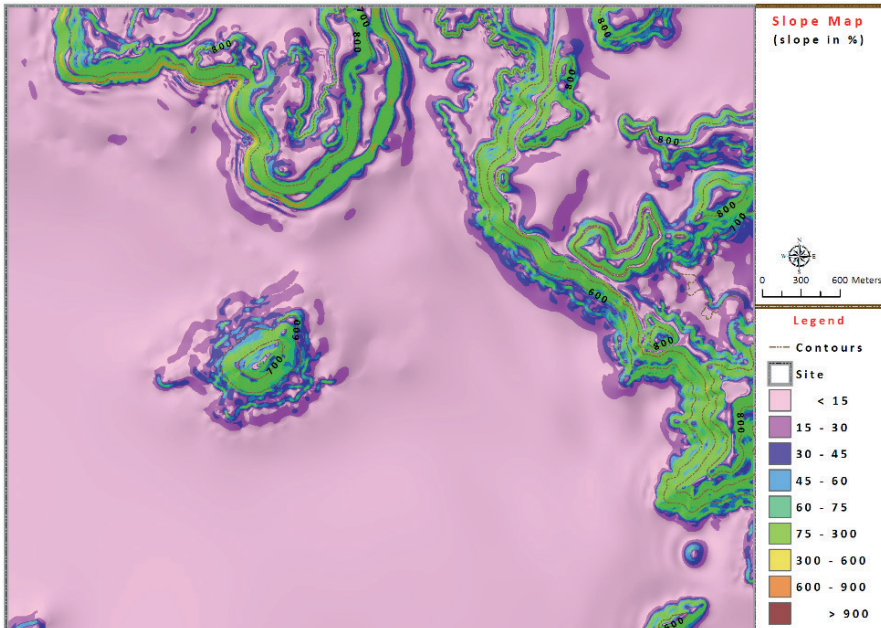


d)

Figure 6. a) Present-day satellite image of the core hill and fort boundary (Source: Google earth); b) Devgiri fort with core hill, boundaries and setting (Source: Jaidev Ranade); c) and d) form and components of the fort [13].



a)



b)

Figure 7. The topographical study of region in discussion. a) Relief map and; b) slope analysis (Source: Nikhil Shejwalkar).

b. *Khuldabad: the valley of saints and the walled city*

The name Khuldabad means ‘heavenly abode’ and in early Persian documents the township has been referred to as *Rauza*, which means a tomb complex with an attached mosque or garden. It is also known as the Valley of Saints, or the Abode of Eternity, because in the 14th century, several Sufi saints chose to reside here (Figures 7 and 8). Many tomb shrines – *dargahs* (of the Chishti Sufi masters and saints who resided here over a period of hundreds of years) – populate the valley landscape (Figure 8). The *dargah* of *Zar Zari Zar Baksh*, *Shaikh Burhan uddin Gharib Chisti* and *Shaikh Zain-ud-din Shirazi*, along with the tomb of the Mughal emperor Aurangzeb and his trusted General Asif Jah I, the first Nizam of Hyderabad, are located in this town. Located in the walled town of Khuldabad, the modest tomb of Emperor Aurangzeb is placed in the southeast corner of the courtyard of the *Burhan-ud-din*’s mausoleum. The tomb of *Jalal al-Din ‘Ganj-i-Ravan’* (flowing treasure) overlooks a spring-fed pond known as the Lake of Fairies (*Pariyon ka Talab*) reputed to have miraculous healing properties (Figure 9). Praying at this ‘*dargah*’ and washing in the waters of the Lake of Fairies is said to ‘cure’ women of infertility and other ailments, which is why many women make this pilgrimage every year – asking for ‘*mannat*’ (a devotional vow or wish to a deity) and tying bits of colored cloth or bangles to the huge tree as a sign of their faith.



