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Conservation Plan and Architectural Documentation of Jani Khan's Tomb

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***Abstract*:** This research exploration addresses the documentation and analysis of the architectural features of Jani Khan's Tomb, an 18th-century Mughal tomb in Lahore, Pakistan. Since its construction, the tomb has been greatly vandalized owing to the adverse weather factors and nonprofessional workmanship in restoration. It is primarily intended to establish a flowchart of conservation initiatives using ICOMOS conservation charters like the Burra Charter and the Venice Charter. Assessment of the tomb involves assessed architectural analysis and material decay systematic analysis though history and archaeology. The plan includes comprehensive documentation of the tombs architecture, decoration and use of material proper to restoring methods for restoration such as lime mortar and fresco methods. A critical aspect is public participation to be sensitized and able to share insights to the future generation on the significance of the tomb. Being a historical approach, the research aimed at enhancing historical orientation and participation in the long term conservation initiatives. The existing research endeavor will contribute to the knowledge in the field of Mughal architecture and serve as reference when interpreting restored monuments.

Key Words: Conservation, Restoration, Mughal Architecture, Lahore, Monuments.

1. Introduction

Culture is key factor in the educational, artistic and social transformation of societies. Latrobe's use of culture and history to promote economic development is evident; therefore, a strategy to preserve this process is important (Salman et al., 2018). This cross-cultural omission of the economic, artistic and symbolic aspects of legacy might lead to diminution of the total appreciation of Legacy.

As succinctly put it "Conservation is fundamentally about the regulation of change." This approach is used in preserving the heritage structures, guaranteeing that the destruction of these buildings does not remove the features aligned with its new aesthetic and functionality required for its use by societies in the contemporary world. Architectural conservation is a rational course of action aiming to ensure that material and design integrity, the historical story, and context can be handed down to future generations and enjoyed and understood (Karim et al., 2018).

It is the responsibility of all cultures at the national and international levels to conserve the cultural endowment. There are often insufficient research and planning in several countries to support conservation efforts; this makes many historical structures in Pakistan vulnerable to decay. These structures are not simply ornamented shapes of human construction; they are also interlinked with the bio-regions from which they sprang forth. Therefore, one can

claim that the primary goal regarding these monuments is their conservation as obvious icons of cultural legacy (Abbasi et al., 2021).

This research therefore seeks to address the preservation issues in relation to the Jani Khan Tomb. Built during the Mughal Empire and located south of the Shalimar Gardens, this structure has succumbed to what human hands and nature can do to a building (Sabri et al., 2020). The tomb identified by a splendid archway at one time is failing to elicit viewers' attention due to urban sprawl and industrial development. This work aims at reversing more decay on the tomb and at offering a comprehensive conservation plan that will meet conventional ethical benchmark in historic preservation through strenuous research and documentation (Sabri & Olagoke, 2021).

This project analyzed the processes leading to the degradation of Jani Khan's Tomb, including human vandalism and environmental effects, to formulate solutions for mitigating future damage and restoring its historical importance. The values inherent in this cultural site will be defined to inform conservation priorities and direct decision-making processes. Heritage buildings also guide us through which we connect with history and ignite a feeling of pride, and therefore are a part of the identification of a given community. The adage is quite appropriate "A city without historical buildings is like a river without water." Preserving such structures is made possible to remain not only as historical records but to offer that next generation with heritage they might like or gain knowledge of context and need (Qureshi et al., 2021).

In order to carry forward with the research, the stated below objective was set forth:

The architectural documentation of the Jani Khan tomb has not been accurately represented in the existing sources. The accuracy of the data about architectural documentation requires reassessment to ensure reliable information for future study endeavors. The conservation of historical monuments starts with comprehensive documenting of their present condition, identifying areas need urgent intervention. Comprehending the processes that lead to degradation is necessary for formulating effective conservation methods.

1.1 Problem Statement

The epitome of Mughal architecture – Jani Khan's Tomb in Lahore exhibits a layout of a dome and curtail paintings on the building. Although it is among the oldest structures, it is deteriorating at a very high rate, mainly because of untold environmental impacts and negligence. Conservation initiatives need a plan that integrates traditional materials, consistent maintenance, and community engagement for effective preservation. Hence the following research project has been undertaken to resolve the concerned gap.

2. Review of Literature

The studies onconservation of Gali Surjan Singh and Shahdara Complex highlight the importance of community engagement and implementing appropriate conservation policies to preserve the historic character and architectural integrity of heritage sites. The challenges faced in these conservation efforts, such as addressing encroachment, managing changes in building usage, and implementing maintenance protocols, provide valuable insights that can inform the development of the Jani Khan Tomb conservation plan (Bakri et al., 2015). The article on the urban transformation of Multan also underscores the need for a holistic approach to heritage conservation, addressing not only the physical condition of historic structures but also the social, economic, and environmental factors that impact their long-term sustainability (Daungthima & Kazunori, 2013).

By incorporating these key learnings from previous conservation initiatives in Pakistan, the proposed conservation plan for Jani Khan Tomb will aim to address the multifaceted challenges faced by this important cultural heritage site and ensure its preservation for future generations. Jani Khan's Tomb is a historic edifice situated in Pakistan, exemplifying the region's profound architectural and cultural heritage. Nevertheless, the monument has endured several instances of human vandalism and natural influences, resulting in its progressive decay over time (Akhtar, 2022).

