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A Journey from Conception to Conservation: A Case Study of the Tomb of Nur Jahan at Shahdara, Lahore

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Abstract

Built heritage is very important for any nation. The objective manifestation of human mind is evident in the built monuments and historic sites. The tomb of Nur Jahan is one such monument which is reminiscent of the glorious reign of the Mughal Empire. It has its own importance because it is located in the Garden Complex of Shahdara, which has remained an important gateway to Lahore since the Mughal period. The tomb has remained a neglected monument in the Garden Complex of Shahdara due to various reasons. The objective of this study is to document the monument in addition to identifying its similarities with the other tombs of the complex, reasons of its decay, and the conservation work done. The tomb has lost its gardens, architectural elements, and landscape features. It has also sustained many damages and undergone repair with the passage of time. Previous studies showed that there have been multiple causes of decay, among which flood is a major one. Although, recent conservation has saved the monument from further deterioration. Thus, a thorough conservation and restoration strategy for this neglected piece of history would be developed using documented data and visually analysed historical asset, highlighting the asset's significance within the Shahdara Garden Complex.

Keywords: conservation, decay, garden complex, Nur Jahan, tomb

Introduction

Human achievements throughout the course of history in terms of built heritage are preserved as a part of cultural legacy, resulting in material evidence and landmarks strewn all over the planet. Such artefacts also serve as the symbolic representation of the processes and forces that gave rise to modern societies, as well as a testimony of their historical development.

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Cultural heritage is a live source of identity that provides us with a sense of stability in an ever-changing environment. It is currently jeopardized due to technological breakthroughs and worldwide population expansion. On a global scale, unregulated development, industrial pollution, increased tourism, and destructive warfare practices have had disastrous consequences for cultural heritage. All of these causes have hastened the deterioration of historical artefacts at an alarming rate.

The value of cultural heritage stems from the fact that it is irreplaceable. The 11th goal of United Nations' Sustainable Development Goals (SDGs) emphasizes the protection and conservation of the world's cultural heritage to make cities resilient and secure (Mundher et al., 2022). It must be properly preserved, maintained, and managed so that future generations can benefit from it as a concrete memory of the past.

Unfortunately, the government and the people of Pakistan have not given heritage conservation the attention it deserves. It is no surprise that a standard model for historic sites conservation and protection against environmental concerns has yet to be devised. Heritage protection is not a priority in the country's national agenda, which is disappointing. Any efforts in this area have been modest and made separately from the broader development schemes. Heritage preservation has been viewed often as a cost-prohibitive effort for developing countries, such as Pakistan. This mindset has reduced the concept of conservation to a bare minimum, with particular sites being maintained solely to serve as tourist attractions. Similarly, there has been minimal effort to raise public understanding of the responsibilities and care needed for maintaining the built environment (Gulzar, 2012).

Shahdara Tombs Complex

Mughal emperor Baber founded a huge empire in 1526, stretching across the Indian subcontinent. The Mughal empire and its achievements in promoting the Indo-Islamic civilisation across the subcontinent are seen as a treasure, comparable to the achievements of the Abbasids in Baghdad, the Umayyads in Al-Andalus, and the Ottomans in Turkey. Mughal architecture was built to blend in with both the environment and the natural beauty of the area, as well as the culture of the local countryside.

Lahore was an important centre and a major capital of the Mughal empire. It was the country's second capital and remained so for about 185

years (two centuries). It was the administrative centre of the Mughal kings from where they could easily keep a close eye on Kabul, where Uzbeks posed a regular menace to their empire. From Baber, the first Mughal king, to Shah Jahan, each ruler contributed towards designing architecture in the Indian subcontinent with stunning architectural expressions and magnificent gardens. An architectural design, synonymous with Islamic philosophy, art, and culture, has since dominated the subcontinental architecture and has had long-lasting influence on its history (Hanif & Bukhari, 2020).