Figure 8. Khuldabad: Heritage and settlement – present-day satellite image illustrating how the composition of heritage sites evolved in response to the natural landscape (Source of background image: google earth).



a)



b)

Figure 9. a) Pariyon-ka-talab; b) tomb complex.

c. *Built heritage and gardens in the region of Daultabad, Khuldabad*

Sarai (rest house) and tombs

Built around the 14th century as a traveler's lodge, the structure is a representative typology of the period. It is believed that the construction was patronized by *Tughlaq* during the transfer of the capital from Delhi to Daulatabad. Guest rooms are organized around a central courtyard with one entrance gate, three pavilions and in the corners four watch towers covered with domes. Currently, the structure is in dilapidated condition though some of the rooms are occupied by local people as their primary residence. Three notable tombs of varied scales constructed in stone are located on the way to Daulatabad fort from Aurangabad city. They are in the form of open pavilions with domes but no tomb inside. Two of the three have square platforms and one is octagonal.

Rang Mahal and Hathi Khana

Within the premises of Daulatabad Fort, a large courtyard enclosed by stone walls forms the central open space. Along the shorter side of this courtyard stands a rectangular stone structure measuring 15 m × 30 m, featuring a central hall flanked by small rooms on either side, all connected through arched openings. This structure likely served as a *Rang Mahal* (a royal residential building / complex, often richly decorated). Nearby, other components such as the *Hathi Khana* (Elephant House – stables or enclosure for elephants) underscore the functional and ceremonial aspects of the fort complex. Set against the picturesque backdrop of the fort, surrounding hills, and farmlands, these buildings and associated structures are now in a state of ruin, yet they reflect the spatial organization, defensive planning, and cultural life embedded in the fort's landscape (Figure 10).



a)



b)

Figure 10. a) Location of the Daulatabad fort (Source of background image: google earth); b) Rangmahal structure.

The tomb of an unknown princess is present in a square *charbagh* garden. The garden is enclosed by a wall and marked by an entrance gateway. With a picturesque setting of hills, grassland and the Daulatabad fort, the stonework has intricate carvings and graceful stucco craftwork. However, due to neglect and limited conservation efforts, the tomb has fallen into a dilapidated state (Figure 11).



a)



b)



c)

Figure 11. Princess Tomb. a) Present-day satellite image indicating the garden (orange-coloured area) and setting (Source of background image: google earth); b) inside c) enclosure.

Khuphia bawdi – stepwell with chambers

The stepwell, an integral component of the farmland near the fort premises, carries several stories of its origin and purpose. At present, it remains hidden, yet continues to supply water for irrigating the surrounding fields. A small square enclosure around the water is accessed via stone steps. An arched gallery wraps around the wall adjoining

the water, providing shaded, usable space and serving as a refuge during hot, dry summers. Currently in a fair state, it shows signs of decay with vegetative growth and insensitive interventions. It needs conservation and repair work and measures to ensure improvement in water quality (Figure 12).



Figure 12. a) The well in the farmland setting; b) the space inside with structures around the water.

Rang Mahal 2

Located at the edge of a small lake, the two-floor structure is constructed in stone and is modest in expression, the arcade and terrace are oriented towards scenic hill views. One enters at the mid-level aligned to the topography. An ornate balcony, supported by stone brackets, projects over the water's edge. Today the area is surrounded by farmlands and the place remains inaccessible to vehicles while it can be accessed by walking through grassland. The place remains visually inaccessible from the other monuments or the vehicular road. Its construction date is unknown, as well as its patron and its purpose; the structure is in dilapidated condition. Water from the lake is used for irrigating nearby farms (Figure 13).



Figure 13. a) The lake and hill setting; b) water-facing structure.

Lal Baug

One record refers to *Khan Jahan*, the foster son of Aurangzeb, as the patron of this garden in *Khuldabad* when he was viceroy of Deccan. The rectangular garden is designed with reference to the principles of traditional Islamic garden planning with the

tomb of the patron at a higher elevation. The water channel along the central axis carries water from the lake adjacent to the garden. The main entrance is at a higher elevation on the town road, while three terraces descend along the length of the site towards the lake. Currently, much of the premises are encroached upon by low-cost housing for the Economically Weaker Section (EWS), and the historic built components are in ruins. The enclosure wall has been greatly modified in a highly insensitive character (Figure 14).