The research asserts that "the conservation of cultural heritage at both national and international levels is a collective responsibility; thus, this analysis provides a comprehensive examination of the original condition of Jani Khan's tomb." The investigation seeks to identify historical damages and provide remedies to restore the tomb to its original state, adhering to recognized conservation principles (Escobar, n.d.).

An overview of Jani Khan and his mausoleum is included in the Classified List of Archaeological Sites and Historical Monuments Protected Under the Antiquities Act, 1975, compiled by Khan Muhammad (Conservation & Candidate, 2010).

Jani Khan was the second son of Nawab Qamaruddin Khan, Wazir to Mughal Emperor Mohammad Shah (1719-48

A.D.). Qamaruddin Khan, together his two sons, Mir Moinul Mulk and Jani Khan, valiantly confronted Ahmad Shah Abdali in Sirhind on 11th March 1748 (A.H. 1161). In this battle Qamarud Din was killed by a cannon ball while praying in his tent; but Abdali was overcome because of the courage shown by his aforementioned two sons. Subsequently the new Mughal Emperor Ahmad Shah choose Jani Khan as the second Bakhshi in A.D. 1748, and subsequently, in 1751 (A.H. 1165), he was elevated to the position of Wazir and bestowed the title IntizamudDaula Khane –e-Khanan. He was assassinated by Imadul Malik Ghazi-uddin Khan on November 26, 1759, however Tahqiqat-e-Chisti states he perished in 1192 A.H. (1778 A.D.) and was interred in the mausoleum constructed by his sister, the spouse of Nawab Zakria Khan, in 1140 A.H. (1727 A.D.).

The tomb is a rectangular structure of 27 feet by 27 feet, including three arched entrances on each side and an aesthetically attractive curvilinear ceiling adorned with enameled mosaic work in a zigzag pattern. The interior paintings are frescos and are decorated with naturalism floral and botanical designs (Awan et al., 2014). It has three Kutcha burials, the Sikh period may have seen the disappearance of which. What is more, the area of the monument was first surrounded by a garden that no longer exists today. The trace of the southern gate of Pehsawar was existed at the time when Kanhiya Lal wrote his history at the end of the century (Ghazala, 2003).

The Jani Khan Tomb is referenced in the West Pakistan Circle of Archaeology Report for the years 1947-1960 as follows:

Table 1: Catalog of ancient monuments safeguarded under the A.M.P. Act from 1947 to 1960

Locality	Name of Monument	Classification	Year of Protection
Baghbanpura	Jani Khan's Tomb	I(a)	12th January, 1959

"Jani Beg the son of Wazir Qamarud Din the Prime Minister of Emperor Muhammad Shah passed away in 1192 A.H / 1778 A.D.. His tomb located on the south of the Shalamar link road is to the North west of Mahabat Khan's tomb. It is simply furnished and adorn with enameled tilings. The current grave indicated by the marker was probably not the first one and the present one is easily an addition. In 1957-58 when the monument was not yet protected, all its jambs were found seriously undermined. All the repairs were done by departmental mason involving some 216 cft of bricks to avoid sudden collapse of the structure. The A.M.P. Act was applied to protect the monument in 1959 and at this time petty repairing works were done."

Syed Muhammad Latif is perhaps the preeminent Indian historian of the British colonial period in India. In his book Lahore: Its History, Architectural Remains, and Antiquities, he describes Jani Khan's Tomb as follows: "The mausoleum of Khan-i-Khanan is located to the south of the road leading to Shalimar, and southwest of the garden of Nawab Mahabat Khan, on a brick platform." Currently, in a deteriorated state. The dome, adorned with blue and yellow porcelain, is upheld by a quadrilateral structure, each side including an arched entrance flanked by an arcaded niche (Gulzar, n.d.). The corridors, or galleries, are reinforced by robust brick buttresses, imparting an elegant and aesthetically pleasant look to the structure. It was a garden having the consulting tomb which entrance existed till the recent date; but Shera, a zemindar, purchased it from the Government and pulled it down and now nothing is left (Hasan & Hasan, 2013).

Khan-i-Khanan or Yamin-ud-daula, whose tomb is under this dome, was the eldest son of Naab Qamr-ud-din Khan who was the Minister of Mahomed Shah, Emperor of Delhi, who died by the blow of a cannon from the battle of Karnal against Abdali Ahmad Shah. His younger brother was Nawab Moin-ul-Mulk or Mir Mannu; the state helped construct his tomb vault near the Punjab North-Western Railway Station. Ahmad Shah Mahomed Shah Mughal Emperor of Delhi bestowed him with title of Khan-i-Khannan. He came to Lahore to decide a dispute between his sister and her husband Khan Bahadur but breathing his last in Lahore 1192 A.H. (1778 A.D.) lies buried here. It also looks at Muhammad Wali Ullah Khan Khan's book Lahore and its Important Monuments (Ullah, Jiny, & Jin, 2018).

