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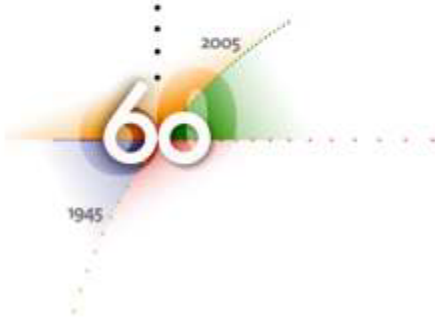

Shalamar Gardens
Master Plan
2006-2011

The Getty Foundation

Preparation of the Master Plan for Shalamar Gardens
was supported by a grant from the Getty Foundation

Shalamar Gardens Master Plan 2006-2011

Produced and published by
UNESCO Islamabad
2006

Printed at:
Format Designers & Printers
Lahore - Pakistan

This publication is available at:

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ACKNOWLEDGMENT

The Master Plan for Shalamar Gardens was prepared for UNESCO Islamabad by Dr. Pamela Rogers and Prof. Sajida Vandal. Preparation of the Shalamar Gardens Master Plan was supported by a grant from the Getty Foundation. Valuable input was provided by the following individuals and groups:

- Farhat Gul
- Mahmood Hussain
- Sajjad Kausar
- Yasmeen Lari
- Maqsood Ahmad Malik
- Fauzia Qureshi
- Bashir Ahmed Qureshi
- UNESCO Project Documentation Centre, Federal Department of Archaeology and Museums

The J. Paul Getty Trust is an international cultural and philanthropic institution devoted to the visual arts that features the Getty Conservation Institute, the Getty Foundation, the J. Paul Getty Museum, and the Getty Research Institute. The J. Paul Getty Trust and Getty programs serve a varied audience from two locations: the Getty Centre in Los Angeles and the Getty Villa in Malibu.

FOREWORD

The Shalamar Gardens and Lahore Fort are masterpieces of art and architecture dating back to the Mughal period, which was at its height during the reign of Emperor Shah Jahan (1628-1658). The structures within the Lahore Fort include marble palaces and mosques decorated with mosaics and gilt. The elegance of the Shalamar Gardens, built near the city of Lahore on three terraces with lodges, waterfalls and ornamental ponds, is unequalled.

Unfortunately, the hydraulic system of the Gardens built around 375 years ago was destroyed in June 1999 to widen the road which borders the gardens on their South side. Around the same time, there was a real risk that Shish Mahal ceiling might collapse. In view of the damage observed and the threat facing the two sites, the World Heritage Committee decided to inscribe the Lahore World Heritage site in the List of World Heritage Sites in Danger.

UNESCO obtained funds from the Ministry of Foreign Affairs (MFA) Norway, the World Heritage Centre (UNESCO Headquarters) and the Getty Foundation (USA) for emergency work to be carried out in both sites. Funds from the Norway Government were used for the stabilization of Shish Mahal ceiling, the Akbari Gateway, Imperial Kitchens and the Pictured Wall. A Master Plan for the conservation and preservation of the Lahore Fort was also developed.

The Getty Foundation support was utilized for baseline surveys at the Shalamar Gardens with a view to facilitating the conservation process. The findings of the studies laid down the basis for the development of a Master Plan for the Shalamar Gardens. They also served as a source of information for the Punjab Government to undertake conservation work at the Gardens.

UNESCO wishes to thank the Federal Ministry of Culture and the Provincial Ministry of Culture, Punjab, for their continuous support and cooperation. The dynamic leadership of the respective Secretaries, Mr. Jalil Abbas and Mr. Taimur Azmat Osman, has been instrumental in successfully achieving the project objectives.

I hope very sincerely that these efforts will be instrumental in getting the Lahore World Heritage sites removed from the list of World Heritage Sites in Danger.

Jorge Sequeira
Director/Representative

PREFACE

Culture in Pakistan is enriched with influences and resources of ancient civilizations that flourished in the region over centuries. The historical and archaeological treasures inherited by Pakistan are now being increasingly recognized and appreciated outside the country.

The Lahore Fort and Shalamar Gardens are examples of Mughal architecture, landscaping and craftsmanship at its pools. The two sites were inscribed together in UNESCO's World Heritage List as one site, in 1981, for their outstanding universal value. Due to a general lack of awareness, a lot of encroachments appeared and other environmental factors resulted in damage to these sites. Critical condition of the Shish Mahal ceiling in the Lahore Fort, also contributed to placing of Lahore Fort and Shalamar Gardens on the list of World Heritage in Danger in the year 2000. Since then both the sites attracted attention of international community, which appreciably volunteered to safeguard these Monumental Treasure.

With funding from Norway, UNESCO is executing a project, "Conservation and Preservation of Lahore Fort", which will conclude in October, 2006. Preparation of a Master Plan for Lahore Fort was an important component of the project, besides rehabilitating the Shish Mahal ceiling. Both objectives were successfully achieved during the first phase of the project.

Parallel to the Lahore Fort Project, UNESCO sought funds from Getty Foundation; USA and baseline studies were undertaken. The findings were compiled and used as the basis for development of a Maser Plan for Shalamar Gardens. The two Master documents, prepared by a team of highly competent national and international experts, will serve as reference documents and as a 'ready to implement' plan of action up to 2011 and beyond.

After transfer of these two monuments to the Government of the Punjab (Pakistan) on 18th August, 2004 we are dedicatedly pursuing to improve the condition of both the monuments to make them alluring for the visitors and beautiful in its appearance. This is an admitted fact that more damage was done to the monuments by environmental factors. Government of the Punjab on the basis of recommendations of experts who have worked for this Master Plan, have developed two different implementation documents worth Rs. 300 Million each for Shalamar Gardens and Lahore Fort. Work on

improvement of lawns at both the places/sites is already in progress. The environment of Lahore Fort from two sides is being cleared from a number of encroachments, traffic, electric pools etc. bringing this back to its original outlook. Same efforts are underway in Shalamar Gardens and the most neglected area of "Naqar Khana" is being restored back to its old glory.

We are grateful to UNESCO for its interest and support, which facilitated the Punjab Government to pursue its goals. The projects enabled training and capacity building of the relevant staff of Punjab Archaeology Department in documentation, conservation, project management, monitoring and evaluation. Consequently, the two sites are being looked after and maintained by trained and knowledgeable personnel of the Punjab Government.

The Master Plan is a comprehensive document, the implementation of which will ensure preservation of the World Heritage site and educate the public at large regarding the significance and value of the country's cultural heritage. Above all, we hope that by following the direction provided by this user-friendly document, we would be able to get the two sites off the list of World Heritage in Danger.

Taimur Azmat Osman
Secretary
Information, Culture & Youth Affairs
Department Government of the Punjab

EXECUTIVE SUMMARY

The Shalamar Gardens Master Plan has been prepared to provide a detailed and holistic framework for decision making and for the implementation of a coherent set of appropriate actions for the conservation and management of the World Heritage Site. It aims to ensure that the cultural heritage significance of Shalamar Gardens is not compromised and that the values for which the monument was listed are not irretrievably lost. It has been written to serve primarily as a working document for the custodians of the site; however, it is also meant to inform all levels of government and concerned departments of their role and responsibilities and to provide a format for increased community and voluntary involvement in caring for the site.

After an introduction to the Master Plan, Part 2 presents a brief background to the Mughal gardens of Lahore, the history and description of the site. Part 3 places Shalamar Gardens in context as a UNESCO World Heritage Site, and discusses the significance of the site and the responsibility of its managers to preserve this significance within the existing legal and regulatory framework is stressed.

The theoretical approach taken by the study team in carrying out the design of the Shalamar Gardens Master Plan is presented in Part 4 in order to make clear the framework in which work has been carried out. This includes the approach towards intervention and the setting of conservation priorities.

In the next section, the important core data regarding the significance, condition and conservation needs of the various forms of cultural heritage are presented. The exhaustive system of detailed documentation of the site's elements is explained. Inventories are presented of the planted heritage features, water distribution and display elements such as fountains and tanks, garden features including pavements and chini khana, and structural elements of the garden. These data provides the baseline information on which all conservation and maintenance decisions at the fort should be taken.

Part 6 describes the current context of Shalamar Gardens and highlights the many issues facing the site in terms of site management, conservation, monitoring and maintenance, research, visitation and the environment in and around the site. The purpose of this section is to clearly identify the range of critical issues which had to be addressed by the Master Plan.

