

# City of Gardens from a Lost to Retrieve Paradise. Conservation and Preservation Analysis within Shalimar Gardens Lahore Pakistan.

Rabia Khaskheli, Weiping Zhang

**Abstract:** The Gardens built in Lahore present the zenith of local and central Asian custom bringing about a most impressive autonomous style. Many of these Gardens are confronting heaps of issues caused by human disregard, ecological debasement, urbanization advancement, and various factors, such as maturing and characteristic rot. The International preservation rehearses have been contemplated and the selected Mughal gardens are analyzed. Surveys, interviews with authority and investigation of past preservation work enabled the study to conclude the aspects affecting the protection of these gardens. The paper aims to discuss the restoration and safeguarding work of Shalimar Gardens which brought this magnificent landmark out from the "UNESCO- List of World Heritage in danger" by April Year 2020. The research brush-aside previous concerns of researchers against Shalimar gardens and research are useful for the specialists to re-evaluate conservation practice and actualize these more properly.

**Keywords:** Heritage, Mughal Architecture, Shalimar Gardens, Lahore, Conservation and Preservation.

**Introduction:** This part of the research starts with a series of photos indicating the rich legacy of Mughal gardens built at imperial and sub-imperial scale. Though the fundamental ideas in these gardens remained same as before, huge advancements reacted to the local cultural, environmental context and topographical in which they were built. In writing survey, fundamental thought regarding the Mughal gardens in the Lahore city is evaluated. The primary genuine chronicled investigation of Mughal gardens was made by Constance Mary Fielden was a keen lady and a decent essayist who wedded Lt. Col. Patrick Villiers-Stuart in London in 1908 and went with him to India, after impressive exploration and stretched out visits to the gardens, in 1913 she delivered the main genuine book in English with the title of "Gardens of the Great Mughals".

- Author Rabia Khaskheli is currently pursuing master's degree program in Landscape Architecture in Xian University of Architecture and Technology, China. Faculty Member at SABS University of Art, Design and Heritages, Jamshoro Sindh, Pakistan. Former Lecturer at CEAD, MUET, Jamshoro. Sindh, Pakistan. PH-00923312796661. E-mail: [rabia@xauat.edu.cn](mailto:rabia@xauat.edu.cn)
- Corresponding-Author Weiping Zhang is Associate professor, vice director of environmental design and Dean Assistant of School of Arts, XAUAT, China. PH-00862982205431. E-mail: [358537956@qq.com](mailto:358537956@qq.com)

She looked for master exhortation from Indian researchers just as British authorities, including the chief general of prehistoric studies of the Archaeological Survey of India, and she approached the India Office Library. She turned into a recognized master on Indian garden traditions, and throughout doing research so found out much about the complex culture [1]. The root of Mughal gardens can be traced to Central Asia, while the climax was reached in India over a significant period of time. The projects of gardens were initially commissioned in the Mughal emperors, elites and noble's era. Before eighteenth century's over, gardens had been inherent suburbia of every significant city and small communities all through Central Asia mid Mughal India. Saifur Rehman Dar convincingly shows that Mughal gardens in the Punjab have ancient roots and modern manifestations. There are five geographical sources of motivation for Shalimar Gardens:[2]

- I. Central Asia
- II. Kashmir
- III. Western Punjab
- IV. Persia
- V. Delhi Sultanate

Other Mughal capitals in subcontinent at Agra, Delhi and Fatehpur Sikri were graced with gardens but they didn't have similar impact on

the identity of those cities. Agra is most popular for individual landmarks such as the Taj Mahal and Agra Fort; Fatehpur Sikri for its stately royal residence complex; and Delhi for the well-planned city of Shahjahan Abad. Each had gardens, however just Lahore got the title of "City of Gardens"[3].

**Research Objective:** This research aims to inspect, discuss, and analyze the aspects of the conservation and preservation processes adopted for Mughal monuments, understanding the worth of these significant structures. The primary objective is to highlight the landscape of the monumental garden of the Mughal dynasty and their preserve work with their original features, without compromising their authenticity.