Inadequate information concerning the significance of the tomb can be obtained through the internet and other public resources available. The importance of the tomb has been evaluated and examined through online writings. This mausoleum was erected during the Mughal era in India. Jani Khan was the father-in-law of Moin-ul-Mulk, the contemporary Mughal governor. In the 18th century, as Mughal authority waned, there were persistent incursions by Nadir Shah and Ahmad Shah Abdali of Afghanistan. Lahore was a province of the Empire, administered by

provincial governors who maintained their own private courts. These governors performed to the best of their abilities for the Empire. The 1740s were a tumultuous time for the Empire and its rulers. From 1745 to 1756, there were nine gubernatorial changes. The Sikhs then took authority in several regions amid the prevailing turmoil and despair. The construction of the Jani Khan Tomb occurred during a period of limited availability of building materials, including marble and semi-precious stones, which were sourced from previous structures (Ramzan, 2023).

The plan is rectangular: On each side, there are arcaded niche on both flanks on the sides as well. The corridors are supported by brickwork on each of the outer sides; this gives the building a beautiful appearance.The buttresses, made of burned bricks, are embellished in yellow, red, and green with simple geometric patterns. The arched entrances have been covered with a steel fence, including a door constructed in one of the contained arches. The floor is concealed by years of accumulated dust and debris, obscuring the original flooring. The inside walls are some of the most well-preserved instances of Mughal-era tombs in Lahore (Raheem et al., 2008). Panels of magnificent floral paintings embellish the upper portions of the walls and the corner niches. The domed ceiling retains significant portions of its floral paintings, elegantly organized in geometric patterns. Three graves exist; however, because to inadequate information, it is uncertain whether one corresponds to Jani Khan. Furthermore, mystery surrounds the identity of Jani Khan, since historians remain confused regarding his genuine character (Abbas, 2023).

Kanhaiya Lal, in his work Tarikh-e-Lahore, ascribes the tomb to Jani Khan, known as Intizam-ud-Daula, the son of Nawab Qamar-ud-Din Khan and the elder sibling of Moin-ul-Mulk, also referred to as Mir Mannu. Qamar-ud-Din Khan, minister of Emperor Muhammed Shah, reportedly perished in combat against Ahmed Shah Durrani in 1748. Subsequently, Jani Khan, accompanied by his brother Moin-ul-Mulk, initiated a vigorous assault that compelled Ahmed Shah Durrani to retreat to Kabul. Moin-ul-Mulk thereafter assumed the role of Governor of Punjab and designated Jani Khan as the Commander of the army (Khan et al., 2024). Jani Khan passed away in 1778 and was interred here. Latif provides a comparable description of the tomb's inhabitant, identifying him as Khan-i-Khanan, with the epithet Yamin-ud-Daula. Latif notes that Khan-i-Khanan traveled to Lahore to resolve a conflict between his sister and her husband, Nawab Zakariya Khan, and subsequently grew ill and passed away at Lahore in 1778 (Zulfiqar & Altaf, 2023).

This viewpoint is flawed, as Intizam-ud-Daula, the eldest son of Qamar-ud-Din Khan, was assassinated in Delhi in 1759 at the orders of Imad-ul-Mulk and cannot be the Jani Khan mentioned here. Jani Khan was, in fact, the father-in-law of Moin-ul-Mulk, as his daughter, Mughlani Begum, was wed to Moin-ul-Mulk. Mughlani Begum administered Lahore from 1754 to 1756 on behalf of her infant son after the death of Moin-ul-Mulk. Jani Khan was married to Dardana Begum, the sister of Zakariya Khan, thereby establishing him as the brother-in-law of a significant and influential ruler of Lahore. Yahya Khan son of Zakariya khan after his defeat at the hand of his brother Shah Nawaz in 1747 took shelter first in the house of his aunt Dardana begum and then fled to his maternal uncle and father-in-law Qamar-ud-din khan (father of Moin-ul-Mulk) at Delhi. Next year after Ahmed Shah Durrani invaded and captured Lahore Nawaz Shah fled to Delhi. Ahmed Shah Durani was threatened by Emperor Muhammed Shah who dispatched Qamar-ud-Din Khan and Crown Prince Ahmed Shah against him. Qamar ud din khan died in the battlefield in 1748; nevertheless Moin ul Mulk after the death of his father and Jani khan his father in law captured the invader durranis and got back the city of Lahore back. That year Muhammed Shah died in Delhi, and his son Ahmed Shah appointed Moin-ul-Mulk as a governor of Lahore and then arrived in Delhi to become a king. Jani Khan probably succumbed to his injuries in the same fight or, at most, one year later and was laid to rest at Mir Mannu's Garden near the tomb of the family of his father in law, Abdul Samad Khan. (Kumari & Kumari, 2019).

The dome is adorned with porcelain tiles in blue and yellow hues. Some of the tile work remains intact. The pyramidal dome is positioned on a short neck adorned with exquisite earthenware featuring floral motifs like to those seen on the tomb of Sharf-un-Nisa Begum (the Cypress Tomb), constructed in 1745. No historical photos of Jani Khan's Tomb have been published, either online or in prominent literature. This further underscores the need of preserving Jani Khan's Tomb; in the absence of historical accounts or images, it is essential to have evidence and documentation of the tomb.