Part 7 of the Plan presents a series of integrated Action Plans developed from expert input to address the many issues raised in Part 6 and placed in the context of the information presented in Part 5. This programme for action aims to achieve the vision set out for the future of the World Heritage Site in both the short and longer term. It defines the overall approach taken, reformulates the issues into Objectives to be met and proposes specific actions for meeting

these. In addition, operational tools which might assist in implementation of the proposed actions are recommended. The individual Action Plans and the main recommendations for each are as follows:

- Site Management Strategy
- Proposed management structure including a Site Commission
- A proposal for a diversified and expanded funding approach
- Development of training, tools and capacity building
- Monitoring and Maintenance Systems
- A proposed system for monitoring site condition of planting, hydraulics and other built elements
- A detailed system for maintenance of plantation, hydraulics, structures and archaeological remains
- Conservation Strategy
- Clarification of conservation priorities
- Recommendations for conservation of the Mughal hydralics system and upgrading and use of the modern system
- Garden Conservation Plan
- Additional conservation needs
- Detailed procedures for undertaking conservation works
- Research Framework
- Proposed studies which would contribute to the research base
- A programme of archaeological research
- A programme of publication
- Provision of library and archival facilities
- Visitation Policy
- Proposal for an interpretive policy
- Recommendations regarding visitor movements, display and museums based on a system of Visitor Zones
- Plan for increased community and stakeholder involvement
- Events management and creative re-use of buildings and spaces
- Environmental Plan
- Recommendations for action in the site environs based on a series of protective zones
- Recommendations re: parking, access, traffic and pedestrianization
- Partnerships with Lahore city government and tourism industry
- Proposals to address on-site issues: drainage, waste, toilet facilities, electricity, lighting and security.

Following the presentation of the recommended actions is a detailed Shalamar Garden Objectives - 2006 - 2011. This presents all the Objectives with their level of priority, target date,

key implementation agents and an assessment of what types of resources will be needed to achieve implementation, including indicative costs.

This is followed by a Conservation Priority List which sets out the Priority 1 (emergency), Priority 2 (stabilization), Priority 3 (preventive conservation) and Priority 4 (conservation) needs for each heritage element at Shalamar Gardens, with indicative costs. As and when funding becomes available, this list will guide dispersement to ensure that endangered structures are provided with emergency and stabilization attention as soon as possible, thus extending their life considerably. This is followed by Year wise targets for planning action.

Part 7 ends with a list of recommendations for further specialist studies and projects for effective implementation of the Master Plan. Some are studies which can be undertaken internally as part of the on-going preservation programme by the management and staff of Shalamar Garden and/or appointed consultants; other studies will need to be carried out by external government agencies.

Finally, Part 8 of the Master Plan presents a framework for its implementation, including the term over which the Plan extends, the various agents responsible for its implementation and a format for systematic review of the Plan itself over time. A set of performance indicators is presented to measure the success of implementation in the short term.

ANNEXURES

1. Conventions, Charters and other Documents relevant to Conservation and Management of Shalamar Gardens

2. Safeguarding Lahore World Heritage Site: Levels of Conservation Intervention at Shalamar Gardens Pamela Rogers

3. Dossiers of Interventions Project Documentation Centre, Lahore Fort and Heritage Foundation

4. The Waterworks of Shalamar Gardens Bashir Ahmad Quereshi

5. Baseline Survey Folios Project Documentation Centre, Lahore Fort and Heritage Foundation

6. Documentation Catalogue Project Documentation Centre, Lahore Fort and Heritage Foundation

7. Water Penetration Study and Management Issues Mahmood Hussein

8. A Strategy for the Development and Management of Cultural Tourism Pamela Rogers

9. Environmental Issues and their Impact on Shalamar Garden Fauzia Qureshi

10. History of Intervention - Sajjad Kausar

ACRONYMS

CYOC	**C**ommunity and **Y**outh **O**utreach **C**ell
HFP	**H**eritage **F**oundation **P**akistan
LFA	**L**ogical **F**ramework **A**nalysis
PDC	**P**roject **D**ocumentation **C**entre
PIATR	**P**akistan **I**nstitute for **A**rchaeological **T**raining and **R**esearch
PTDC	**P**akistan **T**ourism **D**evelopment **C**orporation
PCI	**P**akistan **C**onservation **I**nstitute
ICOMOS	**I**nternational **Co**uncil on **Mo**numents and **S**ites
ICCROM	International Centre for the Study of the Preservation of Cultural Property
SOP	**S**tandard **o**perating **p**rocedures
SWOT	**S**trengths, **W**eaknesses, **O**pportunities and **T**hreats
UNESCO	**U**nited **N**ations **E**ducational, **S**cientific and **C**ultural **O**rganization

NAMES AND TERMS

Akbar, Jalal-ud-din Mohammad (1542-1605)	Third Mughal emperor of India, who ruled from 1556-1605.
Auqaf Department	Federal Government of Pakistan Department, responsible for the upkeep and management of religious buildings.
Aurangzeb Alamgir (1618-1707)	Last of the great Mughal emperors of India (1658-1707), during whose reign the empire reached its widest extent.
Baradari	An open-sided pavilion with 12 supporting columns
Bracket/s	Projections from a wall for support.

Burra Charter	Alternative title for the *Charter for the Conservation of Places of Cultural Significance*. See References for full bibliographic details
Capital/s	Top part of a column, often decorated with carvings.
Chaddar	A 3-sided carved marble waterfall
Chahar Bagh	Traditional Mughal garden plan divided into 4 parts
Chajjas	See Eave/s.
Chini Khana	Rows of carved marble niches for hodling lamps or lowers
Dado	A strip of wood, metal or stone fixed to a lower part of a wall.
Darbar	An official reception held by a local prince, ruler or British governor in colonial India.
Eave/s	The lower, projecting edges of a roof.
Fresco	Picture painted on to a plastered wall when the plaster is still wet.
Fretwork	Word, metal or stone decorated by carving to create a pattern.
Jali	Carved marble screen
Jehangir (1569-1627)	Fourth Mughal emperor of India (1605-27), the eldest son of Emperor Akbar.
KaravanPakistan	A community and youth outreach programme, promoting heritage for a culture of peace, national integration and development. From 2001, it has organised heritage 'street fests' and other culture and heritage-related eventsinitially in Karachi, and, from 2004, throughout Pakistan.
Khiyaban	Raised garden paths or walkways
Lintel/s	A piece of stone, concrete or wood over a door or window supporting the masonry above.
Mahtabi	Stone or marble sitting platform placed in the centre of a pool or tank

Mali	Traditional clan of gardeners
Mughal	The Mughal Empire ruled the Indian subcontinent for more than 300 years from 1526 to 1858, except for a brief period under the Sur Sultans (1540-1555). The British abolished it in 1858.
Nahr	Water channel or canal
Pietra dura	Technique of engraving designs in marble and then inlaying these with thin sections of precisely cut semi-precious stone in a variety of colours to create pictures or patterns.
Ranjit Singh (1780-1839)	Indian warrior and founder of the Sikh Kingdom of the Punjab.
Screen/s	A partition that partially divides a space.
Sepiolite	Hydrated magnesium silicate.
Shah Jahan (1592-1666)	Fifth Mughal emperor of India (1628-1658), the third son of Emperor Jahangir.
Spalling	The splintering or breaking down of stone or concrete.
Stratigraphy	The study of strata, or layers specifically, the superposition of soil and geological strata containing archaeological materials in order to determine the relative ages of layers.
Zenana	Women's area or court

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PART 1

Introduction to the Master Plan

PART 1

INTRODUCTION TO THE MASTER PLAN

1.1 NEED FOR AND ROLE OF THE MASTER PLAN

Shalamar Gardens represents the epitome of Mughal garden design; the *chahar bagh* plan, channels, pools and cascades, pavilions and parterres reflect *Quranic* paradise created on earth for the enjoyment of the imperial court.

The importance and significance of the monument have been acknowledged by its inclusion, jointly with Lahore Fort, in 1981 on the UNESCO list of World Heritage sites. It was, however, inscribed without a master plan forming part of the nomination. Today, negative impacts from environmental degradation, visitor usage, ill-advised interventions and the passage of time are increasing without appropriate response. A comprehensive master plan is required urgently to ensure that the cultural heritage significance of Shalamar Gardens is not compromised and that the values for which the monument was listed are not irretrievably lost.

1.2 GOALS OF THE MASTER PLAN

The overall goal of the Master Plan for Shalamar Gardens is to prepare a document which will provide a detailed and holistic framework for decision making and for the implementation of a coherent set of appropriate actions for the conservation and management of the World Heritage site. Goals of the Plan include the following:

- ∞ Promote sustainable management of the World Heritage Site;
- ∞ Ensure that the unique qualities and outstanding universal values of the World Heritage Site are understood and are sustained in the future;
- ∞ Sustain the outstanding universal values of the World Heritage Site whilst maintaining and promoting the gardens as a much loved public venue which benefits from the status of the World Heritage Site;
- ∞ Improve standards of conservation, care and interpretation, encouraging all people to enjoy and understand the World Heritage Site;
- ∞ Improve public awareness of and interest and involvement in the heritage of Shalamar Gardens, achieving a common local, national and international ownership of World Heritage Site management.