**Methodology:** Qualitative research was carried out with key informants. Qualitative in-depth interviews were conducted with concerned officials. This type of interview gives a clear picture of conversations and preservation work at Shalimar Garden. Images were taken to capture views of the specific area of study. Information available online was gathered and a literature review was conducted through reading articles, journals, books and professional reviews related to research. Detailed Study of presentation and reports, which were prepared by professionals involved in various developmental projects, was done. Monuments were thoroughly surveyed and analysis was done. Presentations and reports were obtained from Department of Archaeology Punjab.



Figure 1: Map of Shahdara Lahore



Figure 2: Prince Mirza Kamran's Gardens



Figure 3: Shahdara Gardens ariel view "Jahangir's tomb"



Figure 4: Bagh-i Dilkusha (Queen Nur Jahan's Gardens at Shahdara)



Figure 5: Charbagh around Asif Khan's tomb



Figure 6: Gardens of Akbar serai at Shahdara  
Source: (Author)



Figure 7: Shalimar Gardens



Figure 8: Hazuri Bagh Lahore Fort



Figure 9: Gardens at Jahangir's Quadrangle Lahore Fort



Figure 10: Gardens at Shah Jahan Quadrangle Lahore Fort

At Shahdara, located northwest of the city along the Kabul and Kashmir route, the Bagh-i Mirza Kamran, Bagh-i Dilkusha (construct by Queen Nur Jahan and where the tomb of Jahangir was later built), the garden quadrangle of Asaf Khan, Akbari Serai (the present forecourt to the tomb of Jahangir), and the probable garden around the tomb of Nur Jahan, Shalimar garden (world heritage) still survive today in relatively good condition even after the intrusions from numerous intruders in the sub-continent. At Lahore-Mutan road there is monument "Chauburji" literally means "Four Towers" and was built in 1646 C.E. is Mughal time period landmark in the garden city of Lahore, capital of the Pakistani province of Punjab. Monument before Shah Jahan's period previously acted as a gateway to a large garden.



Figure 11: Agriculture on Chauburji Gardens by 1950s  
(Source: Archaeology Punjab)

The gardens where Chauburji acted as a gateway between Lahore and Multan doesn't exist anymore, and the structure is currently situated in a lavish grassy traffic circle at the bustling convergence of Lahore's Multan Road, and Bahawalpur Road. The Mughal gardens is accepted to have reached out from Nawankot in the south, and stretching out towards the Lahore. Flooding from the river Ravi is accepted have wrecked the greater part of the gardens during the rule of Emperor Aurangzeb. No hints of the once far expensive gardens endure beside the Chauburji gate [4]. The Chauburji monument is located along the route of train project of Lahore. Heritage campaigners presented a request to the Lahore High Court as the arranged metro line will pass very close to Chauburji, Shalimar Gardens, and nine different destinations in the city disregarding the Punjab Special Premises Ordinance, 1985 and Antiquity Act, 1975. The supreme court of Pakistan in august 2016 stopped development of the metro within 200 feet of any monument site, including Chauburji gateway for request to forestall what UNESCO named as possibly "irreversible harm" were the train line project to be built in its current structure. The Chauburji train station was initially intended to be underground, however it was changed to an elevated station to conform to the UNESCO guidelines.



**Figure 12:** Netting/Sheeting and Bracing During Orange Line Metro Train (OLMT) project



**Figure 13:** Monument after completion of OLMT project(Source:Author)

Garden's connection with Dai Anga, local tourist guide Muhammed Saeed clarified, "Dai Anga was the wet nurse of the Mughal Emperor Shah Jahan. Her spouse Murad Khan served in the court of Emperor Jahangir as Magistrate of Bikaner and her son Muhammad Rashid Khan, was perhaps the best bowman in the realm. After her death in 1671, Gulabi Bagh was transformed into the Tomb of Dai Anga ". The Department of Archaeology of Punjab government has left upon the protection and conservation of the seventeenth century Gulabi Bagh Gateway and Dai Anga's Tomb with a measure amount of Rs 7.5 million.