3. Research Methodology

The literature review involved collecting primary data from public papers and databases, scrutinizing documents and cultural events in Lahore City, and examining the cultural and historical context. Case Study and interviews

with residents and intellectuals were conducted to determine the heritage site's identity and significance. Architectural documentation included evaluating style, decoration, structure, materials, techniques, and original craftsmanship. Photographic documentation and conservation measures were also included.

4. Data Collection & Analysis

The Jani Khan Tomb is situated on Ghoray Shah Road in Lahore, Pakistan, roughly 200 meters south of the main roadway, behind a damaged iron gate. Located within a tiny garden and around by occupied structures, it is secured by an iron fence.

Its exact coordinates are 31°57'86.98"N and 24°37'11.27"E to 31°34'43.31"N and 24°22'16.06"E[1].

Figure 01 Master plan, Lahore

Figure 02 Jani Khan's Tomb on Google maps

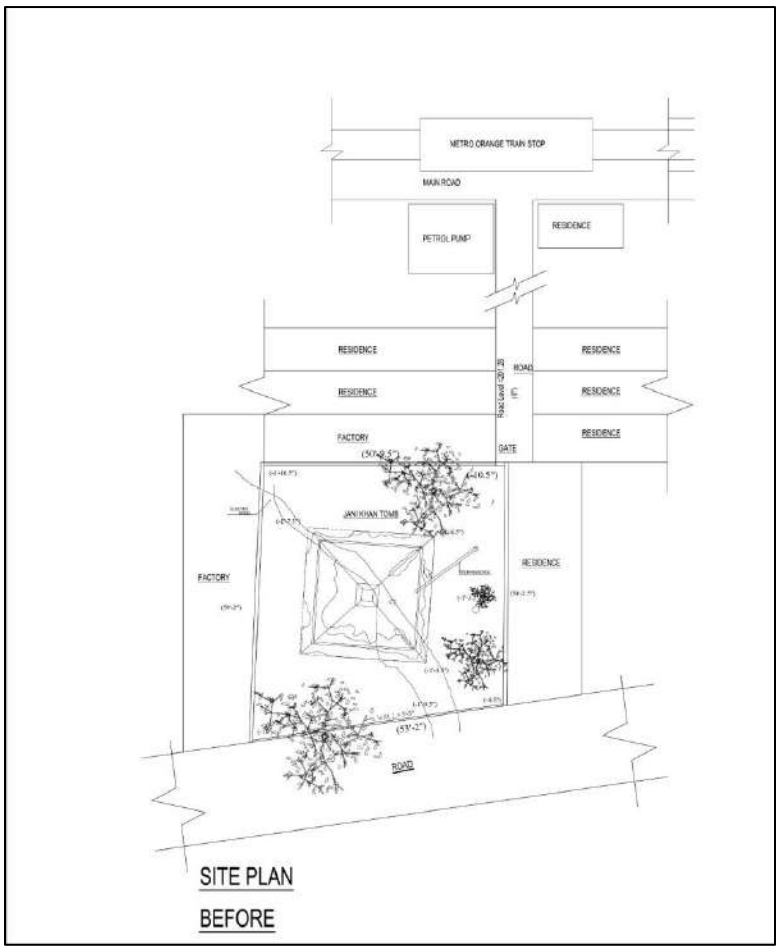

FIGURE 03 LOCATION PLAN

Different damages have been documented through photography as mentioned below in detail.

Figure 04 Qalibqari

Figure 04 above shows that the qalibqari on the inner side of the cusped arches and the inner surface has seen a loss of color and pigmentation. Furthermore, the upper surface of the region is severely compromised and requires restoration. The masonry is damaged, and the frescoes in the triangular parts above the cusped arches have deteriorated and are entirely faded. It is evident that the bricks are absent and the plaster layer has significantly deteriorated. The missing bricks are due to damage inflicted by avian and insect activity. Furthermore, the little masonry and stonework is not only absent but also damaged in several areas.

The damages have obliterated all demarcations and borders of the architectural features employed in the tomb. This image illustrates that each arch and region has distinct damages, in contrast to Figure 4. The masonry is damaged, making it hard to distinguish the individual components. The multi-cusped arches are damaged, with shattered edges that have resulted in a loss of normal alignment and aesthetic appeal. The lowest section has completely lost its brickwork, perhaps resulting in a compromised foundation at the surface level. Furthermore, insects may infest the lower region, potentially causing additional damage to the foundation; repairs should be conducted to prevent future deterioration. The white powdery spots indicate significant damage to the structure resulting from water collection and absorption into its surface. This leads to moisture dissemination throughout the entire structure and its surfaces, which may subsequently diminish the building's durability and compromise the foundation's integrity.

Figure 05 Façade treatment

The borders of the building's front facade are compromised, suggesting that the eaves have sustained damage from precipitation and a lack of proper maintenance or reinforcement. This requires repair to ensure that the eaves effectively protect the structure from water and rains in the near future. The fresco has deteriorated in color and pattern. The borders of the rectangular panels are disjointed and exhibit substantial voids in the masonry. The degradation has hindered the identification of the original topic of the fresco painting. Furthermore, the absence of coloring has rendered the structure aesthetically unappealing.