Figure 14. Lal Baug: present-day condition.

Bani Begum Baug – tomb and gardens

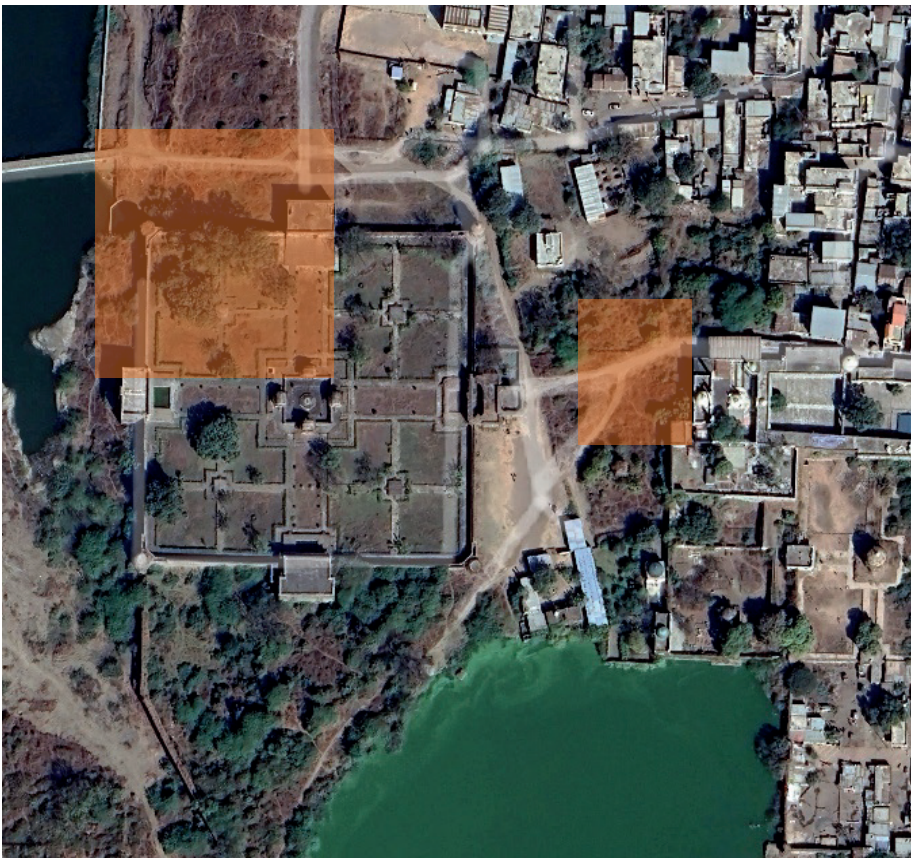
There are no references available to confirm the relation and position of *Bani Begum* yet the remarkable location, expression and character marks the significance of the deceased queen indicating the name of the garden. These gardens not only serve as historical, architectural and landscape design references but also provide a glimpse into the cultural and artistic heritage of this part of the Deccan region during Islamic rule. The place is also an excellent example of the synthesis of Persian and Indian architectural character and garden design sensibilities. Enclosed by a wall and entered by a large gateway, the octagonal tomb is centrally placed in a square, sunken court, open to the sky. A small, covered seating balcony marks the center of each wall enclosing the tomb court. Three pavilions are positioned at the center of three of the enclosing walls. The garden is in a fair state of maintenance, though it remains under-appreciated and partially neglected. The built components need repair. The water system is completely abandoned and the vegetation non-coherent with its original character (Figure 15).



a)



b)



c)

Figure 15. a) Bani Begum Baug: tomb enclosure in garden setting; b) the tomb court; c) gardens (orange coloured areas), settlement and landscape, present-day condition (Source: google earth).