**Figure 14:** Before Conservation



Figure 15: During Restoration work at Gulabi Gate



Figure 16:View from Gate:Gulabi Bagh's restored condition 2020



Figure 17: View from Dai Anga Tomb:Gulabi Bagh's restored condition 2020  
Source: (Author)

As it was converted in 1671 into a burial chamber for Dai Anga with her catacomb possessing the

centre of the garden, after that this site couldn't have functioned as a garden for so long. Ceaselessly throughout the long period of time the garden was encroached upon via urbanization so the main outstanding portion of the garden is the limited yard running from Gulabi Bagh gate to Dai Anga's Mausoleum.



Figure 18: Urban Development around Gulabi Garden 2020

In all of these gardens the planting has changed extensively. Different gardens which are referenced in the sources on either bank of the river Ravi close to Shahdara are Naulakha Bagh, Badami Bagh, Bagh-I Dil Afruz (emperor Humyun or Akbar period), Bagh-I Andijan (emperor Akbar's period), Bagh-I Nizam ud Din Ahmad, and Bagh-I Mirza Moman Ishaq Baz (emperor Jahangir's Period)[5]. The hinterland on the east along the Grand Trunk Road turned into an extraordinary focus point of consideration for the development of gardens during the Mughal time frame. The main surviving structure of these gardens is a solitary story of the Kamran Baradari, the rest having been washed away when the river Ravi changed its course. But idea of creating delight gardens and gathering them discovered root. These delight gardens procured significance as digging in justification for the imperial escort on their movements to the external spans of their domain, where courts could be held and the king could spend "a several festive days there in the company of his seraglio and omerah (a high-ranking political advisors or ministers). During Mughal era, they changed the spatial and social development of Lahore. At the point when Shalimar Garden was implicit north-eastern Lahore, for instance, it diverted circulation and settlement designs in the whole eastern rural areas of the city [6]. In spite of the fact that gardens were built before and after the Mughal time but gardens of the seventeenth century had the most enduring engraving on the structure and identity of Lahore. They impacted resulting examples of gardens plan. The significance of Mughal gardens in Lahore is in this way mutually territorial and worldwide, chronicled

and spatial, otherworldly and political, cultural and natural, useful and aesthetic [7]. During the stable Mughal system (1526-1707) a great deal of gardens and other architectural structures were developed, but soon after the passing of King Aurangzeb in 1707, anarchy spread everywhere on the subcontinent in 8<sup>th</sup> century. Mughal gardens became camping grounds for the attacking militaries. Nadir Shah, a Persian trespasser, vanquished Delhi in 1739, remaining at Shalimar Garden on their way. Also, Ahmed Shah Durrani, general in Nadir Shah's military, attacked subcontinent commonly in eighteenth century. The garden endured a lot of annihilation during this period but more awful to come to pass for was happened when a war was battled in its region between the local ruler Muin-ul-Mulk and Ahmed Shah Durrani. Ganda Singh portrayed this demolition in his book [8]. The neighbouring of Lahore was at time brimming with lovely gardens and plantations, helping them the old greatness to remember the capital, but they were totally chopped down with the end goal of entrenchments.

**Conservation and Preservation work at Shalimar Garden:** A portion of the walkways of the upper most patios of the Gardens were either gravely decayed and missing because of steady weir and tier, climate condition and age. In the light of the suggestion of the technical experts, the preventive preservation of feeble parts of walkways and rebuilding of the missing walkways was needed to be done on first concern basis. The rehabilitation of missing walkways of upper terrace has been executed with original special brick block material tiles of size 8"x4"x1" laid with lime mortar in geometrical shape subsequent carrying out architectural and photographic documentation. Preventive Conservation of rotted walkways has additionally been finished with conventional materials according to original.