Climate had a strong impact on the deterioration of the building (Salahuddin et al., 2024). The remaining panels and fresco painting plasters have either been removed or have sustained damage and destruction. Significant voids and loss of material at the upper margins are also evident. Similar to the state of the inside, the outside walls have also deteriorated, resulting in the loss of stone and brickwork. As with the inner arches, no demarcation is observable between the components. This results from the extensive deterioration of the masonry and insufficient upkeep of the structure. The Jani Khan Tomb is situated adjacent to a Shell gas station, and there will be a stop for the Orange Line rail, which is now under construction in Lahore. The tomb was constructed in a flat region; but, due to population growth, one side of the structure is now adjacent to a residential neighborhood, while the opposite boundary abuts a factory. The factory possesses an independent electrical system that bypasses the tomb. Additionally, electrical wiring and air conditioning external units have been installed at the mausoleum. The wall has been utilized without regard for potential harm to the structure. A rod has been affixed at the rear, constituting an infringement against the structure and posing potential hazards. The outside wall of Jani Khan Tomb It is too brief, allowing anyone to access it. Furthermore, there is a transformer, substantial electrical lines, and a pole situated near the boundary that has not been well maintained.

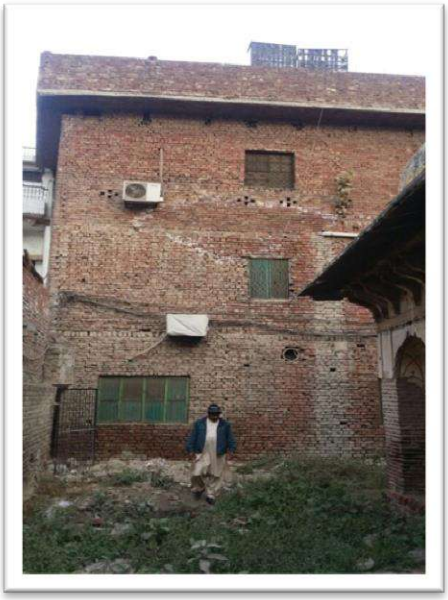

Figure 06: Drain Pipes Attached outside *Figure 07: Ac Outdoor Units*

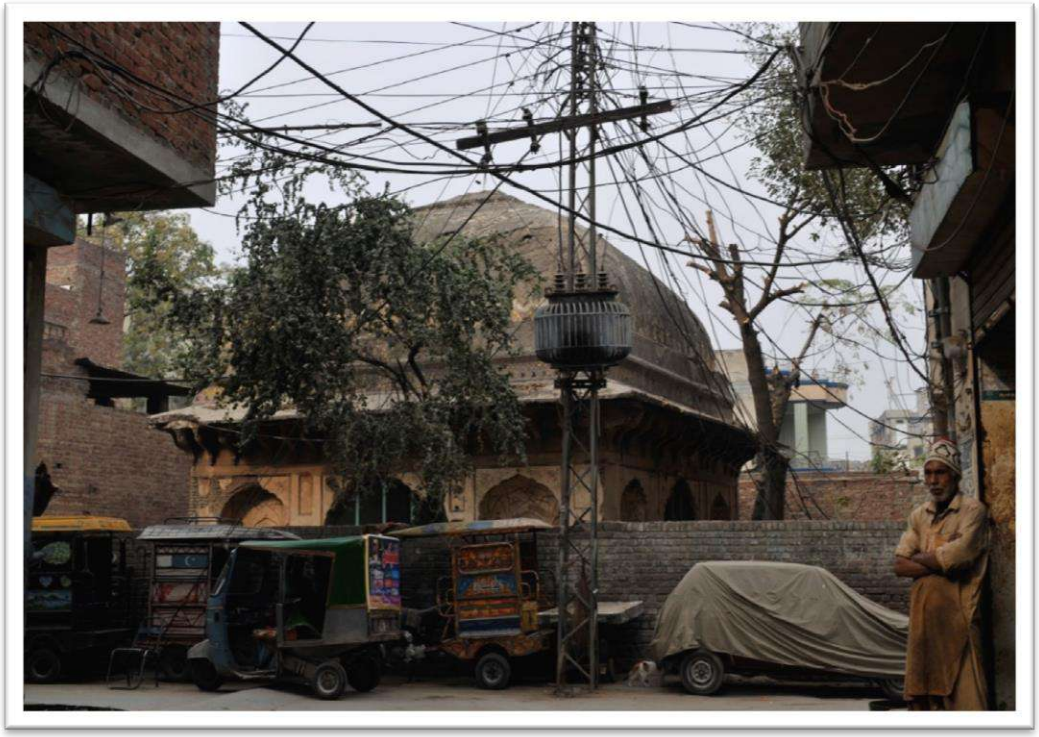

Figure 08: Monument Boundary wall

The monument has suffered significant destruction, and several obstacles had to be addressed prior to the documenting of the site. The internet dimensions and instructions were inaccurate; hence, one should not fully depend on these sources for reliable information. The archaeology department and website currently lack precise information on the specific monument. The local residents were unaware of the monument's name. There appears to be a lack of awareness of the specifications or historical context behind the development and building of this monument. Consequently, it was imperative to investigate the location and ascertain the true circumstances behind the monument's construction and the individual under whose name it was erected.