Shahdara, historically and geographically, emerged as a strategically fundamental area on the right bank of the river Ravi. The meaning of the word 'Shahdara' is 'a king's gateway'. Henceforth, for a long time in history (Mughal period), it served as the western gateway to the original walled city of Lahore (Wescoat, 2016). Lahore's geographical location is very important as it lies on the historical trade route that connects the Indian subcontinent with Central Asia. Its strategic location has played a very important role in its history and is one of the reasons of the invasions that took place in different time periods (Gulzar, 2012). Mughal period lasted for approximately three centuries, that is, from 1526-1857 AD. It was a glorious period in which Shahdara was carefully planned and developed and adorned with beautifully designed mosques, forts, gardens, and tombs. Indeed, Mughals made significant contributions to this area (Ruggles, 2008). Hence, the influence of Mughals on Shahdara is as strong as it is on Lahore. Shahdara was converted into a complex of beautiful gardens and tombs during 1527-1645 AD. The complex of tombs at Shahdara hosts typical Mughal buildings with elaborate decoration that reflects their glorious past (Koch, 1991). The tombs in the complex are as follows:

1. Tomb of Emperor Jahangir
2. Tomb of Asif Khan
3. Tomb of Nur Jahan

The tomb of Nur Jahan, among other tombs of the complex, has been neglected mostly and it is also the one which is the least documented. So, the objective of the current study is to document the tomb of Nur Jahan, since its conception as an idea by the empress Nur Jahan herself till its current restoration work executed by the Department of Archaeology. So, the objectives of the current study are as follows:

1. To document the historical significance of the tomb and its relevance with the other tombs of the complex.
2. To identify the causes of its decay.
3. To critically analyse the restorative works.

Materials and Method

Secondary sources like books, research papers, and reports were combed through to compile this library's evaluation of the literature on the ancient mausoleum of Nur Jahan. Then, important conclusions were drawn through critical and historical analysis. Visual surveys, site surveys, and literature references were all examined using analytical approaches. The architectural composition along the horizontal and vertical axes was analysed through site examination. The origin of the monument was also traced from the historic literature available. The collected data, in addition to analytical studies, was documented through a descriptive analysis.

Results and Discussion

History of Shahdara Tombs Complex

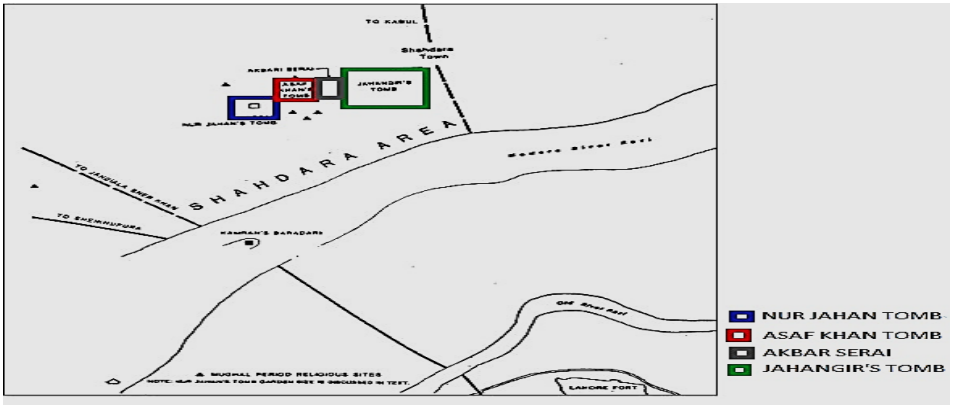
Lahore was made the Mughal empire's capital during the reign of the emperor Akbar. His son, Jahangir and daughter-in-law, Nur Jahan were responsible for adding numerous beautiful buildings and gardens to the city. 'Dilkusha Bagh' or the 'Garden of Contentment' is one of the gardens constructed in Shahdara when it served as a complex of royal gardens (Dalrymple, 2008; Qureshi, 1998). In 1627, Jahangir's mausoleum was built in the compound by his wife and son Shahjahan. Asif Khan was Nur Jahan's younger brother and a powerful commander under Jahangir. His tomb was added to the west of Jahangir's tomb after his death in 1641. In 1645, Nur Jahan died and her tomb was also added to the complex, adjoining the tomb of her brother. In this way, the garden complex was converted into a tomb complex (Fig 1).

Significance of Shahdara Complex

Shahdara (King's Gateway) is located on the Ravi river's right bank, straight across from Lahore. It is accessible from the north by the well-known Grand Trunk (GT) road, which acts as the city's main entrance. Shahdara became the centre of the Mughal empire, following Baber's conquest of India in 1526.