6. Discussion

As a representation of the intricate links between nature and culture there are several ways in which built heritage embodies these connections.

- **Integration with the Landscape:** ancient caves and forts built into the contours of mountains and memorials nestled in lush landscapes carefully integrated with their natural surroundings create a harmonious relationship between the built environment and the natural setting.
- **Use of Local Materials:** they easily blend into the natural landscape. Structures constructed from local stone, wood, or other natural materials appear as extensions of the geological and ecological context.
- **Preservation of Natural Features:** including the surrounding landscape features, aligning the order with water bodies, ensures that the built environment enhances the local ecosystems. The region includes several meticulously designed gardens and landscapes that reflect cultural ideals and often incorporate elements of the natural world.
- **Scenic Views:** all sites in discussion have been chosen for their picturesque locations, providing users with stunning views of natural landscapes and inclusive feeling. For instance, the pavilion on the Daulatabad fort perched on the hillock or *Rangmahal* overlooking the lake offers both historical and natural beauty.
- **Cultural Significance:** the presence of built heritage represents the cultural and historical connection between a community and its natural surroundings. Traditional walled settlements, for instance, have several architectural elements that reflect the lifestyles and needs of people living in this particular natural environment. Some of the sites such as *Pariyon-ka-talab*, are deeply intertwined with cultural practices and rituals that are tied to the natural world.

While built heritage emerges from the natural settings, it can be studied for its thoughtfully designed character and location, to complement, celebrate, or even protect the natural environment. This relationship between built heritage and the natural setting is representative of the overall cultural and aesthetic value of both. These sites thus serve as valuable educational tools to understand the complex interplay between human culture and the inhabiting ecosystems.

The emergence of built heritage from natural settings is a dynamic and ongoing process, where the interaction between humans and their environment results in the creation of enduring cultural treasures connecting the geography and shaping understanding of the built components. It is a process that involves the transformation of natural landscapes into cultural and historical landmarks. This transformation occurs through human intervention, design, construction, and preservation efforts. The process of understanding can thus be noted as follows.

- **Identification of Significance:** The identification of natural sites or landscapes that hold cultural, historical, or archaeological significance. These sites might have unique geological features, abundant resources, or strategic locations that make them notable to early human habitation.
- **Human Settlement:** As humans settle in these natural settings, they often start by creating simple structures, such as shelters, to protect themselves from the elements. Over time, these structures evolve in response to the needs and preferences of the inhabitants.

- **Cultural Evolution:** As societies and cultures develop, their architectural character, building techniques, and materials evolve. This leads to the construction of more elaborate and enduring structures. People adapt their surroundings to meet their social, religious, and economic needs.
- **Historical Context:** The built heritage thus reflects the historical context of the region. Caves, temples, palaces, fortifications and gardens in that region then serve as a testament to their accomplishments and way of life.
- **Preservation and Conservation:** Over the centuries, some of these structures have survived the test of time. Many are recognized as valuable historical and cultural assets. Preservation and conservation efforts are undertaken to protect and maintain these heritage sites.
- **Environmental Considerations:** The environmental value of the regional character becomes a significant aspect of consideration. The balance of functional and cultural value with sustainable practices and aesthetic sensibilities is a merit worth preserving. Some of these built heritage sites serve as refuges for biodiversity.
- **Community Engagement:** The emergence and preservation of built heritage represents the engagement of local communities for their plural identity. These are various groups working together to ensure that these sites continue to be appreciated and protected.

Besides the fort and heritage inside the fortifications, Daulatabad contains several notable monuments, systems and designed gardens. There are extensive ruins along the fort perimeter that appear as a mere shadow of its former glory of the one-time capital of India. Khuldabad is surrounded by a high fortified wall built by Aurangzeb. It has seven gates – *Nagarkhana*, *Pangra*, *Langda*, *Mangalpeth*, *Kumbi Ali*, *Hamdadi*, and a small wicket gate called *Azam Shahi*. Khuldabad was once an important and prosperous town. The gardens which surround many of these tombs are in dilapidated condition.