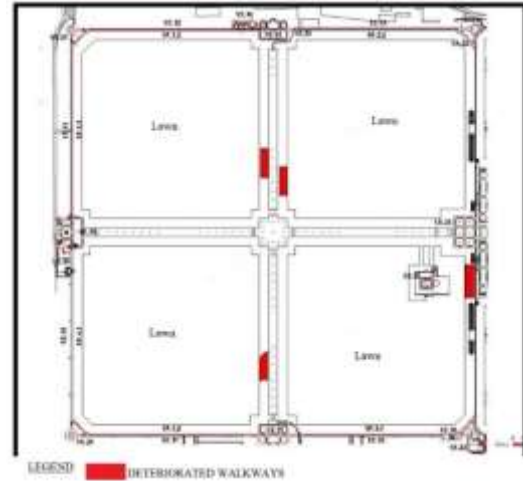


Figure 19: Plan showing deteriorated walkways at upper terrace

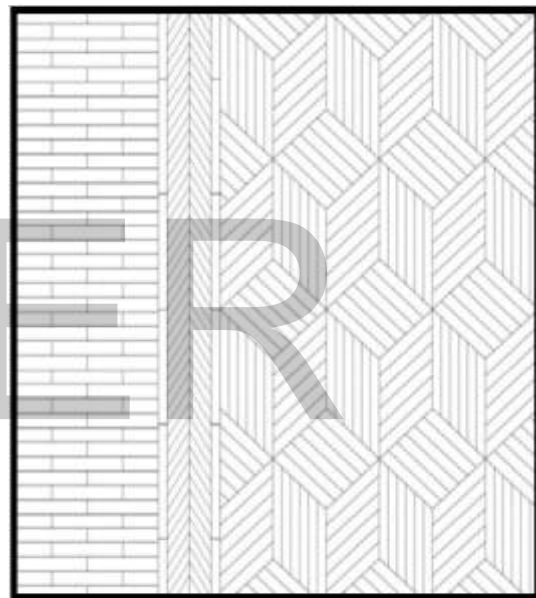


Figure 20: Floor Pattern



Figure 21: Floor Pattern used in walkways of upper terrace

Source: (Author)



**Figure 22:** Walkways towards Aiwan (Summer Pavilion) during conservation work



**Figure 23:** Walkways condition towards Aiwan after conservation work



**Figure 24:** Right side walkways towards Khuwabgah (Residence of Princess) During Conservation work



**Figure 25:** Right side walkways towards Khuwabgah (Residence of Princess) after conservation



**Figure 26:** Left side walkways towards Khuwabgah (Residence of Princess) during conservation work



**Figure 27:** Left side walkways towards Khuwabgah (Residence of Princess) after conservation work

### **Conservation and reclamation of Summer Pavilion:**

Summer Pavilion structure/Aiwan of Shalamar Gardens is situated at the intersection of the upper most and the central terrace which is a magnum opus of Mughal Architecture. The ceiling of this structure is adorned with sensitive little pieces of wood work organized in geometrical designs called "Terseem-bandi". A few pieces of the ceiling have been rotted with the progression of time and because of termite assault. The mortar and pucca qalai (glaze plaster) work of certain parts of parapet, walls and lime terracing have been severely crumbled and should be conserved. To re-establish the rotted pieces of Summer Pavilion, a conservation proposal was set up after detail documentation and work was begun in due course. Rotted lime mortar and pucca qalai on walls and parapet have been re-established according to original. Wooden Terseem-bandi according to original geometrical plans design got completed with painting has been done. Lime terracing has likewise been applied on the rooftop head of Summer Pavilion to shield it from water entrance.

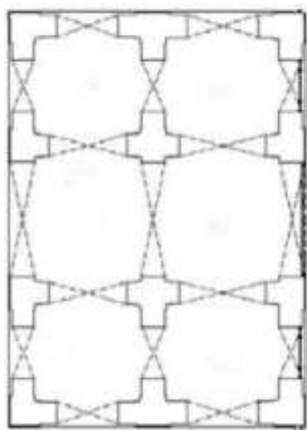


Figure 28: PLAN OF NORTH BARADARI

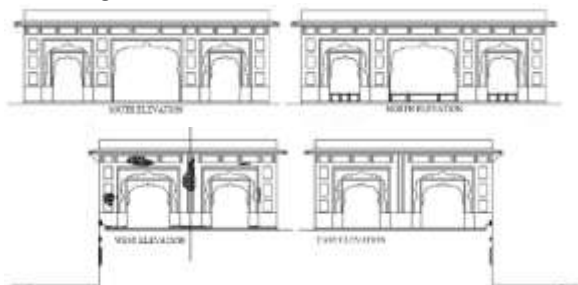


Figure 29: Plan and Elevations of Summer Pavilion



Figure 30: Glaze plaster work of certain parts of parapet wall before conservation