Figure 1

Map of Shahdara Tombs Complex (Abbasi & Jabeen, 2021)



During the early period of the Mughal empire, Shahdara became a resting spot for the north-bound Mughal camps after crossing the Ravi river and the hunting grounds of Sheikhupura. This place was chosen by Nur Jahan as the appropriate location for the construction of Bagh-e-Dilkusha, a magnificent garden. During the period 1527-1645 AD, Shahdara was converted from a pleasure garden to a royal cemetery, resulting in total change in land use and character. In this location were built the imperial graves of the Mughal emperor Jahangir (d. 1627 A.D.), his brother-in-law Asif Khan (d. 1642 A.D.), and his wife Nur Jahan (d. 1645 A.D.). When it comes to spatial morphology, the tombs complex at Shahdara is unlike any other. The tomb buildings negotiate with one another, sharing a common environment that represents a continuous era, akin to the Egypt's Valley of Kings (Fig 2) (Rehmani, 1976; Nath, 1985; Musgrove, 1987; Mumtaz, 1992; Gulzar, 2012).

With all of its innovative intricacy, exquisite surface renderings, and unique building processes, Shahdara Tombs Complex is a masterpiece of Mughal architecture. The ornately decorated graves in the complex are also a reflection of the area's distinguished past, which must be preserved, safeguarded, and passed down to the future generations. The Shahdara Tombs Complex is significant because it contains the largest collection of surviving monuments, since the pleasure gardens' transformation into a burial complex. It has a tumultuous past, having witnessed the majestic drama of the rise and fall of the Mughal, Sikh, and British empires.

Figure 2

Location of the Heritage Site (Shahdara Tombs Complex; Gulzar, 2012)

It does not only retain the Mughal kings' collection of ornately carved historic structures but also comprises a masterwork of aesthetically pleasing (hard and soft) landscape planning that evolved into a funerary landscape. Along with the monumental Serai structures, the complex consists of three primary colossal tomb constructions positioned at the centre of the independent and planted courtyards. The tombs of Jahangir and Asif Khan are linked through the Akbari Serai's main entrance courtyard. Whereas, Nur Jahan's tomb, which is located axially at a short distance, is currently unoccupied. The complex, which is somewhat similar to the Valley of Kings in Egypt, has four major monumental buildings and many subsidiary ancient monuments. These monuments, exquisitely landscaped with natural characteristics, were built during the various periods of the Mughal empire.

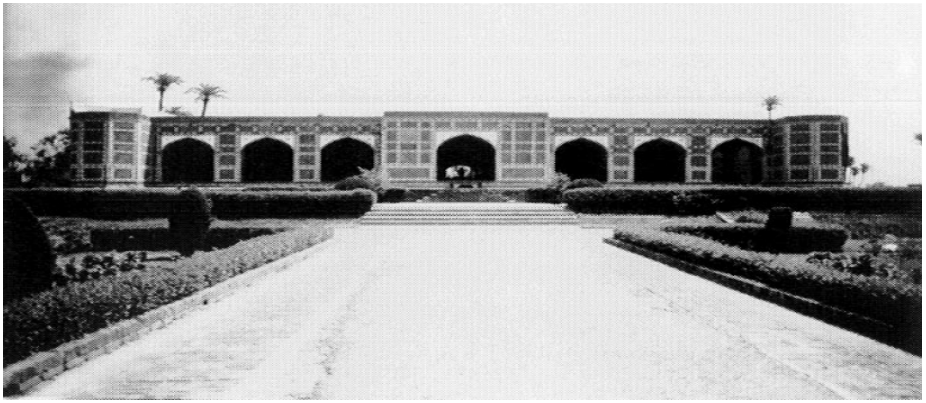
The first mausoleum was built in Bagh-e-Dilkusha by the emperor Jahangir, who died in Kashmir in 1627. On Shah Jahan's direction, his mausoleum was built to the west of Jahangir's forecourt (Havell, 1913; Hoag, 1977; Koch, 1996). To the west of these monuments, Nur Jahan built her own mausoleum. She was laid to rest there in 1645 AD. When the British built a railway line through the complex in the late 1800s, they shut the tomb garden off from the rest of the complex. This action resulted in the tomb's utter neglect (Gulzar, 2012).

Tomb of Nur Jahan

The garden that contains the tomb of Jahangir was under the ownership of Nur Jahan. It became a public garden only after the construction of Jahangir's tomb. There were other gardens under her ownership at the same site. The tomb of Nur Jahan was constructed in one of the gardens near Jahangir's tomb (Fig 3). Nur Jahan spent the remaining years of her life in isolation after the death of Jahangir. She doubted if the emperor Shahjahan would provide a grand tomb build on a notable site for her. For this reason, she decided to do it by herself. The construction of her tomb started after the demise of Asif Khan and was near completion when the empress herself died in 1647 AD (Findly, 1993).