Several tanks, ponds, lakes, cascades, cave springs etc. dot the landscape of the region. In fact, the importance of this region to the Hindu, Buddhist, Jain and Islamic faiths is, in one way or another, elaborately intertwined with the presence, physical and mythical, of water. Built evidence of an elaborate water management system that was constructed and maintained over the centuries can be seen from the man-made masonry tanks of *Ganj-i-Ravan* (*Pariyon ka Talab*, the Lake of the Fairies), *Pangra*, *Dharm*, *Bhadra Houz-e-Qutub* and the chain of bunds in the ravine which connects *Suli Bhanjan* with the *Surya Kund* reservoir, as well as the structural remains of wells and a networked chain of water supply that once served the cluster of settlements on this part of the Deccan plateau. Initial studies indicate that the complex man-made system of water bodies in this region is connected and fed through an elaborate system of sub-terrain water channels that crisscross the area covering several square kilometers. In fact, since this region lies in the rain-shadow (dry) area of the Western Ghats range of mountains, its importance as a water catchment area has made the presence of habitation viable since pre-historic times.

7. *Bani Begum Bagh* and the cultural landscape paradigm

Setting and spatial context

Bani Begum Bagh is located within the sacred geography of Khuldabad, in close proximity to Lake Khuldabad and the historic *Lal Bagh* garden complex. This positioning

is not merely functional but deeply symbolic, resonating with the Islamic garden tradition's preference for integrating water bodies into spatial planning as a reflection of paradise [14 -15]. In the Mughal and Deccan context, gardens were often sited to take advantage of natural water sources, ensuring both aesthetic pleasure and sustainable irrigation [16 -17]. The surrounding environment – marked by orchards, groves, and the broader sacred urban landscape of Khuldabad – offers a unique dialogue between built heritage and its ecological matrix [3]. Unlike in some imperial Mughal gardens that are isolated within fortified enclosures, *Bani Begum Bagh* interacts more directly with its living landscape, with *Lal Bagh* functioning as an adjoining green space and Khuldabad Lake acting as a life-sustaining hydrological anchor [10].

Islamic garden philosophy in relation to the natural setting and water system

Islamic garden design, as seen across West and Central Asia, is rooted in the Qur'anic vision of paradise – an enclosed, symmetrical, verdant space irrigated by flowing water [14-15]. This is articulated through the *charbagh* (four-part garden) layout, axial water channels, and a geometry that mirrors divine order [16]. The presence of water, both still and moving, serves aesthetic, spiritual, and climatic functions, cooling the air and creating sensory experiences through reflection and sound [15]. In *Bani Begum Bagh*, the water system historically drew from local sources, integrating stone channels and cisterns with the wider Khuldabad hydrological network [10,12]. The alignment of the water features respects the natural slope, optimizing gravity-fed flow, a practice seen in both Persian and Deccan adaptations of Islamic gardens [17].

Indian conceptions of nature and landscape in comparison to Islamic traditions

In Indian traditions, sacred landscapes often dissolve the boundary between human-made and natural elements, with nature perceived as inherently sacred and inhabited by deities, spirits, or ancestors [2-3]. Water bodies, groves, and hills are integral to ritual practice and community life, not simply as ornamental backdrops but as active participants in the cultural fabric [1]. This contrasts with the Islamic garden's tendency to create a microcosm of order – a walled paradise distinct from the surrounding terrain – even when visually or hydrologically linked to the broader landscape [14 -15]. Yet, in the Deccan Sultanate and Mughal contexts, these philosophies intersected: Persianate garden ideals absorbed local ecological knowledge and ritual associations with land and water [9]. *Bani Begum Bagh* exemplifies this intersection – it is an enclosed formal garden in plan, yet it remains permeable in its relationship to the surrounding orchards, the lake, and pilgrimage circuits, reflecting a hybrid cultural landscape identity [7].