Figure 31: Glaze plaster work of certain parts of parapet wall after conservation  
(Source: Author)



Figure 32: Tarseem-Bandi During Conservation and Preservation of Summer Palace/Aiwan



Figure 33: Completion of Tarseem-Bandi of Ceiling at Aiwan



Figure 34: Final look after Polish the Tarseem-Bandi Work of Aiwan

Source: (Author)

The Naqqar-khana Complex is the inbuilt part of the Shalamar Gardens situated on the eastern side of the gardens. It was utilized for the all-official exercises during the presence of Emperor Shah Jahan, as government secretariat. Extremely significant declaration and authority request were given from this spot. After the completion of the Parking and Public Utility territory at the eastern side, entrance of the tourists has been moved via Naqqar Khana Complex thusly became clench hand appearance to the visitors. State of this structure was not up to the ideal conservation standards. Thusly another new project to the expense of Rs. 6.154 million (\$ 0.057 million) was started in the year 2016-17. Entrance of the complex from northern side the wooden



doors and inside have restored. Boundary with iron fence has been raised to control infringement and trespassing on the eastern exterior side. Brick on the edge ground surface has been laid to control water entrance on the area between the boundary wall and the southern perimeter wall. Tops of the have been water fixed with lime terracing and gardens inside have been created. After the finishing of the project this part of the Garden preserved as well as moved up to an adequate look.



**Figure 35:** Before Conservation of Pavilion integral part of Naqqar Khana Complex



**Figure 36:** After Conservation of Pavilion integral part of Naqqar Khana Complex



**Figure 37:** Before Conservation "Plinth protection and fixing of iron grill on exterior side of perimeter wall of Naqqar Khana"



**Figure 38:** After Conservation "Plinth Protection and Fixing of iron grill on exterior side of perimeter wall of Naqqar Khana"



**Figure 39:** Before Conservation "Protection work of Lime Plaster of Perimeter wall of Naqqar Khana"



**Figure 40:** After Conservation "Protection work of Lime Plaster of Perimeter wall of Naqqar Khana"



Figure 41: Condition before Restoration of wooden north gate at Naqqar Khana Complex



Figure 42: Restoration of wooden north gate at Naqqar Khana Complex

**Restoration work at North Gate of Shalimar Gardens:** Fountain which was at the entrance from the north gate of Shalimar Gardens has been restored and interior gate's openings at right have been bricked over.



Figure 43: Fountain's condition before restoration at interior of north gate, original openings at right have been bricked over



Figure 44: Fountain's condition after restoration at interior of north gate, original openings at right have been bricked over.

### **Preservation and restoration of Hydraulic Tank and Water Channel Fountains of Shalimar Garden:**

A huge water tank is situated in the centre of middle patio of Shalimar Garden with the 152 fountains and a raised central stage called as Mahtabi, approached nearer through walkways. The side segment of centre terrace is partitioned by water channels and pathway. This water tank is 5 feet deep down and its floor and walls have severely been deteriorated and have genuine cracks causing spillage of water. The water infiltration from the floor and walls was serious hazard to the connecting structures. Henceforth, there was a critical need to make it water tightened and further to ensure the tank and surrounding structures. The fountains of the middle tank were as well in a poor condition of protection and need prompt fix. The middle tank and water channels at central terrace have been preserved with conventional materials and technique after appropriate documentation and study. The old broken solid floor of the tank has been re-established with 3" thick conventional lime terracing and the side walls of tank were completed with lime mortar. The appended water channels of central terrace have also been protected. Rotted fountains have been fixed in same plan and missing/corroded brass nozzles were either supplanted or fixed to make them operational.