1.3 SPECIFIC OBJECTIVES OF THE MASTER PLAN

The UNESCO - Government of Punjab Master Plan is designed to meet the following specific objectives:

a. To assess the effectiveness of management systems and propose changes and/or new methods which would augment existing management;

b. To look at ways that funds could be generated for conservation and development at Shalamar Gardens;
c. To achieve baseline documentation and condition assessment of all planted elements, water works and built elements of the site;
d. To develop a strategic approach to conservation to ensure that the appropriate level and type of intervention is applied for the specific conservation issues faced at the site;
e. To prioritize all conservation actions and to set standards for the setting of future priorities to ensure that conservation actions are carried out on the basis of need and urgency;
f. To design a system of regular monitoring to ensure that baseline conditions are retained, if not improved;
g. To design a practicable system of continuing maintenance of all buildings and the grounds;
h. To set focused, multi-disciplinary research goals involving staff, national and international scholars and teams;
i. To present a plan for tourism management and visitation which will find the optimum level for tourism, ensure that the site benefits rather than suffers and that the visitor experience is enhanced in terms of enjoyment and education;
j. To recommend ways to improve community outreach and involvement in the site;
k. To upgrade the physical environment and infrastructure of the World Heritage Site and its environs;
l. To provide assistance to the managers of the site in implementing proposals unhindered by changes in staff or circumstances.

1.4 GEOGRAPHICAL SCOPE OF THE MASTER PLAN

The main area covered by the Master Plan is the garden space within the peripheral wall. However, beyond this, there are various elements directly related to the site which are


View of Main Tank from a sandstone


The Main Tank

covered by the plan, such as the hydraulics complexes to the south and the west of the site and the remains on the east. Beyond this, there is an area of associated gardens and intervening spaces which, although not part of the World Heritage site, are critical to understanding Shalamar Gardens and its historical setting. These are also included in the plan in reference to a number of issues such as historical and archaeological context and conservation zoning.

1.5 VISION STATEMENT FOR SHALAMAR GARDENS

Shalamar Gardens should be treated as a single design entity consisting of stepped garden terraces linked by water features and alignments, built elements and linkages. The conservation and safeguarding of the historic resource should be central to all discussion relating to the garden. The methodologies adopted should aim at presentation of the essence and reality of a Mughal garden and infusion of a new dynamism developing a sense of historicity and continuity from the past to the future.

The vision for the garden conforms to that stated for Lahore Fort:

"To transmit to the coming generations an experience of a traditional culture in all its multiple dimensions, because it is these traditions that encapsulate a world view and wisdom which has sustained our humanity and our planet for millennia past."

1.6 KEY STAKEHOLDERS

The key stakeholders involved in the design, delivery and receipt of the Shalamar Gardens Master Plan are as follows :

a. Funders
The project is being implemented through a Getty Foundation Architectural Conservation Planning Grant.

b. Delivery Partners
The agencies and bodies involved in preparation and delivery of the Shalamar Gardens Master Plan include:
- UNESCO-Islamabad
- Provincial Department of Archaeology, Government of Punjab
- Federal Department of Archaeology and Museums, Ministry of Culture, Government of Pakistan
- Project Management Team, Technical Committee and Project Documentation Centre, UNESCO - GOPunjab Project

c. Target Audience
The Master Plan has been prepared with several target audiences in mind:
∞ The custodians of Shalamar Gardens;
The Plan has been specifically designed and formatted to foster its use as a

working document, which can be updated as required. For this purpose, a range of supplementary information has been placed in annexures and presented at the end of the main Plan or, if too large to append, kept at the Project Documentation Centre, Lahore Fort..

∞ Provincial and local Government and concerned departments involved in strategic and physical planning within the site itself and in its environs;

Shalamar Gardens is an integral part of urban Lahore and many of the issues concerning its preservation and presentation must be addressed at a city, province and/or national level. The Master Plan attempts to identify the role and responsibilities of all stakeholders and to propose systems for liaison and cooperation.

∞ The community and voluntary organizations, with particular focus on schools, youth and women;

As a World Heritage site, the garden is part of the shared heritage of Lahoris, Pakistanis and the world as a whole. The Master Plan views access by the community as an essential component of successful preservation and management, and aims to involve people in as many ways as possible. It provides a format for the involvement of voluntary organizations in collaborating with the custodians of the site to ensure greater outreach to the community and young people.

In the course of preparation of the Master Plan a wide range of stakeholders were consulted through a series of meetings, on-site interviews and discussions and continuing communications. These consultations continued as the study evolved in order to ensure that the needs and interests of all parties were adequately represented. Further input from all parties has been sought on the Draft Report in order to finalize the Plan.

1.7 MASTER PLAN INPUT AND STRUCTURE

The Master Plan is based on available reports and documents, ICOMOS *Management Guidelines for World Cultural Heritage Sites* (1993), and international best practice, supported by detailed studies carried out by national experts on the following topics:

- Historical survey of interventions to the plan and design of the site and its landscape and built elements;
- Hydraulic studies of the waterworks, both Mughal and later additions and modifications, including collation and analysis of all available data from geophysical remote sensing and excavation;
- Architectural studies of built features: Condition assessments, Histories of Interventions and Baseline Survey Documentation

- Inventory and mapping of all existing planting within the garden; noting the distinction between contemporary planting, British period and evidence of possible Mughal period remnant species.
- Assessment of internal infrastructure conditions and issues, including access, waste removal, lighting, electricity, drainage etc.; and recommendations for action;
- Assessment of conditions in the surrounding environment or Buffer Zone of the site, including encroachments, vehicular traffic, drainage, waste collection etc.; and recommendations for action;
- Assessment of monitoring and maintenance regimens at the site, and recommendations for improved systems;
- Analysis of current visitation patterns and statistics and recommendations for interpretation and presentation of the site to the public;

These reports are based on extensive research, fieldwork, interviews and professional experience. Each expert was commissioned to carry out the following tasks:

∞ An assessment of existing conditions and situation analysis;
∞ Recommendations for prioritized action to address the identified issues;
∞ Integrated plans for implementation of the recommendations;
∞ Identification of any additional specialist studies needed to enable implementation of the Master Plan.

The Master Plan study was initiated in February 2005 at a meeting held at Lahore Fort. At this meeting a draft scope for the Master Plan was presented to the assembled stakeholders and experts for discussion, comment and initial approval. After ongoing consultation with the Technical Committee and integration of expert input, a Draft Master Plan report was submitted in December 2005. The Draft was circulated to the Technical Committee, Punjab Department of Archaeology staff, associated international experts, UNESCO-Islamabad and Getty Foundation representatives for comment and discussion. After modification the final Master Plan Report was submitted in January 2006.

The Master Plan comprises eight parts (Fig 1.1):

Part 1 Presents an introduction to the Master Plan, including the need for the plan, its objective and aims, Vision Statement, a discussion of stakeholders and the input and structure of the report;

Part 2 Provides an introduction to Shalamar Gardens: a brief historical background and discussion of the relationship between the Shalamar, other gardens, the nearby community and development of Lahore as a whole;

Part 3 Describes the current context: World Heritage inscription and the legal framework in which the site is embedded;

Part 4 Gives a brief statement concerning the theoretical framework in which the Master Plan has been prepared, the overall approach to conservation interventions and the need for setting of priorities;

Part 5 Provides essential baseline documentation in the form of detailed Catalogues, background papers and reports on all the heritage resources making up Shalamar Gardens;

Part 6 Summarizes the current situation at Shalamar Gardens in terms of management, conservation, monitoring and maintenance, research, visitation and environment and physical infrastructure. This is followed by SWOT situational analysis;

Part 7 Presents a multi-disciplinary programme of integrated action designed to address the conservation and management issues facing Shalamar Gardens;

Part 8 Proposes ways in which the action programme could be implemented and scheduled.