Peculiarities of Bani Begum Bagh in comparison to other Islamic gardens in India

Compared to the grand Mughal gardens of Kashmir or Agra, which emphasize monumental scale and imperial display, *Bani Begum Bagh* exhibits a more intimate, funerary character [17]. Its core is as a *maqbara* (tomb-garden), dedicated to *Bani Begum*, and thus its spatial hierarchy privileges solemnity over spectacle [11]. Unlike some Mughal gardens where water channels dominate the geometry, here the planting arrangements and shaded pavilions play a more central role, suggesting a greater emphasis on human comfort and meditative engagement with space (Table 1). Furthermore, the integration with *Lal Bagh* and the proximity to Khuldabad Lake create a layered hydrological and visual landscape not always present in other examples [10].

Table 1. Matrix illustrating derivation of framework

Aspect	Islamic Garden Philosophy	Indian Sacred Landscape Traditions	Expression in <i>Bani Begum Bagh</i>
Function	Pleasure, display of power, spiritual retreat [9]	Ritual, pilgrimage, seasonal festivals	Funerary monument-garden; meditative retreat within living sacred geography
Relationship to Surroundings	Often inward-focused, separating paradise from surrounding chaos [14]	Outward-looking, merging with natural landscape and community	Physical enclosure with symbolic openness – part of larger hydrological and cultural network
Cosmology and Symbolism	Paradise as described in the Qur'an; enclosed garden with four rivers (<i>charbagh</i>) representing divine order and eternal bliss [14-15]	Nature as inherently sacred; rivers, groves, hills as abodes of deities and sites of rituals [2-3]	Hybrid symbolism – enclosed formal plan but embedded within sacred Khuldabad landscape linked to pilgrimage and ritual spaces
Water Management	Central role of water features – reflecting pools, channels; gravity-fed systems; aesthetic and climatic roles [16]	Water bodies as sacred entities; linked to myth, ritual, and seasonal cycles	Water channels linked to Khuldabad Lake; hydrology aligned to slope; integration of functional and sacred water systems
Spatial Layout	Symmetrical, axial planning; clear geometry; enclosed by walls [18]	Organic integration with topography; openness to surrounding environment	Walled <i>charbagh</i> plan with axial water channels, yet visual and physical permeability to <i>Lal Bagh</i> and orchards
Planting Design	Shade trees, fragrant plants, seasonal flowers arranged in formal beds [18]	Sacred trees, groves, and orchards integrated into spiritual life	Mixture of formal Mughal-style plant beds and local orchard planting; shaded pavilions for rest and reflection
Conservation Challenges	Maintaining geometric integrity, restoring water features [19]	Preserving living traditions and natural context	Requires integrated approach – monument restoration, water system revival, vegetation renewal, and cultural connectivity

Conservation approach

Adopting a cultural landscape approach to *Bani Begum Bagh's* (Figure 16) conservation requires moving beyond monument-centric preservation towards an integrated strategy that recognizes the interaction between tangible structures, ecological systems, and intangible heritage values [18-20]. Key points are described below.

- Such an approach aligns with contemporary heritage discourse that views landscapes as dynamic, layered entities where ecological resilience and cultural continuity are interdependent [1, 6].
- Cultural Connectivity means maintaining linkages with *Lal Bagh*, pilgrimage routes, and the living traditions of Khuldabad to preserve the garden's role in the sacred geography [3].
- Vegetation Management involves restoring historical planting patterns while supporting biodiversity [8].
- Hydrological Restoration involves reviving the original water channels and connections to the Khuldabad Lake system, informed by traditional engineering knowledge [12].