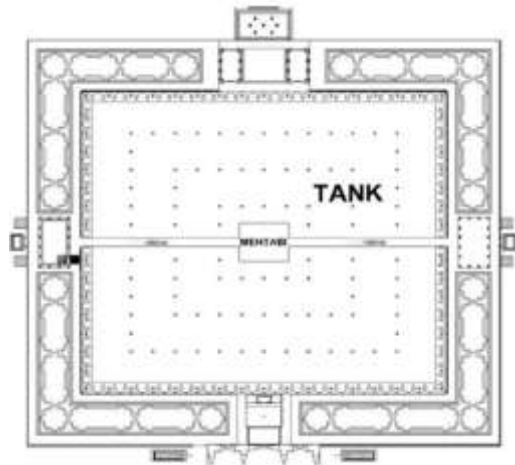


Figure 45: Plan of Mehtabi, tank and walkway at middle terrace



Figure 46: Aerial view of middle terrace

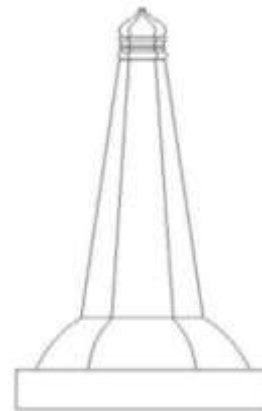


Figure 48: ELEVATION

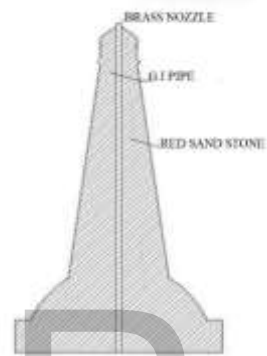


Figure 49: SECTIONAL DETAIL

### FOUNTAIN'S DETAIL

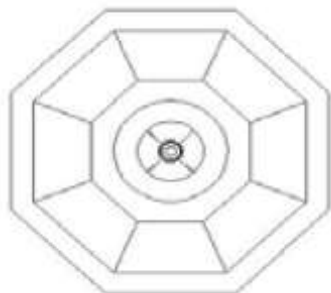


Figure 47: Plan of fountain



Figure 50: Deteriorated condition of fountains



Figure 51: Restore fountains condition as per original



Figure 52: Full view of fountains tank before rehabilitation



Figure 53: Full view of fountains tank after rehabilitation



Figure 54: View from King's throne before rehabilitation



Figure 55: View from King's throne after rehabilitation

The old water tank structure is located on the southern side of the Shalimar Gardens, a complex of brick manufactured sedimentation/filtration tanks. Water was brought via Shah Nahar (Royal Canal) from the Chamba Hills of Rajpur, as of now Madhupur in India, a way of more than 150 miles from Lahore.

It was arranged by Persian architect engineer Ali Mardan Khan, and finished By Mulla Ala ul Mulik Tuni a specialist in hydrology. Nowadays the system and hydraulic tank is not any more useful and leftover of structure are accessible. A project adding up to Rs. 6.266 million was endorsed and started in 2016 to protect furthermore, unite the remainders of the Hydraulic Tank. Significant part the project especially conservation and rebuilding of leftovers of old water driven structure has been finished. Structure has been consolidated by supporting, lime mortar has been re-established and rooftop has been laid with lime terracing to stay away from dampness infiltration. Plinth protection has been given around the structure to the limitation of any water entrance to the establishments of the landmark. Development of boundary wall with iron fence and improvement of the green yards around landmark kept in pending till the completion of Orange Line Metro Train track project (OLMTP). There used to be two structures that housed the pressure driven tank system. One of the structures was annihilated trying to broaden the Grand Trunk Road in 1999. The remaining one was also on the list demolition sites for the Orange Line project. Half part of the structures was annihilated trying to extend the Grand Trunk Road in 1999. The staying one was as well on the rundown destruction destinations for the project of Orange Line Train.



Figure 56: Demolished remains of Hydraulic tank when the G.T road was widened to its present size in 1990s.