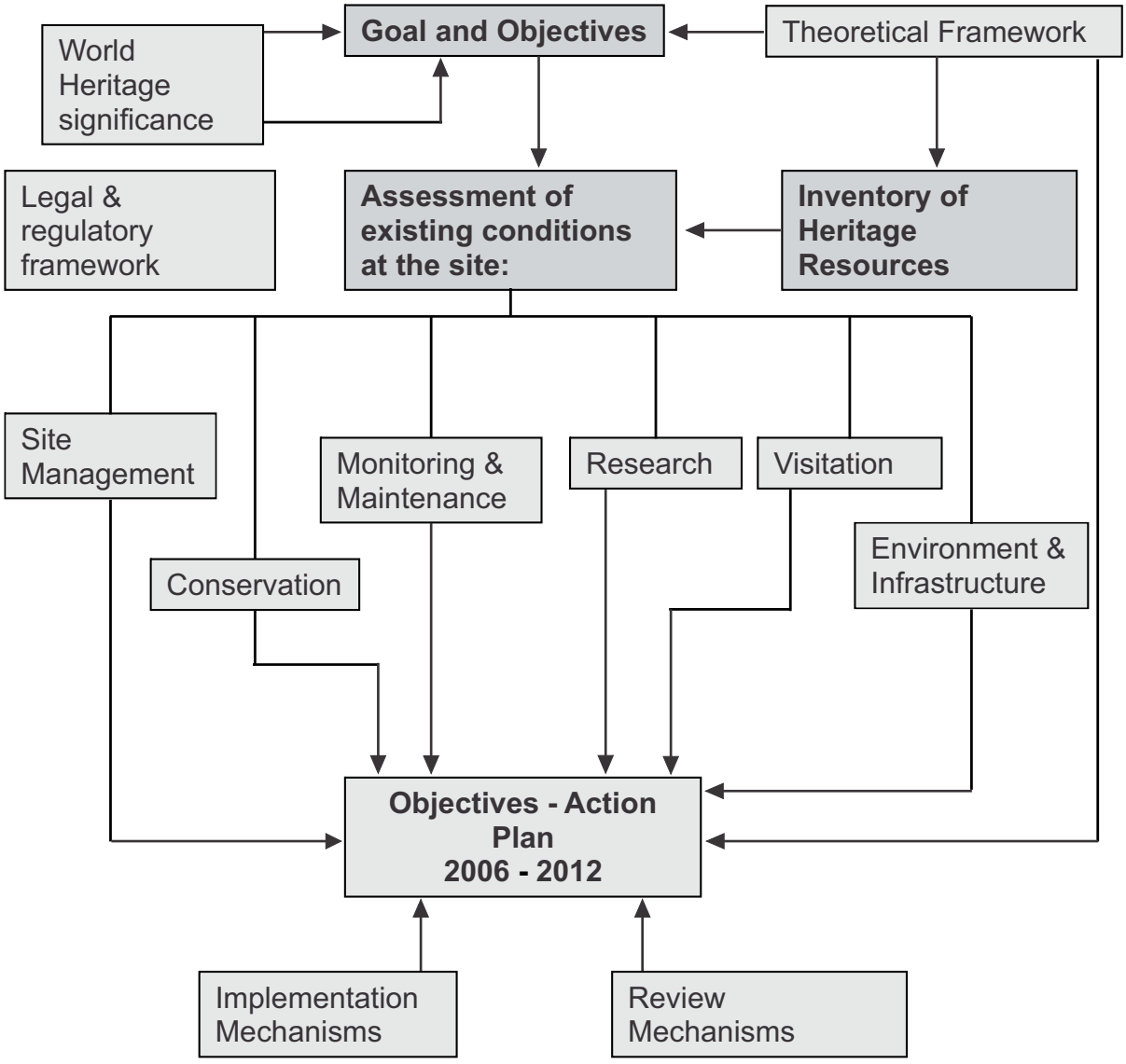


Figure 1.1 Schematic diagram of the Structure content of the Master Plan.

PART 2

Introduction to Shalamar Gardens

PART 2

INTRODUCTION TO SHALAMAR GARDENS

2.1 LOCATION DETAILS

2.1.1 Name of the World Heritage Site

Fort and Shalamar Gardens in Lahore

2.1.2 Date of inscription onto World Heritage List

1981

2.1.3 Country

Pakistan

2.1.4 Region

Lahore, Punjab

2.1.5 Local Authority

Department of Archaeology, Government of the Punjab

2.1.6 Geographical Co-ordinates

N31 35 25.0

E74 18 35.0

2.2 SITE BOUNDARY

Requests to access the dossier for inscription of Shalamar Gardens as a UNESCO World Heritage site have not been successful. As a result, the Master Plan has based the site boundary on that used by the Federal Department of Archaeology; this boundary is said to be the same as that proposed at inscription. It equates to the external walls of the garden on the north, south and east, including the Naqqar Khana; in the south an additional area includes the historical hydraulics tanks..(Fig. 2.1).

Figure 2.1 also shows the Master Plan recommendation to expand the boundary of the World Heritage site to include the nursery and hydraulics complex to the west and the area to the south between Shalamar and Inayat Bagh.

2.3 THE GARDEN CITY OF LAHORE

Lahore began to acquire the stature of a city when Malik Ayaz, the slave of Mahmud of Ghanavi, and later his successor in India, brought some semblance of order to the early settlements along the left bank of the river Ravi around 1000ACE. Located on the crossroads of trade routes connecting Central Asia with the Gangetic Plane the city had its

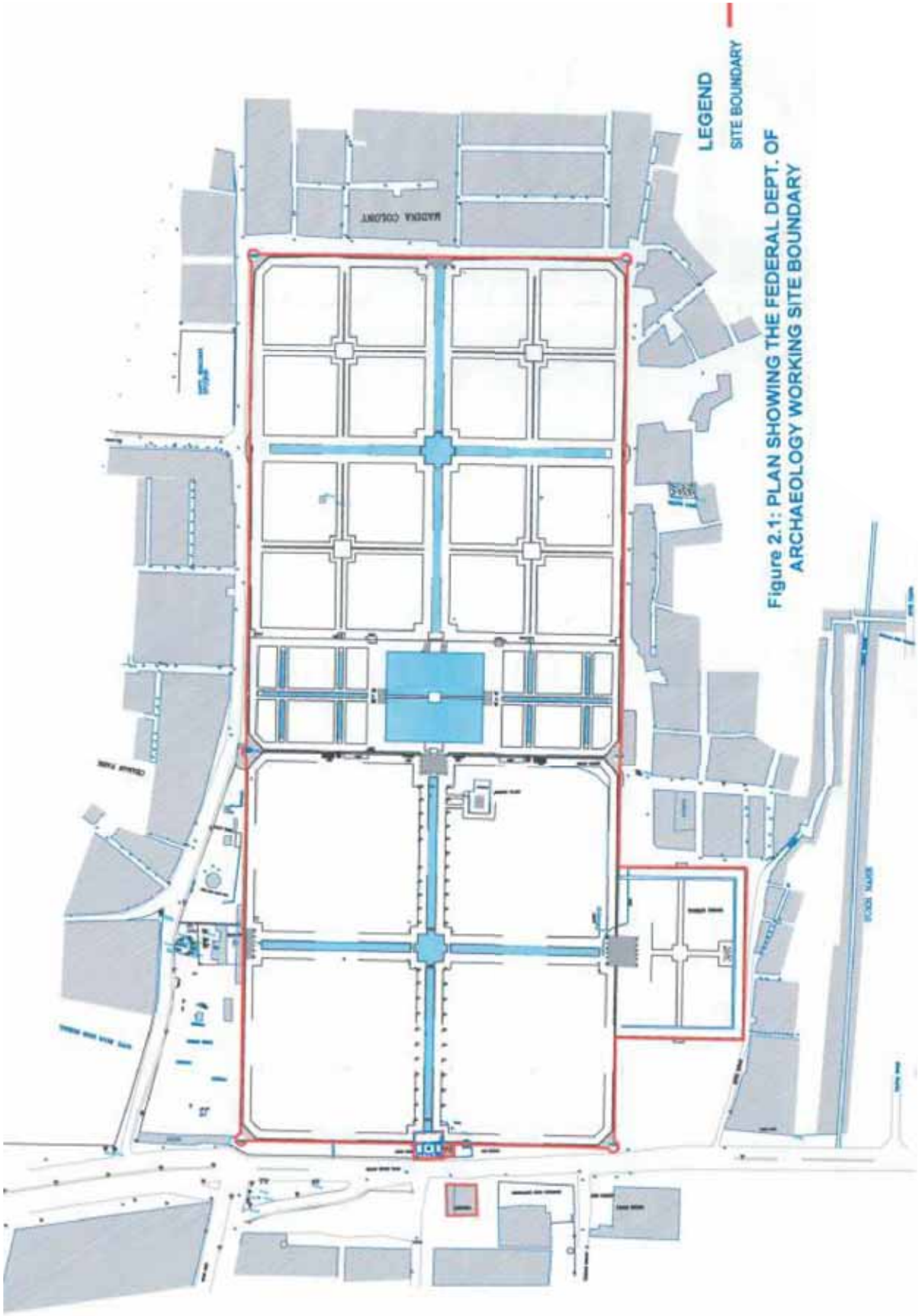


Figure 2.1: PLAN SHOWING THE FEDERAL DEPT. OF ARCHAEOLOGY WORKING SITE BOUNDARY

share of visitors, traders and invaders. Nevertheless it developed along the lines of roads and streets as laid out by the new rulers from Central Asia. Its stature as an imperial city was confirmed during the Mughal Empire particularly during the rule of Emperors Akbar, Jahangir and Shahjehan.