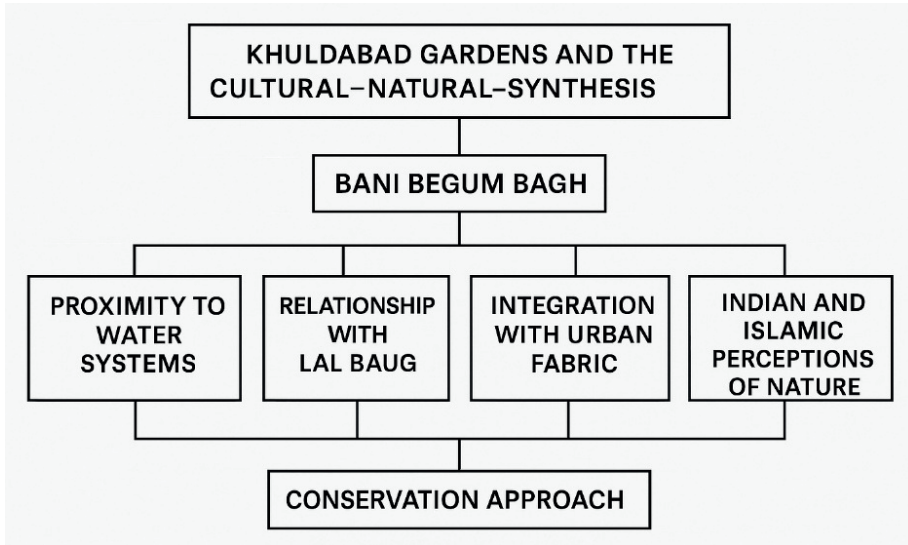


Figure 16. Conceptual diagram to illustrate conservation approach.

8. Conclusion

In India, heritage imprints and the monument-centric approach represent two crucial perspectives in cultural heritage conservation. Heritage imprints encompass not just monumental structures but also intangible aspects like traditions, rituals, crafts, and landscapes that shape a community's identity. These imprints are found in architecture, performing arts, agricultural practices, and sacred spaces, reflecting the deep cultural connections between people and their environment. The monument-centric approach in heritage conservation focuses primarily on

preserving iconic physical structures such as temples, forts, and palaces, often overlooking the broader cultural contexts in which these monuments exist. This approach has long shaped India's heritage management, led by the Archaeological Survey of India (ASI) at the national level and the Directorate of Archaeology and Museums at the state level, drawing both national and international attention. While this approach has helped safeguard many significant sites, it often leads to the loss of context, neglecting the surrounding landscapes, local communities, and intangible heritage practices that give these monuments their true meaning. Monuments, when viewed in isolation, lose their connection to the traditions, rituals, and natural environments that shaped them.

The importance of cultural landscapes lies in understanding heritage as a holistic entity. A cultural landscape includes not just the monuments but also the surrounding environment, agricultural practices, settlements, and traditions that form a community's identity. Adopting the cultural landscape paradigm, as illustrated in the study of *Bani Begum Bagh*, offers a valuable pathway for heritage conservation in India that is both context-sensitive and comprehensive. By recognizing cultural landscapes, we ensure that heritage is preserved in a way that maintains its historical, cultural, and ecological significance, fostering a deeper connection between people and their heritage while enabling sustainable conservation practices. Following are some of the significant parameters derived through this study.

A. Contextualizing Physical Features with Cultural Development

- Settlement Patterns and agricultural practices: Physiographic study can identify areas that were conducive to human settlement based on natural features such as fertile soil and access to freshwater. Flat plains might point to intensive crop farming, while terraced landscapes on hillsides suggest adaptation to steep terrains.
- Trade Routes: Natural features like rivers and coastal plains can reveal traditional trade routes and networks that facilitated economic and cultural exchange.
- Defensive Sites: Elevated landforms such as hills or ridges may indicate locations historically used for defense or fortifications.
- Cultural Significance of Natural Features: Some landforms, rivers, or mountains may have cultural or spiritual significance. Sacred mountains, rivers and water systems, appear in local myths, rituals, or religious practices.