Figure 57: Conservation of Hydraulic tank condition after completion of train project by April 2020

**Preservation and rehabilitation of Corner Burjs of Lowest Terrace:**

There are six corner burjs (towers) in the nook wall of the Shalamar Garden. The upper story building of these pinnacles has domed structure implicit red sand stone. The floor, walls and ceiling decorated with lime mortar, fresco painting and manbatkari (stucco tracery) work. The preventive protection of corner pinnacles of the lower terrace has also been proposed by specialized technical team. The conservation and rebuilding work incorporates cusps of arches, lime mortar, lime terrace flooring and vaulted rooftop.

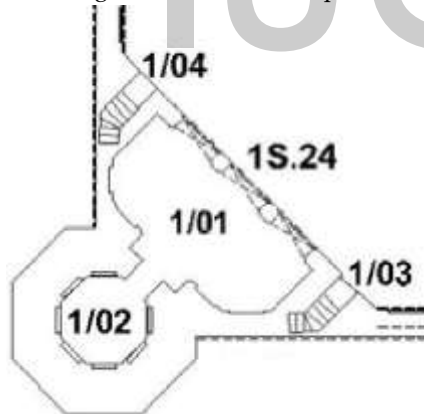


Figure 58: Plan



Figure 59: East Elevation



Figure 60: South Elevation

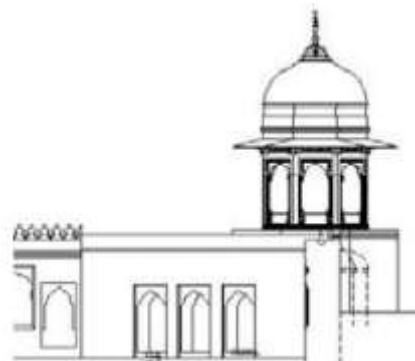


Figure 61: West Elevation



Figure 62: Section at "D"



Figure 62: Closer view During Rehabilitation work of Burj at Shalimar gardens.



Figure 63: Closer view After Rehabilitation of Burj at Shalimar gardens.

**Protection and Restoration of Main Entrance Gateway.** The first original entrance of Shalamar Gardens was made through two exquisite entryways gave in the middle of East and West nook walls at the lower terrace adorned with enamelled tile work, brick impersonation work and fresco painting. Original entrance of Shalamar Garden will be protected and re-established with lime mortar and tile mosaic work in flower designs to make it adequate condition.

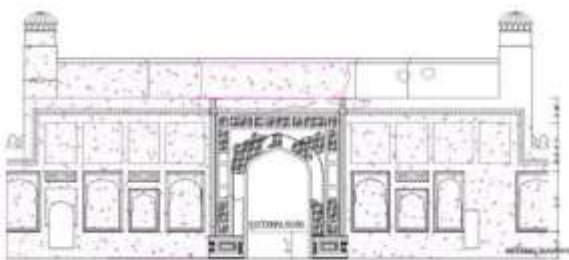


Figure 64: East Elevation of Main Entrance gateway of Shalimar Garden

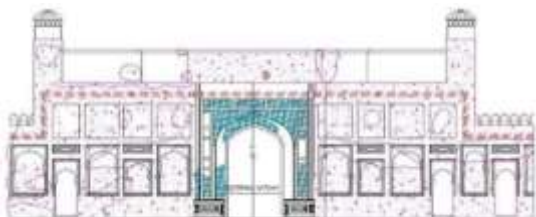
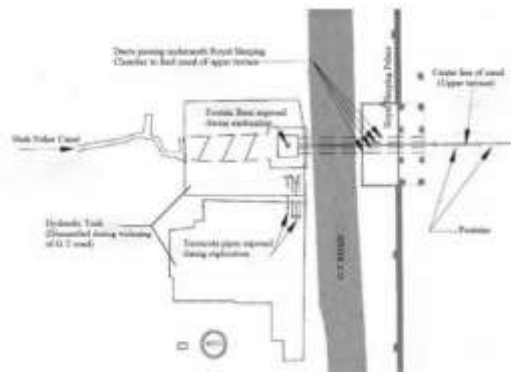


Figure 65: West Elevation of Main Entrance gateway of Shalimar Garden

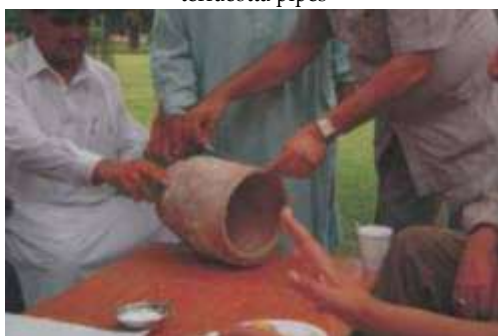


Figure 66: Conservation And preservation work of gates in process.