During the site investigation, it was observed that three sides of the monument are encased by residential areas, while the fourth side is secured by a boundary wall to restrict access for residents. Nevertheless, the inhabitants residing adjacent to the tomb have severely abused the land and regard it as an inconsequential free space. They had utilized the location as a repository for their refuse. During the analysis, the location needed to be cleansed

of debris to facilitate the enhancement of the tomb and ensure appropriate observation. The grave was surrounded by various individuals, including alcoholics, beggars, and drug users. Notwithstanding the perimeter wall and adjacent residential structures, the monument suffered significant destruction.

Documenting the site throughout the process was challenging due to the lack of cleanup by local authorities and the building's deteriorated condition. A industrial unit was situated beyond the monument's boundary wall, with the primary electric supply lines traversing the site building. The wiring and cables were poorly organized, resulting in a fallen telephone pole resting on one side of the tomb. The cables were ensnared in the trees at the corner and appeared to pose a significant hazard for nearby operations. It is plausible that meteorological factors and an unforeseen catastrophe contributed to these conditions; yet, no measures were implemented to enhance the environment. Due to the inability to document the site under hazardous conditions, the barriers were removed to facilitate the observation and preservation of the monument. The fallen tree, pole, and wires at the building were cleared with the approval of local authorities. Approximately thirty gardeners were employed to trim the overgrown grass and maintain the surrounding vegetation. The land was uniformly fruitful, necessitating the presence of skilled professionals to manage the region.

Figure 09 Unmanaged tree and plantation

Figure 10 fallen poll leaningon the building (7-24-2012)

Figure 11 High voltage wires passing through (7-12-2012)

Figure 12 Before maintenance (7-12-2012)

Figure 13 After maintenance (10-2-2012)

The whole area was under observation to ensure that no hurdles remained for subsequent tasks. Furthermore, the locals were cautioned and intimidated by the local political authorities to refrain from littering in the vicinity and were urged to participate in the upkeep of the region. The monument was said to have acted as a stable. The Nazim of the region or a governmental entity subsequently constructed windows at each entrance of the tomb to prevent future exploitation.

The interior of the structure was inadequately managed; dust had accumulated, and few efforts had been made to preserve the tomb's aesthetic appeal recently. Bats inhabited the inside windows of the structure, and beehives were located around the vicinity. Working on this monument under such circumstances was deemed hazardous, prompting a referral to the authorities for oversight of the site.

In addition to this, certain edged parts of the structure were seen, which may have contributed to its preservation; however, no data or documentation indicating the period of this work were located, nor was there any proof identifying the individual responsible for it. Furthermore, the frescoes on the interior and external facades were distinctly different and were deemed distinctive relative to the artworks of adjacent structures. It is presumed that many methods were employed, which may account for the tomb's varied appearance.

Figure 14 Fresco Work

Comprehensive excavation was conducted to ascertain the presence of a basement in the building's construction. Furthermore, to ascertain the potential existence of a platform, the inside of the core was excavated, revealing that the Jani Khan Tomb's construction lacked both a basement and a platform. The laborers excavated the site, concluding that the foundation depth is approximately 7 feet 6 inches from the finished floor level.

To get a clearer understanding of the floor's foundational material, the inside of the building was dug to a depth of nearly 6 feet; however, no evidence pertaining to the finished floor was discovered. The excavation aimed to determine the original material utilized for the floor construction, but yielded no findings.

FIGURE 15 OUTSIDE EXCAVATION

FIGURE 16 INSIDE EXCAVATION

Figure 17 digging for foundation

The components utilized in Jani Khan's Tomb are examined comprehensively in the subsequent sections: Brick Brackets: A protrusion utilized to provide fundamental support to a building's structure or its suspended components, such as eaves and galleries. This vertical projection is termed a "bracket." These brackets are load-bearing structures specifically constructed from wood, stone, or occasionally metal, enabling them to support weight and securely hold materials in place. Various fastening solutions exist for these brackets, encompassing frame types for steel brackets, cladding kinds, cavity width, and masonry load considerations. Brick, slab, or stone enclosures, or concrete-encased structures, are typically reinforced by stainless steel masonry support systems. The Jani Khan mausoleum features brick brackets on the northern front of the structure.

Figure 18 Exposed Brick Brackets (highlighted)

Figure 19 Brick brackets

Rectangular Panel Work: A horizontal, polished surface affixed by a molding and occasionally embellished with ornamental components, panel work is utilized in Jani Khan's Tomb at the northern facade of the structure. These panels also enhance the building's visual appeal. While these panels can occasionally be spherical, rectangular panels are utilized in this instance. Domes originated in Persian, Chinese, and Roman cultures. These domes are prevalent in several old Islamic structures as well. The Jani Khan Tomb features a vaulted dome at its apex, while the inside contains half domes. A vaulted dome is an arch that rotates around its vertical axis, whereas a vault is an arch expanded into the third dimension. The apex of Jani Khan Tomb has a vaulted dome that encompasses the three dimensions of the structure.