B. Mapping Natural and Cultural Interactions

- Land use and transformations
- Landscape transition
- Cultural landscape features

C. Analyzing entangled landscape elements and landscape connectivity

For heritage conservation, analyzing these connections can inform strategies to protect or restore cultural landscapes by emphasizing the preservation of key natural features that are integral to cultural identity. Cultural landscape studies deepen our understanding of the intricate relationship between the natural environment and human cultures. By examining how landscapes have both shaped and been shaped by human activity, researchers can gain valuable insights into the evolution of cultural landscapes,

guiding the development of more effective conservation strategies that respect both cultural and environmental heritage.

The contextual relationship between remnants and natural settings is kind of lost. The interconnections of the places and components is fractured. While landscape is being transformed to a large extent, the remains of built components still stand as silent memorials commemorating the great revolutions that once occurred. The *Daulatabad-Khultabad* region represents an integrated and comprehensive evolution of settlements. This associative value is expressed through various aspects of humanity, derived sensitively in response to the natural setting and cultural environment. It can, thus, be designated as cultural landscape which is a repository of knowledge system and represents a peculiar human-nature relationship where built heritage stands as an indicator of significant interactions and intersections.

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Biographical notes

Ritu Sharma is a Landscape Architect with over 20 years of professional experience. She has been engaged in academics and publications for more than a decade. Her work includes research papers, articles in national magazines and journals, and five edited books. Her research, practice, and teaching focus on cultural landscapes and historic gardens. She studies how relationships between humans and nature have evolved over time and advocates for the recognition of these dimensions within heritage conservation. Ritu is currently pursuing her PhD at Manipal University Jaipur, where she continues to advance research in this field.

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Summary

Built heritage exists within landscapes and cultural settings, representing mutual interdependence. This entire integral structure of ‘shelter and setting’ may be transformed as people encounters and natural forces interact with a particular place. A seemingly abandoned built space is still part of an active landscape as an entity that exists by virtue of it being perceived, experienced, and contextualized by people. The

approach focuses on exploring the 'expressive' realms of 'built heritage' not just defined in its spatial limits but in reference to the environment generated out of human-nature links. The study seeks to examine the relevance and resilience of built heritage in relation to the environmental and catastrophic transformations that have shaped both natural and cultural settings. It traces the architectural remnants and ruins within the Daulatabad–Khuldabad heritage precinct in Deccan India, interpreting them as physical markers of regional identity. The methodology draws on literature review, archival research, analyses of physiographic maps, structured interviews, and field-based observations. It makes an attempt to unfold the layers of meanings and continued associations around spatiality in response to the unique conjunction of landforms, hydrology and socio-cultural structures.

Riassunto

Il patrimonio costruito si inserisce all'interno di paesaggi e contesti culturali, rappresentando una relazione di mutua interdipendenza. L'insieme integrato di *spazio abitato e contesto* può trasformarsi nel tempo in risposta sia alle modalità di interazione umana sia all'azione delle forze naturali su un determinato luogo. Anche uno spazio costruito apparentemente abbandonato continua a far parte di un paesaggio attivo, in quanto entità che esiste in virtù della sua percezione, esperienza e contestualizzazione da parte delle comunità. L'approccio proposto si concentra sull'esplorazione delle dimensioni "espressive" del patrimonio costruito, intese non soltanto entro i limiti spaziali dell'architettura, ma in relazione all'ambiente generato dall'interazione tra uomo e natura. Lo studio mira ad analizzare la rilevanza e la resilienza del patrimonio costruito in rapporto alle trasformazioni ambientali e catastrofiche che hanno inciso nel tempo sugli assetti naturali e culturali. La ricerca prende in esame i resti architettonici e le rovine presenti nel comprensorio storico di Daulatabad–Khuldabad, nell'India del Deccan, interpretandoli come marcatori fisici dell'identità regionale. La metodologia si fonda su una revisione della letteratura, ricerche archivistiche, analisi di carte fisiografiche, interviste strutturate e osservazioni condotte in situ. L'obiettivo è quello di svelare i molteplici livelli di significato e le persistenti relazioni spaziali che si sviluppano in risposta alla peculiare combinazione di morfologia del territorio, sistemi idrologici e strutture socio-culturali.