**Preservation and Restoration of Royal Bath (Hammam):** Archaeologists realized that there was a system of Heating at Shalimar Gardens in what was known as the Royal Bath, but its definite area location was not known until 2009. During the preservation cycle it was seen that the Hypocaust (the heating system) is in the eastern chamber of the caldarium beneath the heated water supply. The heating system is a sunken warming chamber to warm a room; a reservoir conduit is accommodated the clean cold water from north-eastern side. The Bath is extraordinary and incomparable among the other bath system of the Mughals. The system is on eastern side of the fundamental royal bath and has hot air ducts prompting it from south and west to make the floors of baths warm. Towards the east similar ducts serve as fuel for firing. There was a well on the eastern side for the supply of the water arrangement to the royal bath which provided water to it through masonry channel (reservoir conduit). The channel was as well associated with the water tank developed on the southeast corner of the royal bath. A water channel was as well taken from Shah Nahar and associated with the tank. After feeding the Royal Bath, the masonry channel follows all the way through to the top of the fringe wall and arrives at the lower terrace. Earthenware (terracotta) screens are given at delta points.



**Figure 67:** Excavation locations of Fountains and terracotta pipes



**Figure 70:** Terracotta Pipes Mughal used in Shalimar Gardens (Source: Archaeology Department Punjab)

Royal Bath is situated at the eastern wall of the central terrace, involving a hot bath, cold bath and a huge changing area. Pucca Qali, Rotted Kankar Lime Plaster, Fresco painting, kankar lime pointing and reclamation of water channel are significant things of turn out got ready for conservation and rebuilding of royal bath.



**Figure 80:** Section of Royal Bath



**Figure 81:** The Royal Bath stretches south(left) from the tower. Note the three sets of windows set into the bath wall



**Figure 82:** Source of Light “Sun light inside the Royal Bath”



**Figure 83:** Royal Bath Hauz (Pool)



**Figure 84:** Masonry reservoir well inside the royal bath



**Figure 85:** Masonry well at eastern side leading to the upper terrace serve the Hammam

**Development/Horticulture redesign of Green Area:**

A development scheme has been arranged and reflected in Annual Development Program, 2019-2020 to change the green territory

of Shalimar Gardens. The current lush yards will be invigorated with best quality grass to make it more adequate and travellers appealing. Indigenous types of trees, shrubs and blossoms will be planted after detail research work. Water system will be updated and essential garden implements for upkeep work will be acquired under the plan.



Figure 86: Development/Horticulture redesign of Green Area view of Gardens.



Figure 87: Development/Horticulture redesign of Green Area view towards Pavilion

**Conclusion:** In this paper a brief history of Lahore gardens is discussed due to attention of national and international governing bodies and administrative departments all of the gardens which were in critical deterioration condition has been restored. Due Care of these gardens even after proper conservation is needed throughout for future in this regard so that they may remain in their close to original conditions. Due to influence of public all over the world together with UNESCO World Heritage Centre presented their concerns about Heritage's safety in 2015 when government of Punjab launched elevated Rail line project near heritages, due to that supreme court of Pakistan involved and monitored the safety of heritages throughout completion of train project in front of Shalimar

Gardens and together conservation and preservation work by November 2020. Shalimar Gardens was taken as a case study so it was visually observed and inspected in detailed.

**Recommendation:** It is necessary for the department of Archaeology to continue strict policy against none serious tourist visitors those violate necessary rules and harm the heritage. Charges for visiting heritages should be high enough, it is in national interest to keep lowest visit charges for outsiders compare to locals. There is no doubt that the Heritage doesn't consist of money but of culture, but for their maintenance all over the world's countries implements charges on visiting monuments.

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