With the decay of the Mughal Empire after the death of Aurangzeb (1707), Lahore experienced a prolonged period of conflict, on the one hand, internally among the various princes vying for the throne, and, on the other, with invaders from the Afghanistan. Mughal gardens were used as camping grounds for invading armies. Ganda Singh recounts the fate of the city's gardens during a war between the local ruler Muin-ul-Mulk and Ahmed Shah Durrani:

"The neighbourhood of Lahore was then full of beautiful gardens and orchards, reminding them of the old grandeur of the capital, but they were all cut down for the purposes of entrenchments…. And green gardens were converted into dry and dusty lands, studded with trenches all over." (Singh 1959)

During the long period of uncertainty, for most of the century, the buildings of Shalamar Gardens were neglected and robbed of decorative elements and materials. The gardens as a whole were neglected and described by W.G. Osborne as being "so overgrown with jungle as to have become the haunts of tigers and wild beasts." (Osborne 1973). The water supply to Shalamar Gardens failed during this period; it was reinstated in 1806 when Ranjit Singh ordered the restoration of Shah Jahan's Canal. The Sikhs became the rulers of Punjab in the mid 18th century and during Ranjit Singh's rule the gardens were generally restored, although vandalism continued. In 1831, the French traveler Monsieur Jacquemont observed that Shalamar Gardens was "planted with orange, cedar, lime and pomegranate trees which now form an impenetrable copse" (Gorret 1935).


The Perimeter Wall of Shalamar Gardens


A fountain in the main channel Upper Terrace


Shah Nasheen at the foot of the main chadar

Upon the death of the Maharaja, in 1839, the British, after two bitterly fought wars, annexed the Punjab in 1849. During the British period (1849 1947) buildings continued to be vandalized, decorative elements were removed, building foundations dug and sold for bricks. In 1883 the garden was leased for the cultivation of fruit trees which resulted in thick plantation of the upper and lower terraces.(Cole 1885). Many of these trees were removed in 1922 after Shalamar was placed under the control of the Department of Archaeology. The middle terrace was cleared and planted with a rose garden in the English style. Pilfering of the monument came to an end and the garden was maintained, although not conserved in any way.

Since 1947 the Department has laid alternative pipelines and carried out limited investigations of the original hydraulic system. Work has been undertaken on the brick pavements, some building repairs and replacements. In recent decades Shalamar Gardens has been engulfed by urban growth and is now surrounded by densely packed housing colonies and roads.

The city of Lahore thus saw many a vicissitude of fortune, expanding during times of peace and prosperity, and shrinking back to its shell of the defense walls during periods of unrest and wars. The city of Lahore developed a labyrinthine street pattern both as a response to extremes of weather as well as defense. The weaving streets created pockets of shade and sun at all times and in all climates enabling the pedestrians to move from shade to shade in summer and from one sunny spot to another in the winters. It was a pattern ideally suited to the climate and for the pedestrian traffic of the city. Planting of trees and gardens further mediated the extremes of weather. Major streets wove around and culminated in the twelve gates that connected the walled portion of the city with areas beyond. It expanded along the routes to other urban centers, to Delhi, Kasur, Multan, Amritsar and along the river front both upward and downward of the city. While suburban settlements took root in the form of Dharampura Garhi Shahu, and others and Mughal Lahore spread much beyond its walls to encompass 36 *Guzars* (administrative divisions) of which only 9 were in the walled city, gardens were planted near the river helped by the fact that the river Ravi is gentler than the Chenab and Sutlej and the particular soil and geography around the city of Lahore lent itself to gardens which could be easily watered by the river. The city occupied a promontory on the left bank of the river while the river flowed towards and then around it making a loop that lent for the city to be almost surrounded by gardens.

The elite, in particular, planted gardens for recreation and pleasure along both the banks of the river, ranging on the right bank from Bagh-e- Dilkusha or Dilamez (later Jahangir's tomb) and Bagh-e- Mirza Kamran and on the left bank from the Shalamar Gardens to the walled city and beyond to Chauburji and the extensive garden of Zebinda Begam. The increasing number of gardens of Lahore lent additional glamour to the expanding urban

settlement as it acquired imperial trappings during the Mughal period. Thus Lahore became the famed city of Gardens.

Preceding the Mughals there is reference to six gardens in historical accounts mainly from the Ghazvinid period (1014-1186) all of which are now extinct. The pre-Mughal Gardens of Lahore were located towards the southern side of the walled city or within, and with one exception were either built or converted, at some stage, to tomb gardens. Although, none of these gardens now exist, however, with the exception of one, their location can be traced due to the remnants of the tomb or graves which were located within them. Thus, Bagh-e- Ayaz , near Rang Mahal (later Ranjit Singh's mint) became the burial place of Malik Ayaz in 1051 or 1057 ACE ; the Bagh Qutubudin Aibak, near Anarkali, became the burial place of Aibak at his death in 1211 AC; the Bagh-e-Zanjani in the Chah Mira area, became the tomb of the saint Zanjani; the Bagh Shah Ismail, near the Hall Road was where Shah Ismail was buried on his death in 1056 AC; and likewise the Bagh-e-Shah Kaku Chisti, on the eastern side of Serai Sultan in Mohallah Dara Shikoh was where Kaku Chisti was buried at his death in 1325 AC. The Bagh-e-Daulatabad is the only one which is not associated with a tomb, and was probably a palace garden. Reputed to have been near Mozang it was laid out within a fortified quarter along with a *serai*, *boali* by Daulat Khan Lodhi, Governor of Lahore (1517-1525).

Gardens of the Mughals

During the Mughal period, particularly during the reigns of Akbar, Jehangir and Shah Jehan, gardens became an important part of the spatial organization and landscape, with a large number of gardens laid out along the waterfront and en route to the Mughal centers. The genre of Mughal gardens included tomb-gardens, palace gardens, fort gardens and pleasure gardens reaching the level of sophistication of the Shalamar Gardens. The Mughal elements of garden design, inspired by the Koranic description of paradise and comprising of the primordial elements of water, trees and resting places were used to engineer an exquisite water display and flowing water reminiscent of the Mughal's Central Asian abode through the use of fountains, channels, *chadars* (water falls), central tanks; complimented with the formal layout of the *charabagh*, planted with a variety of trees chosen for their scents, fruits and beauty, and the structures of *baradaris*, *hamans* and pavilions all enclosed within a high perimeter wall reached its zenith with the laying of the Shalamar Gardens in 1642.

The Bagh-e-Kamran, a pleasure garden, laid during the reign of Babur by his son Mirza Kamran is thought to have been the first Mughal garden in Lahore. Located, on the right bank of the Ravi, at a presumably safe distance from the flood plains, it had all the elements of the Mughal garden, extensive *charbaghs*, a double storied *baradari,* water channels, fountains and central water tank along with palaces and an assembly hall.

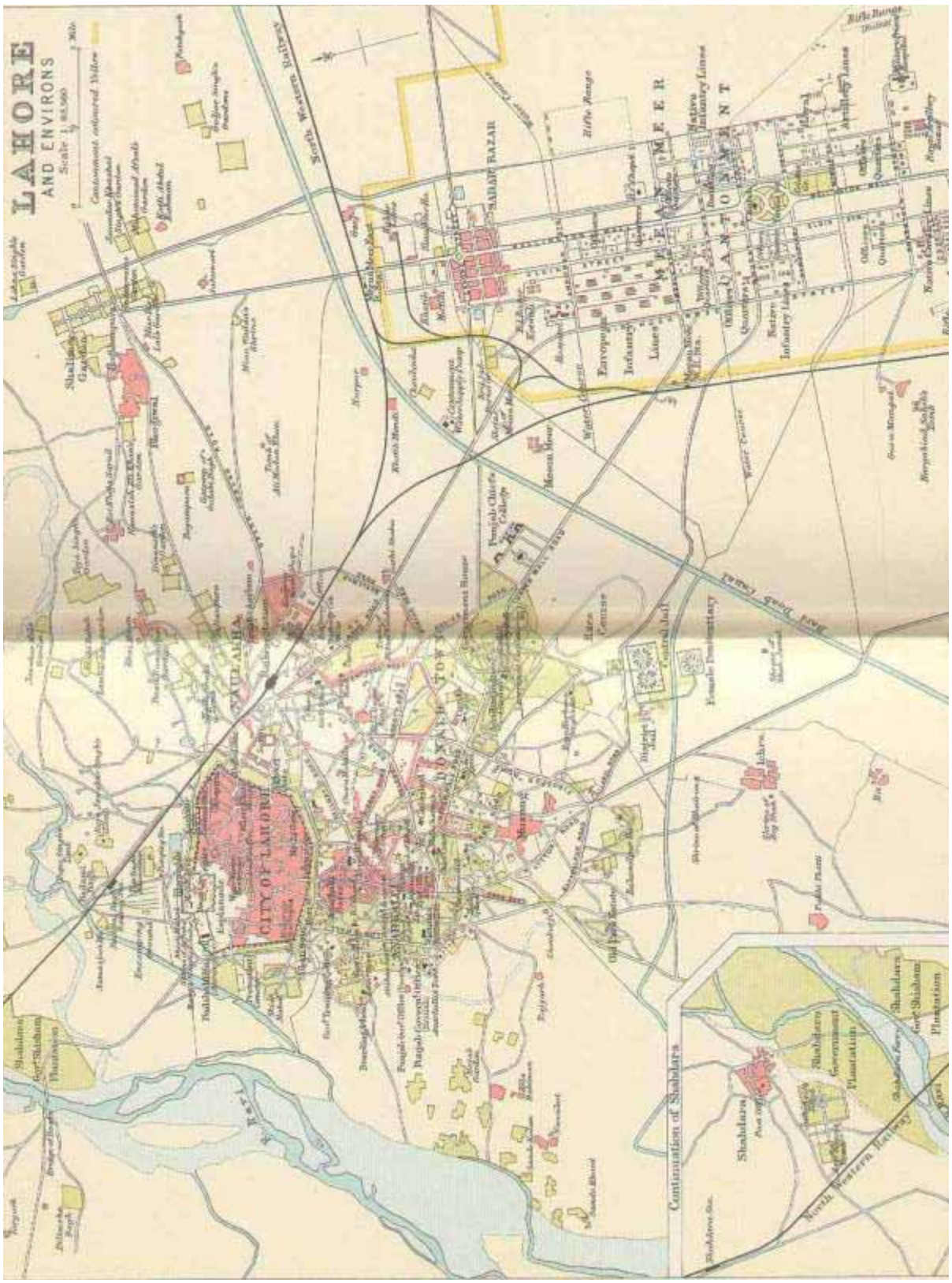


Fig. 2.2: Mughal Gardens of Lahore
(See Accompanying Note) Page18-19
Lahore - 1893