Figure 20 Vaulted dome

Blind Half Dome Arch: The structure is characterized by its unique form, with one sheer face and three rounded, smooth faces that provide the illusion of a dome bisected. This architectural feature possesses a frontal arch and an

interior depth, lacking any passageway for traversal. This arch possesses the form of a semi-dome from the inside perspective.

Figure 21 Blind Half Dome Arch

Multi-Cusped Arch: An arch is a curved structure that spans a space; the technique for constructing an arch was first presented by the Romans, and this construction has since evolved into several expanded forms. Jani Khan's Tomb features multi-cusped arches, a variation of the traditional arch design. This cusped arch is designed to be three-foiled and envelops the arch's inner framework. It is additionally referred to as a trefoil arch. This building features multi-cusped arches that define its construction. This form of arch derives its significance from Christian architectural constructions.

An eave is the protruding edge of a roof that extends from the exterior wall to shield it from rain, offer shelter, and channel water away from the house. The eave may serve as a decorative feature or contribute to the architectural style. The eaves of Jani Khan's mausoleum are constructed on the northern face, serving as a protective barrier to channel water away from the structure.

Figure 22 Damaged EAVE

Cornice: It is a protrusion of the roofline frequently adorned with beadings or ornamental features. It is a strip-shaped structure featuring moldings, occasionally positioned beneath the eaves of buildings. Jani Khan's Tomb is adorned with striped patchwork embellishments.

Qalib Qari: This artwork is crafted from plaster and is utilized in the Jani Khan Tomb to enhance the aesthetic appeal of the structure. Fresco work is also integrated with qalibqari.

Figure 23 qalib qari(highlighted) at the soffit of entrance arched way

Figure 24 qalib qari with fresco art

Figure 25 Closer view of qalibqari

Squinches are architectural elements that reinforce and occupy the upper angles of a four-sided chamber, providing

a suitable foundation for a square building. This structure accommodates the octagonal or spherical dome situated atop the building. At Jani Khan's Tomb, these squinches sustain the vaulted dome and reinforce the entire structure.

Figure 26 Squinches

Surveys of the site and a comprehensive analysis of Jani Khan's tomb indicate that the tomb's construction is constructed from burned bricks set in kankar lime mortar. The walls are completed with lime plaster including Ghalib kari and floral frescoes. The dome's façade had blue and yellow porcelain tile embellishments.

Fired bricks as construction material: "Burnt bricks were produced by the Babylonians in the fourth millennium BCE, while in Pakistan, they became prevalent in the third millennium BCE." Islamic architects utilized baked bricks in the early centuries and continued to do so for an extended period thereafter. They acquired the varieties of bricks utilized in the Roman and Sasanian civilizations.

Pakistan features several structures constructed from burned bricks. During the Mughal era, bricks were utilized as a primary building material, and this craft proliferated alongside lime mortar, as evidenced by several structures in Lahore, such as the Lahore Fort.

Kankar and Lime Plaster as Finishing Materials: Lime mortar was conventionally employed in the joints of bricks or stones in masonry construction. Burnt bricks have been set in lime mortar within Jani Khan's tomb. For conservation or restoration, we should focus extensive research of binding materials alongside construction materials, since they are vital and play a crucial part in a structure's functionality. Various specialists have proposed diverse formulations of lime plaster and lime mortar for the preservation of historic structures.

For conservation efforts, mortars must be formulated with identical proportions of aggregates, binders, and additives as the original mortar; a comprehensive understanding of the unique properties of materials and their interactions with one another and the environment is essential for successful implementation in conservation activities.

Ghalib's Literary Contributions: Ghalib kari is a renowned artistic genre established by Islamic artists. The term "stalactite" originates from Greek, denoting calcium carbonate formations that resemble icicles suspended from the ceiling or edges of a cave, both in structure and appearance. This phenomenon is occasionally referred to as "beehive" work due to its resemblance to the pendent downward formations in cave roofs or ceilings caused by the buildup of calcium carbonate.

Fragments of ghalibkari art are visible within the arches and dome of Jani Khan's mausoleum; however, extensive plaster deterioration has rendered only remnants observable at now.

Figure 27 cleaning the dust

The tomb has been partially ruined owing to climatic circumstances. The materials utilized in the construction exhibited significant deterioration in durability. Structures are often susceptible to weather variations; winter and the rainy season lead to water accumulation that impacts the tomb.

The precipitation has impacted the construction of the tomb. The hue of the external fresco has diminished. Furthermore, the foundational level of the tomb has been partially destroyed owing to inadequate upkeep and lack of repairs. The aesthetics and artistry were also impacted. This may result in the bricks and stones deteriorating and crumbling.

Figure 28 Damaged Fresco

The groundwater level has compromised the foundations, necessitating an inspection of the base layer of the structure to implement suitable steps to avert additional damage. The dusty climate has caused deterioration to the stonework and frescoes of the tomb. Documenting the fresco work proved to be quite challenging. It was essential to cleanse the frescoes using a damp towel to achieve a clearer impression. The coating of dust caused the water's sheen to persist for a few seconds.

4.1 Fauna

During the site cleanup for accurate documentation, animal bones and garbage were discovered at the tomb. Canines were discovered within the structure, resulting in damage to the tomb's flooring. Stains were discovered on the floor that were exceedingly difficult to remove.