Figure 3

General View of the Tomb of Nur Mahal (Findly, 1993)



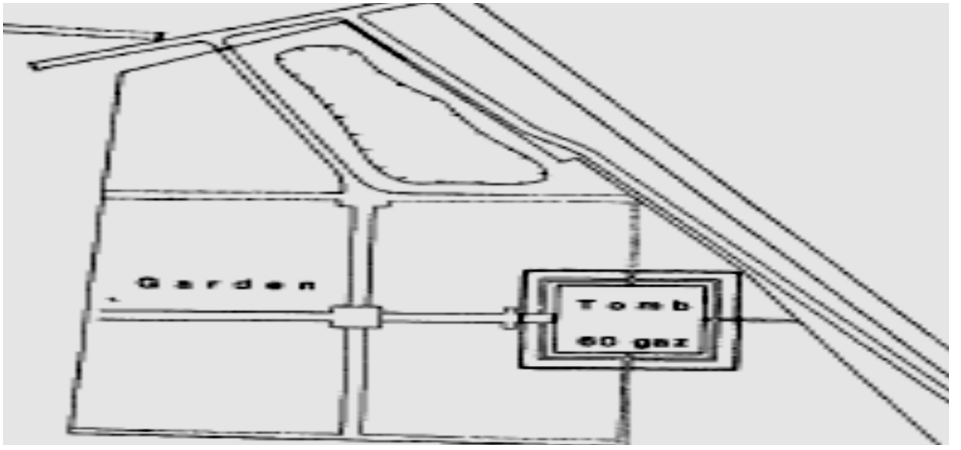
Nur Jahan's mausoleum is possibly the most neglected and forlorn site in the Shahdara Tombs Complex and serves as a metaphor for how we regard our built heritage in general. The mausoleum is situated in the centre of a desolate and unappealing landscape.

A square plinth supports the tomb with a walled area having Chahar Bagh type planning. None of the primitive gardens survive today. The gardens were said to have the flowers of tulips, roses, jasmine, and cypress planted along brick pathways (Findly, 1993). Nur Jahan's tomb is the most intricate and modified among the three tombs of the Shahdara Tombs Complex. Its exterior features and decoration show a striking resemblance

with the tomb of Jahangir. A railway line runs diagonally through it and is responsible to break its relationship with Asif Khan's tomb (Fig 4).

Figure 4

Plan of Nur Mahal's Tomb Showing Gardens and the Diagonal Railway Line in the East (Wescoat, 2016)



Nur Jahan's mausoleum is built in a Chahar Bagh style akin to Asif Khan's tomb in the east, following the form of the other buildings in the complex. After the Sikh attack, a railway line built by the British cut it off from the rest of the compound, reducing its splendour. Later, in 1911, the Archaeological Survey of India built a smaller garden around the tomb, measuring 243.84 m (300 Gaz) (Hambly, 1977; Hoag, 1977; Gulzar, 2012). This single-story tomb is built on a square podium with four major arches and eight oval apertures in the centre, with three rows of arches on both sides. Each of the symmetrical elevations has a central arch as its focal point. The structure's original embellishments are unfortunately missing. Originally, the whole elevation was adorned with a marble inlay work in stunning geometric patterns. The mausoleum was surrounded by a network of pavements built using burnt brick and black slate in geometric designs. Around the tomb, a new wall about 0.914402 m (3 feet) high, has been built. This wall has harmed its character.

Similarities between Nur Jahan's Tomb with Other Tombs

The tomb of Nur Jahan has been modified yet the whole complex lacks the original sidewalks. It remains a mystery if the tomb had four minarets around it or not. None of the original garden survives. Later, a garden of the

size 243.48 meter square (300 gaz) was added by the Archaeological Survey of India in 1911.

Figure 5

Map of the Complex Showing Similarity of Proportions of the Gardens and their Layout

Firstly, the overall layout of the whole complex shows similar features, such as square gardens around each tomb. Secondly, each tomb is designed on the same principle, that is, a single-story rectangle supporting a flat roof structure with octagonal towers attached to each corner. The sides of the tombs have arches in them. Jahangir's tomb has eleven and Nur Jahan's tomb has eight arches in the exterior wall. Another important point is that the platform of Nur Jahan's tomb is of the same size as of her brother's, that is, 60 x 60 gaz. However, the overall size of Nur Jahan's tomb is one quarter of Jahangir's tomb, that is, 50 X 50 gaz (Wescoat, 1993).

Interior of the Tomb

There is a central square room with a platform in its centre. The cenotaphs of Nur Jahan and her daughter Ladli Begum have been constructed on the central platform (Fig 6). This central room is attached with three arched outer galleries. The arches of the galleries along with this room provide an extensive amount of natural light to the interior (Findly, 1993).