Alongside this garden were laid out other gardens of the nobility; the known ones being the Bagh-e-Andjan (Akbar period), situated on the south of the canal Mirza Kamran dug for his garden and the Bagh-e-Mirza Nizamuddin Ahmed (Akbar period) and Bagh Mirza Moman Ishaq Baz (Jehangir period).The only extant structure of these gardens is a single story of the Kamran Baradari, the rest having been washed away when the Ravi changed its course. But the idea of creating pleasure gardens and grouping them found root. These pleasure gardens acquired importance as encamping grounds for the royal entourage on their travels to the outer reaches of their empire, where courts could be held and the king could spend "several festive days their in the company of his harem and *omerah*" (Latif-45).

Another group of gardens, across the city on the right bank of the Ravi at Shadara, grew almost as a counterpoint along the Lahore-Kashmir route. (Fig. 2.2) Clustering around Shahdara, the first halting point after crossing the river and the last resting place before entering the city, the area was ideally suited to the development of gardens, which were thus conceived as pleasure gardens and halting spots. In later years they were converted to tomb gardens thus giving Lahore its royal necropolis. These included the now extant Bagh-e-Dilafroze (Humayun or Akbar period) and Bagh Mirza Moman Ishaq Baz (Jehangir period); and the Akbari Garden and Serai (now the forecourt of Jehangir's tomb); Nur Jehan's Bagh-e- Dilkusha or Dilamez (later the site of the tomb of Jehangir); Bagh-e-Asaf Jan encompassing the tomb of Asaf Jan, and Bagh-e-Nur Jehan, built by Jehangir's widow during Shah Jehan's reign which later became the last resting place of Nur Jehan.

Shahjehan (1628-1658) reign is notable for the many exquisite buildings and gardens constructed by his orders and by the nobility and *omerah*, several of which were in Lahore. This included the construction of the Shah Nahr or Hasli in 1639. Shah Jehan's official chronicler Lahori writes that " His majesty being very much interested in decorating the country and building edifices, determined to provide means of populating towns and busy in taking prudent measures for the welfare of the subjects, gave to the Khan (Ali Mardan Khan) one lac rupees" for the construction of the canal. (Lahori-quoted Baqir-399). The Shah Nahr begun in about 1639/1640, the engineering feat of Ali Mardan Khan and Mula Alaal Mulk Tuni, brought water from the Chamba Hills, the upper reaches of the Ravi, taking off from Rajpur (present Madhopur) traveling a distance of about 160 kilometers to irrigate the farms and gardens in the eastern side of the city. With the laying of this canal the possibilities became immense and Shah Jehan ordered the laying of the Shalamar Gardens, entrusting the work to Khalilullah Khan. The foundation for which was laid on 12 June 1641 AC and the gardens completed by 31 Oct. 1642 AC with Shah Jehan performing the opening ceremony (Lahori, Kamboh, Baqir et al). The nobility soon followed with a large number of gardens laid around the Shalamar and its environs and

GARDENS OF THE MUGHALS FROM BABUR TO SHAH JEHAN
NOTE ACCOMPANYING FIGURE 2.2

Period	Name	Period	Attributed to	Location	Approx. dates and usage	Type	Garden Features	Present Status
B-H-1	BABUR & HAMAYUN Bagh-e-Kamran	P-Babur	Mirza Kamran Son of Babur	Right bank of Ravi	pre 1606 AC	pleasure garden	2 floor Baradari, fountains central tank, channels arched bridge, palaces, audience hall	Baradari extant
B-H-2	Nau Lakha Bagh	Babur/ Hamayun	Mirza Kamran (Latif, Fauq,Dar) or Ali Mardan Khan(Nadiem)	left bank river front		pleasure garden	Baradari	Extinct 1864-Baradari extant
B-H-3	Bibi Haj Taj							
B-H-4	Garden of Khawaja Dost Munshi	P-Babur or H	unknown	unknown	unknown Hamayun stayed here in 1540	pleasure garden?	unknown	Extant
B-H-5	Garden of Khawaja Ghazi	P-Babur or H	unknown	unknown	unknown Mirza Hindal, brother of Hamayun stayed here in 1540	pleasure garden?	unknown	Extant
A-1	AKBAR Bagh-e-Dilafroze	Hamayun or Akbar		Right Bank Ravi		pleasure garden	P-palaces, pavilions etc.	
A-2	Bagh-e-Khan-e- Azam	Akbar	Shamsasuddin Atga Khan-e-Azam foster father of Akbar, father-in-law of Prince Khusru & Murad	unknown near the tomb-garden of Shaikh Johar (SA)		palace garden	Palace of Prince Murad located in garden	
A-3	Bagh-e-Andjan	Akbar	Kalej Khan Andjani, Subedar of Lhr of Akbar and Jehangir fatther-in-law of Prince Khusru	Right Bank Ravi next to Bagh Kamran (south of canal dug to bagh Kamran)		palace garden?	buildings inside	Extant, delapidated during time of Dara Shikoh(SA)
A-4	Raju Bagh	Akbar	Raj Muhammad Mansabdar of Akbar	P-near Ichhra & Daulatabad	unknown	unknown	unknown	Extinct
A-5	Bagh-e-Malik Ali Kotwal	Akbar	Malik Ali Kotwal	unknown	unknown	unknown	unknown	Extinct
A-6	Bagh-e-Mirza Nizamuddin Ahmed	Akbar	Nizamuddin Ahmed, author of *Tabqat-i-Akbari*	P-right bank of Ravi(Fauq)		unknown		
A-7	Bagh-e-Zain Khan Kokhaltash	Akbar	Zain Khan, father-in-law of prince Salim, later Jehangir	outside Mochi Gate		palace garden		Extinct
A-8	Akbari Garden and Serai	Akbar	unknown	Right Bank Ravi at Shadara		serai	Chahar-bagh, pathways, mosque	Extant
J-1	JEHANGIR Bagh Mirza Moman Ishaq Baz	Jehangir	Mirza Moman Ishaq Baz	Right Bank of Ravi next to hunting grounds of Jehangir	unknown pre-1621	unknown-P pleasure garden		Extinct
J-2	Bagh Shamsuddin Shah Shamsudin, saint during Akbar & Jehangir period	Jehangir	tomb built by Prince Khurram (Emperor SJ) Garden attributed to Jehangir	vicinity of Government House		tomb-garden		tomb extant
J-3	Bagh-e- Dilkusha or Dilamez or Bagh Mehdi Qasim Kkan(Fauq)	Jehangir	Nur Jehan	Right Bank of Ravi about 100 bighas (1500'x1500')		pleasure garden became tomb-garden in 1627 of SJ	perimeter wall, water channels fountains, pathways, 4 wells	
J-4	Bagh-e-Anarkali	Jehangir	unknown	Left bank river front		tomb-garden		
S-1	SHAHJEHAN Faiz Bagh	Shah Jehan	unknown	unknown-P-		Tomb-garden of foster mother of Dil Aram (SA)		
S-2	Shalamar Gardens	SJ	Shah Jehan		completed Oct. 1642 foundation stone laid June 1641	pleasure garden		