Avifauna Bats inhabited the tomb, roosting inside the interstices of the ceiling's cracks and ornamental decorations.

The insects within the tomb were perforating the walls and were ubiquitous, resulting significant damage to the structure.
The tomb was obscured by vegetation. A toppled tree rested against the structure, entangled with electrical lines. The tree branches were fractured and suspended within the tomb via the intentional gaps in the ceiling.
Fungi Fungal proliferation was seen on the outside of the tomb and adjacent sidewalks. It was detracting from the building's overall aesthetic appeal.

4.2 Modification
Following the reconstruction of the roadways adjacent to the tomb, the elevation of the tomb diminished. The reduced elevation of the interior flooring results in rainfall flooding. Additionally, problems with the drainage and sewage systems emerge.

4.3 Air Pollution
The dust and pollutants have severely damaged the stonework and frescoes within the tomb.

4.4 Vandalism
The tomb has been willfully destroyed owing to inadequate upkeep and the negligence of the appropriate archaeological authorities. Individuals have arrived, dislocated, and removed the stone patches. The unfinished fresco clearly shows signs of deterioration caused by individuals.

4.5 Travel and Recreation
Individuals seeking pleasure and the experience of historic sites have caused harm to this public property. The stonework has been observed to be damaged, and it is apparent that visitors to the site may be responsible, either inadvertently or intentionally.

4.6 Omission
During the site tour, it was noted that the area has been neglected, with little attention to cleaning and preservation of the tomb.

4.7 Discussion & Analysis
The research and analysis revealed the following key findings regarding the current state and conservation needs of the Jani Khan Tomb:

- Structural Deterioration: The tomb's structure has suffered significant damage over the years due to neglect, environmental factors, and human intervention. The dome, walls, and foundations show signs of cracking, erosion, and instability, posing a risk of collapse (Abbasi & Jabeen, 2021).
- Inappropriate Interventions: Previous attempts at "restoration" have often involved the use of inappropriate materials and techniques, such as modern cement plasters, which have further exacerbated the damage to the original fabric (Abbasi & Jabeen, 2021).
- Lack of Maintenance: The tomb has been largely abandoned, with no regular maintenance or conservation efforts. This has led to the growth of vegetation, accumulation of debris, and accelerated deterioration of the structure.
- To address these issues, the conservation plan proposes the following key measures:
- Structural Stabilization: Comprehensive repairs and strengthening of the tomb's structure, including the dome, walls, and foundations, using traditional materials and techniques to restore structural integrity.
- Restoration of Original Architectural Features: Removal of inappropriate modern additions and reinstatement of the tomb's original architectural elements, such as the glazed tile work, based on historical documentation and on-site investigation.
- Comprehensive Maintenance Plan: Establishment of a regular maintenance regime, including periodic inspections, cleaning, and minor repairs, to prevent further deterioration and ensure the long-term preservation of the Jani Khan Tomb.
- Comprehensive architectural documentation is essential to facilitate ongoing study and conservation initiatives, guaranteeing that all facets of the tomb's historical and architectural significance are accurately

documented and preserved for posterity.

5. Conclusion

Architecture operates as a dynamic organism, continually influenced by its surroundings and the flow of time. Similar to human life, which progresses through phases of birth, development, maturity, and aging, structures experience analogous transitions, shaped by both natural and anthropogenic influences. Architecture, much to a living thing, reacts to external stimuli, adjusting to alterations while preserving its fundamental identity. Jani Khan's Tomb has withstood the test of time for almost a century; nonetheless, its architectural and historical integrity has been undermined by inappropriate alterations. The poorly conceived alterations and insufficient upkeep have compromised both the physical integrity and the intangible significance of the monument. Disregarding the building's requirements has intensified its decay, like to a machine that, without routine maintenance, becomes ineffective and ultimately fails.

The tomb's present condition illustrates the repercussions of prolonged façade alterations and inappropriate use, which have significantly compromised the structure's integrity. Jani Khan's Tomb, a significant historical edifice from the Mughal period, warrants appropriate restoration and preservation efforts. The need to protect cultural monuments rests not just with the government but also with professionals—architects, historians, and conservationists—who must engage in preservation and restoration efforts.

An analysis of the tomb indicates that substantial structural repairs are necessary, exceeding mere surface restoration. A transition from sporadic repair initiatives to a framework of consistent maintenance is essential. The present degraded state underscores the absence of a management strategy from the Archaeology Department, rendering the structure susceptible to environmental harm, neglect, and potential vandalism. Furthermore, the surrounding population has traditionally been marginalized from preservation initiatives, leading to a deficiency of ownership and connection to the monument. Community engagement is essential for effectively managing persistent concerns like encroachment and vandalism. Conservation is an ongoing activity, even for recently erected structures. Consistent upkeep is crucial to avert future deterioration, and Jani Khan's Tomb should be emphasized to guarantee its preservation.

To ensure the tomb's future, it is imperative to establish a thorough conservation strategy that actively engages the local community, cultivating a feeling of duty and stewardship. This method is essential for the site's long-term preservation. Moreover, comprehensive architectural documentation is essential to facilitate ongoing study and conservation initiatives, guaranteeing that all facets of the tomb's historical and architectural significance are accurately documented and preserved for posterity.

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