Figure 6

Interior of Nur Jahan's Tomb Showing Cenotaphs of Nur Jahan and Ladli Begum (Findly, 1993)

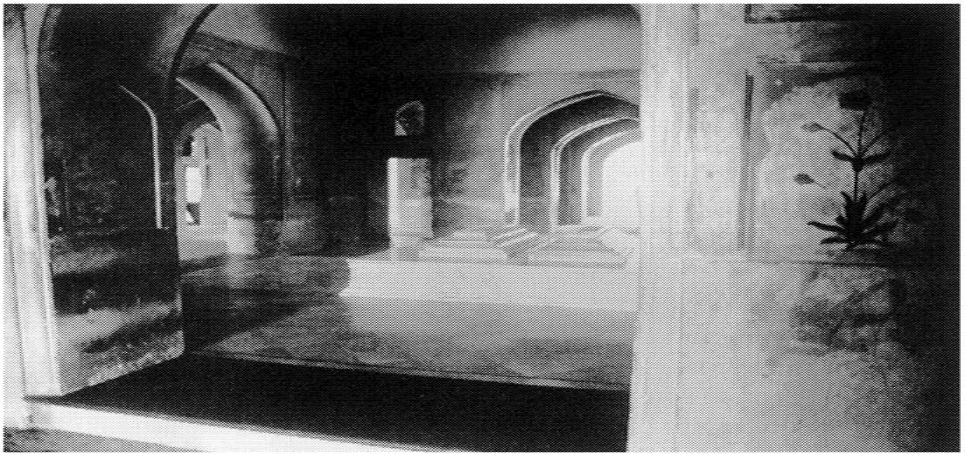


Figure 7

Interior of Nur Jahan's Tomb

Source: https://charismaticplanet.com/tomb-of-nur-jahan-shahdara-district/

Causes of Decay

Decay Due to the Geographical Location of the Tomb

Solar radiation, temperature, humidity, rain, wind speed, floods, and earthquakes are some of the natural and most influential elements that causes deterioration

Flooding

The tomb is situated about ½ km from the Ravi River. It has been flooded many times according to the records, such as in 1947, 1954, 1955, 1957, 1958, 1959, 1962, 1966, 1973, 1976, and 1988. Flood waters filled the garden of the tomb in 1988 and stood for 5 days at a depth of 10 feet. Consequently, major damage was observed at the south eastern corner of the tomb where walls and garden were washed away.

Thermal Variation

Lahore has a hot climate, with temperatures ranging from 48°C in the summer to 0°C in the winter. Buildings experience thermal expansion as a result of the dramatic climate change, although different materials experience varied expansion and contraction rates as a result of the cracks that follow. Nur Jahan's tomb is a massive stone structure. Cracks have appeared in the top and lower sections of the structure as a result of both vertical and horizontal thermal activities.

Rain and Humidity

Lahore receives about 20 inches of rain each year on average. Rain affects the brickwork above ground and also causes rainwater infiltration by capillary action, resulting in the interior deterioration of the building structure. When rainwater vaporises, it leaves behind a mixture of soluble elements that might cause damage. Due to the non-stop chain of the wetting and drying cycles experienced by the monument, salt crystallisation affects the powdering of the surface, causing fissures in the material used for construction and resulting in contour scaling.

Acid Rain

Sandstone, limestone, marble, and other natural materials are commonly utilised for building tombs and other monuments. Acid rain corrodes most of these materials to some extent, hastening natural deterioration. Limestone and marble are dissolved by various acids. The sand particles that make up sandstone are held together in a regular pattern by calcium carbonate, which dissolves in acid. Acid rain forms as a result of air pollution from a neighbouring factory, changing white sandstone into marble yellow and causing coursed red sandstone to rot.

Air Pollution

Automobile exhaust emissions and industrial waste products are the primary sources of air pollution. The tomb lies near to Shahdara's huge industrial district and the GT Road. Due to air pollution, the surface of the stone has become roughened and pitted. Pollution has had a significant impact on the stone. Pollution affects lime mortar and lime plaster by converting calcium carbonate to calcium sulphate, which is water soluble. Since lime mortar has been leached away by acid rain, the structure has become weak. The surface of stone, particularly fresco work, has been distorted by suspended particulates, such as dust, gases, and soot.

Decay due to Human Activities

Human beings have the ability to create historical monuments and also to demolish them. Not only are these errors complicated, but they also have long-term repercussions. The demolitions are frequently sparked by the unintended consequences of industrialization, urban sprawl, and population growth.