S-3	Angoori Bagh	P-Shah Jehan		south of Inayat Bagh & SB		fruit garden		
S-4	Inayat Bagh	P-Shah Jehan		south of SB		fruit garden		
S-5	Methab Bagh	P-Shah Jehan		north of SB		fruit garden?	walled, garden baradari, water tank, fountains, fruit trees	
S-6	Bagh-e-Nur Jehan	SJ	Nur Jehan	right bank Ravi, across walled city	after 1627 to 1645	pleasure garden Later Burial place of Nur Jehan	Walled Garden, tomb, palace Chahar Chaman (4 gardens) water tanks, fountains, mosque	tomb-extant
S-7	Bagh-e-Bilawal Shah	SJ		left bank of ravi, near village Bhogiwal, on old road to SG	pre-1636	tomb-garden of Saint-Bilawal Shah	walled garden	Extinct existed in 1884
S-8	Pervez Bagh son of SJ, father in law of Dara Shikoh	SJ	Parvez, son of SJ, father-in-law of Dara Shikoh	west of Kot Khawaja Saeed		tomb-garden?		Gumbad-e-Pervez extant, garden extinct
S-9	Mushki Mahal	SJ	Nawab Mian Khan, son of Nawab Sadullah Khan, Wazir of SJ; called Mushki after slave who built it	near the village Bogiwal		haveli garden later burial place of Mian Khan	walled garden? Small mosque & jawab-i-Masjid, , gateway, central tank, channels, cascades, terraced gardens	tomb extant
S-10	Bagh Abul Hasan	SJ	Abul Hasan	south of the Shalamar Road	unknwon	tomb-garden of Khawja Hasan	garden around tomb	tomb extant; garden extinct
S-11	Bagh Khawaja Ayyaz	SJ	Khawaja Ayaz, contemperory of Ali Mardan Khan	west of the Shalamar	unknown	mosque-garden	mosque extant (near tomb of Shah Hussein)	
S-12	Bagh Nustrat Jang Bahadur	SJ	unknown	nesr Bagh Abul Hasan	about 1645	tomb-garden	tomb of Nustrat Jang Bahadur walled garden of 40kanals mosque	tomb extant
S-13	Bagh Ali Mardan Khan	SJ	unknwon	near?	unknown	tomb-garden	grand water tank, intact till 1863 walled garden?	tomb & gateway extant
S-14	Bagh Sawami Jal	SJ	unknown (mentioned in SA)	near Bagh Pervez	unknown	unknown	walled garden	Extinct
S-15	Buddho Bagh	SJ	unknown (mentioned in SA)	near village Bhogiwal	unknown	unknown	unknown	
S-16	Bagh-e-Eishan	SJ	on orders of SJ	west of Begum Pura	unknown	tomb-garden	tomb of Khawja Khawand Mahmud alais Hazrat Eeshan; mosque walled garden	tomb extant?
S-17	Bagh-e-Wazir Khan or Nakhla Wazir Khan	SJ	Wazir Khan, Government of Lahore during SJ reign	south western of Walled City	pre-Ahmed Shah Abadali invasion	pleasure garden with date grove	baradari, tanks, date palms fountains	baradari & tanks extant
S-18	Gulabi Bagh	SJ	Sultan Baig, died 1657	Enroute to SG (E) stretched to SG (P)	completed 1655	pleasure garden? tomb of Dia Anga	4 gateways; baradaris, pathways rose gardens	one gateway extant
S-19	Bagh-e-Dara	SJ	Dara Shikoh, eldest son of SJ	east of SG				
S-20	Garden of Zebinda Begam (Chauburji gateway)	SJ	P- Jahan Ara Begum (Begum Sahiba) daughter of SJ	Ravi-branch (E) boundaries to Nawan Kot (south) Miani (east) Pir Maki (north) Ravi (west)	completed 1646-47	pleasure garden	walled garden grand gateway, water tanks, other buildings	
S-21	Tomb of Badruddin Alam Bokhari	SJ	Nawab Sa'ad ullah Khan, Prime Minister of SJ	near old Tehsil (replaced by Raja Sochit Singh Dogra Haveli)		tomb-garden	green domed tomb	tomb- extant
S-22	Tomb of Hazrat Sayyed Mahmud	SJ	unknown	P- near Tomb of Alam Bokhari	about 1640	tomb-garden	tomb	tomb-extant - garden destroyed during Sikh period
S-23	Bagh-e- Asaf Jah brother of Nur Jehan, f/o Mumtaz Mahal Made Governor of Lahore in 1625, died 1641	SJ	orders of SJ	west of Akbari Serai Tomb	1641-45	tomb-garden	walled garden, tomb, 2 gates, fountains, channels, tanks Chahar bagh	Extant
S-24	Bagh Kalich Khan	SJ	unknown	lower side of Bagh Mirza Kamran right bank of Ravi	unknown	unknown	baradari	extant; Baradari dilapidated during Dara Shikoh time

Sources & Abbreviations

SG-Lahore Shalimar Gardens; Lhr-Latif Lahore; SA *Sakina-tul-Aulya*, Dara Shikoh P Probably TC- Taqiqqat-e-Chisti; E Extant LPPF- Lahore Past Present Future (Baqir) SJ Shah Jehan

enroute along the road connecting the walled city to Shalamar Gardens such as the Bagh-e-Bilawal Shah (on the left bank of the Ravi near Bogiwal on the old road to Shalamar Gardens), Pervez Bagh (west of Kot Khawaja Saeed), the haveli garden of Mushki Mahal (near the village Bogiwal), Bagh Abul Hasan (south of the Shalamar), Bagh Khawaja Ayyaz (west of the Shalamar), Bagh Ali Mardan Khan, Bagh Sawami Jal (near Bagh Pervez), Buddho Bagh (near village Bhogiwal), Bagh-e-Eishan (west of Begum Pura), and the garden in the immediate vicinity of the Shalamar i.e. the Gulabi Bagh (west), Bagh-e-Dara Shikoh (east), Inayat Bagh and Angori Bagh on the south, the Metabi Bagh or Mewa Bagh on the north.

The impact of the Shalamar Bagh on the development pattern of Lahore was significant, changing the structure of the city and expanding it to a circuit of about 16-17 miles during Shah Jehan's sovereignty (Thornton TH, Old Lahore quoted in Baqir pg 325) Gardens became an important aspect of the spatial pattern and the city developed a maturity of design as in evident from the remnants of gardens and historical accounts. Not sufficient research on this aspect has been carried out to reveal the significance of gardens vis-à-vis the urban morphology of Lahore. It is not known whether the placement of the gardens was according to a larger vision, or whether there was a designed pattern of waterfront gardens as in the case of Agra. Or whether Jehan Ara Begum's (Shah Jehan's daughter) extensive garden situated on a branch of the Ravi south-west of the walled city, the Bagh-e-Zebinda Begam, (completed1646-47), had any significant relationship with the exquisite Shalamar Gardens.

2.4 DESCRIPTION OF SHALAMAR GARDENS

This section comprises of a summary description of Shalamar Gardens World Heritage Site, including its history and an outline of the type of cultural assets that now make up the site and give it its character. To complement this section, there is a fuller inventory of key elements of the site, including garden features, water works and buildings in Part 5. Further information is available Part 3 which presents a fuller discussion of the universal values and significance of the site; and in the Annexures which are expert reports on interventions and the development of the site, its environment, hydraulics and plantation.

2.4.1 Brief Historical Background

The World Heritage site of Shalamar Gardens is located on the left bank of the former bed of the River Ravi, upstream and east of the Walled City of Lahore which also has the Lahore Fort, the other component of the World Heritage Site in Lahore, on its north western edge. When the great canal of Shah Jahan, the Shah Nahr, begun in 1639, was brought to Lahore, a site was sought to build a garden, naturally-terraced to allow for the complex flowing-water system, with

fountains, falls and pools, which was fundamental to a Mughal garden.

According to historical texts, the garden was constructed on the model of Shalamar Garden in Kashmir. The official responsible was Ali Mardan Khan, the governor of Punjab; work was supervised by Khalil Ullah Khan, Fazil Khan was in charge of construction of the buildings and Jani Mimar designed the layout of the garden on the instructions of the Emperor. It was built, in what was then the suburbs of the city, in the brief period 1641-2 and is widely considered to be a landmark in the history of Mughal garden design, "one of the most elegant achievements of Mughal culture at its peak: (Kausar).

The garden comprises three terraces descending from south to north, covering an area of 16 hectares. The terraces are divided by walkways and water channels into classical "*chahar bagh*" gardens with fountains, tanks and cascades. The symmetrical parterres were planted with flowers, aromatic shrubs, fruit and shade trees. Entrance to the gardens was via the lowest terrace, with a vista upwards to the private imperial terrace at the middle level and the upper terrace designed for use by the court ladies. In concept, the gardens follow a geometry and pattern imbued with symbolism, creating a vision of Quranic paradise on earth.

The Emperor Shah Jahan visited the newly completed garden on October 31, 1642 with guests from Persia and Turkey "who were astonished to see the garden and were of the opinion that there is no garden on the face of earth as beautiful as this garden." (Lahori) Court chroniclers Inayat Khan and Kamboh enthusiastically reported the pleasure of the Emperor on examining the "paradise-like terraces", gardens and the agreeable pavilions which "vied with the heavens in grandeur". Shalamar Gardens became a favourite halting place and a royal camping ground on the route to Kashmir.