Stubborn Damage

When the Mughal Empire fell apart, the Shahdara Tombs Complex also suffered neglect and damage. Invaders belonging to the Sikh faith looted it. It sustained severe damage when it was used as a residence for the Sikh Raja Ranjit Singh's French officer and then by Sultan M. Khan. Under British administration, the complex's garden suffered greatly when a railway line was built, cutting Nur Jahan's tomb off from the rest of the complex. During British administration, Akbari Serai was used as a railway depot, with work areas and rails erected across the middle of the garden (Qureshi, 1994).

Vibration

Heavy traffic, both on the road and on the railway, causes mechanical vibrations in the subsoil, damaging the historic structure. Vibrations can weaken the foundation and the superstructure by impacting the subsoil. The railway line, which runs approximately 400 metres from Jahangir's tomb, was built during the British empire. About a kilometre away from Jahangir's tomb is the highway. Both cause subsoil vibrations, which have resulted in structural fissures in the tomb structure.

Fig 7

Tomb of Nur Jahan in 1900

Restoration and Conservation Work

The tomb underwent minor repairs in the 1950s, 1960s, and 1980s. Although, the work done during the period 2010-2020 remains the first major restoration of the monument. It has been observed that restoration work is still not according to the standards but is better than the previous work.

Cement mortar, instead of lime mortar, was used to join the stone slabs. The properties of cement mortar are completely different from the original mortar of the monument. So, stone would come out as soon as the joint between the new mortar and the original mortar is weakened. Attention was focused on things which can be seen from the outside, such as white marble and red sand stone. The inside material was not restored based on the standards.

Figure 8

During Restoration Work in 2020 Ordinary Portland Cement was Used

In the previous restoration work, R.C.C. slabs were used instead of red sandstone due to a lack of the latter's availability. Steel bars in slabs with coarse aggregates the thermal expansion rate of steel is higher than concrete. So, as a result of adding steel, minor cracks appeared on the exterior because exterior surfaces are always exposed to the sun.

Perfection lacks in the Kashi Kari work. Smooth surface was achieved with the help of polish with machines. Decorative stones, injected in the red sandstone, were not of a high quality. Less skilled labour was used, so the quality of work is not very high. Coloured powder was used to fill the empty area.

Fig 9

Showing Kashi Kari Work, Stone Inlay Work During Restoration Done in 2018-2020

Cement casted parapet was used on the roof of the building instead of marble crafted slabs. The slabs were not of an equal length, so it does not give a pleasant look.

Figure 10

Broken (Jali) is Visible in the Casted Slabs

Comparison Chart

Chart 1

Comparison between the three tombs in the Shahdara Tombs Complex, that is, Jahangir's tomb, Nur Jahan's tomb, and Asif Khan's tomb in their historic background.

Sr No	Activity	Jahangir's tomb	Nur Jahan's tomb	Asif Khan's tomb
1	Date of construction	1627-1637 CE	1641 -1645 CE	1645 CE
2	Built by	Nur Jahan and Shahjahan	Nur Jahan during her lifetime	Nur Jahan
3	Cost	Ten lakhs	Three lakhs	Not confirmed
4	Minarets	4	No clear evidence	No
5	Domes	No	No	Yes (damaged by Sikhs)
6	Material used	Brick, marble, red sandstone	Brick, marble, red sandstone	Brick, marble, red sandstone
7	Major deterioration	1. Floods 2. Sikh rule (19th century)	1. Floods 2. Sikh rule (19th century), 3. British rule (20th century)	1. Flood 2. Sikh rule (19th century)
8	Conservation work	Major restoration work done in 1990 and 2004.	Major restoration work done in 2018-2020	Major restoration work done in 1924–25, 1930–34, 1986–87, 2020

Conclusion

The current analytical study of Nur Jahan's tomb clearly reflects the negligence both on part of the government and the society. The lack of a

historical account about this particular tomb has also masked its historical significance. It depreciates its original value as one of the most valuable heritage assets of Pakistan. The intentional deterioration under the Sikh and British rule further shattered its historical entity. A country like Pakistan facing a perpetual economic crisis does not afford to conduct the much needed conservation and restoration work. This fact further contributes in the devastation of Nur Jahan's tomb. The current study also highlights the damages due to natural and man-made causes including floods, mechanical vibrations, climate change, and rapid urbanization. This research further highlights that a proper conservation and restoration framework can stop the ongoing deterioration.

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