2.4.2 Brief Site Description

Shalamar Gardens is built on three descending terraces placed north to south; the upper and lower being square and of equal size (874' sq.) and the middle being a rectangle 874 x 254' (Fig. 2.3). The Upper Terrace is several feet above the middle which in turn stands above the lower. The total area enclosed by the peripheral wall measures approximately 42 acres. On the east of the Upper Terrace there is another attached garden square, the Naqqar Khana, measuring approximately 250 x 180 ' and also enclosed by a high perimeter wall.

The Upper and Lower Terraces are divided by water channels and aligned pathways into quadrants. Each has a decorative tank in the centre of the terrace

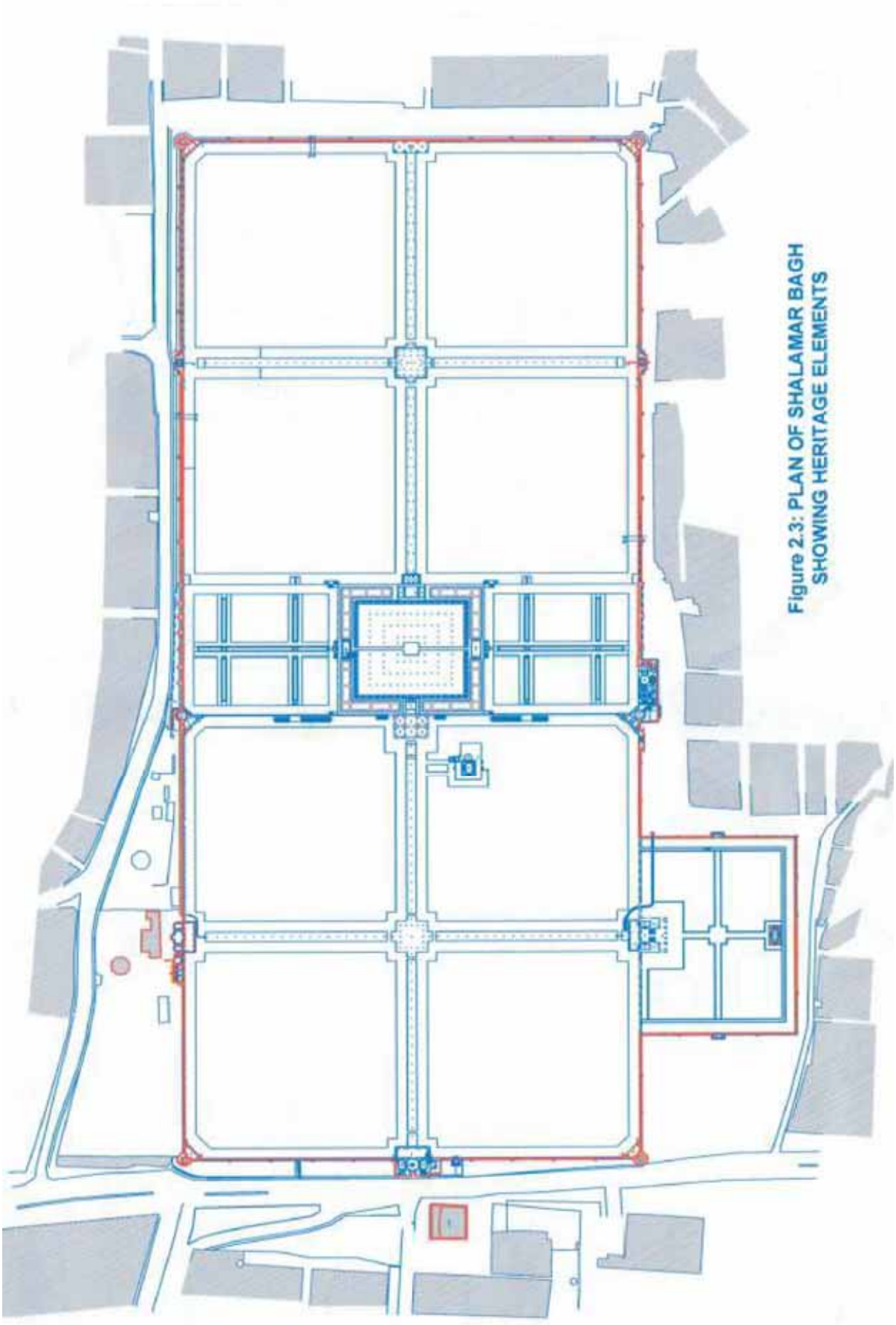


Figure 2.3: PLAN OF SHALAMAR BAGH
SHOWING HERITAGE ELEMENTS

where the channels intersect. The channels, fountains and the tanks of the Upper Terrace have spraying 105 fountains and those of the Lower Terrace 153 .The quadrants of both terraces are planted with grass, trees, shrubs and flower beds.

The Middle Terrace consists of three parts: the central part (282 x 255') which is 4'6" higher than the sides is occupied by a large water tank with 152 fountains and a central platform or *mehtabi* reached by causeways running east west. The side sections of the Middle Terrace are divided by water channels and paths into six rectangular garden spaces planted with roses in the English style.

The historical entrances to the gardens were through two ornate gateways in the side walls of the Lower Terrace. An entrance was introduced in the centre of the south wall of the site by the British; it is currently used for dignitaries only. Daily entry is through a small opening to the east in the southern wall. The perimeter wall of the site is decorated with recesses and external piers, and six hexagonal *burj* or towers.

In concept, the gardens follow a geometry and pattern imbued with symbolism, creating a vision of Quranic paradise on earth. They were planted, according to contemporary and later literary sources, with flowers, shrubs and trees with fragrance, rich fruit and pleasing shapes and colours. Particular attention was paid to types that blossomed and scented the night air when the garden was used to enjoy cool evenings in the moonlight.

There are a number of structures within the garden dating from the original Mughal construction. In the Upper Terrace, which was for the use of the emperor and his harem, there is the Aramgah, or Royal Sleeping Chamber on the south; the Beghum ki Kwabgah, or Queen's Sleeping Chamber on the west; and to the east, the Jharoka e Daulat Khan-e-Khas o-Aam or Balcony of the Hall of Public and Private Audience. On the north, looking over the central water tank, is the Aiwan pavilion. In the northeast quadrant of the Upper Terrace there is another pavilion of the Sikh period, commonly referred to as the Moorcroft Building.

There are four pavilions and garden parterres placed symmetrically around the tank and a throne on the southern side. The pavilions on the north, Sawan Bhadon, are closely positioned and enclose a recessed area filled with niches for lamps, called the Chini Khana. Also on the Middle Terrace and set into the eastern peripheral wall is a royal bath complex called Shahi Hammam.

In the Lower Terrace there is only one structure, the Daulat Khana-e-Khas, in

the centre of the north wall of the site. Within the Naqqar Khana to the east there is a pavilion called the Arz Begi or the office of the Minister of Court. There are large gateways in the north and south walls of the enclosure which was also divided by paths and channels into four garden quadrants.

Water entered the gardens from the south, under the Aramgah, into the central channel of the Upper Terrace. It then flowed through all the channels of the terrace working the decorative fountains. It flowed northwards under the Aiwan pavilion and then fell dramatically downwards over a carved marble cascade or *chadar* into the central tank of the Middle Terrace. Here it filled the tank and operated the dense arrangement of fountains. Water flowed over cascades to the east and west down to the channels of the side gardens. To the north, it fell over the *chini khana* creating a waterfall in front of its many carved niches. In the daytime these niches held flowers, but at night they were lit with lamps which shone through the tumble of water. When it reached the Lower Terrace from the *chini khana*, the water filled the channels and fountain displays. It left the site flowing under the pavilion in the north wall.

PART 3

The Current Context

PART 3

THE CURRENT CONTEXT

3.1 WORLD HERITAGE INSCRIPTION

Shalamar Gardens was inscribed on the World Heritage List, jointly with Lahore Fort, in 1981. Both sites were inscribed on the basis of Criteria (i) (ii) and (iii), specifically, that "they represent a masterpiece of human creative genius, exhibit an important interchange of human values over a span of time or within a cultural area of the world, or developments in architecture or technology, monumental arts, town planning or landscape design, and because they bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or has disappeared."

At the 23rd Session of the World Heritage Committee (1999) it was noted that there was damage to the hydraulic tanks outside the Shalamar Gardens. An ICOMOS-UNESCO reactive mission was recommended. The mission recorded damage to the hydraulic works of the Gardens as a result of works to enlarge the 4-lane Grand Trunk Road into a 6-lane motorway. The report noted the complete loss of two of the three hydraulic works and partial demolition of the third. Concern was also expressed about the degradation of the surrounding environment of the garden and the critical condition of the ceiling of the Shish Mahal at Lahore Fort.

The World Heritage Committee requested the World Heritage Centre to organize a reactive mission. As a result of its recommendations, the Lahore World Heritage site was put on the list of World Heritage Sites in Danger on 2/12/2000 at the 24th session of the World Heritage Committee in Cairns. The World Heritage site remains on the list as of the writing of this document.

3.2 CULTURAL SIGNIFICANCE OF SHALAMAR GARDENS

3.2.1 Introduction

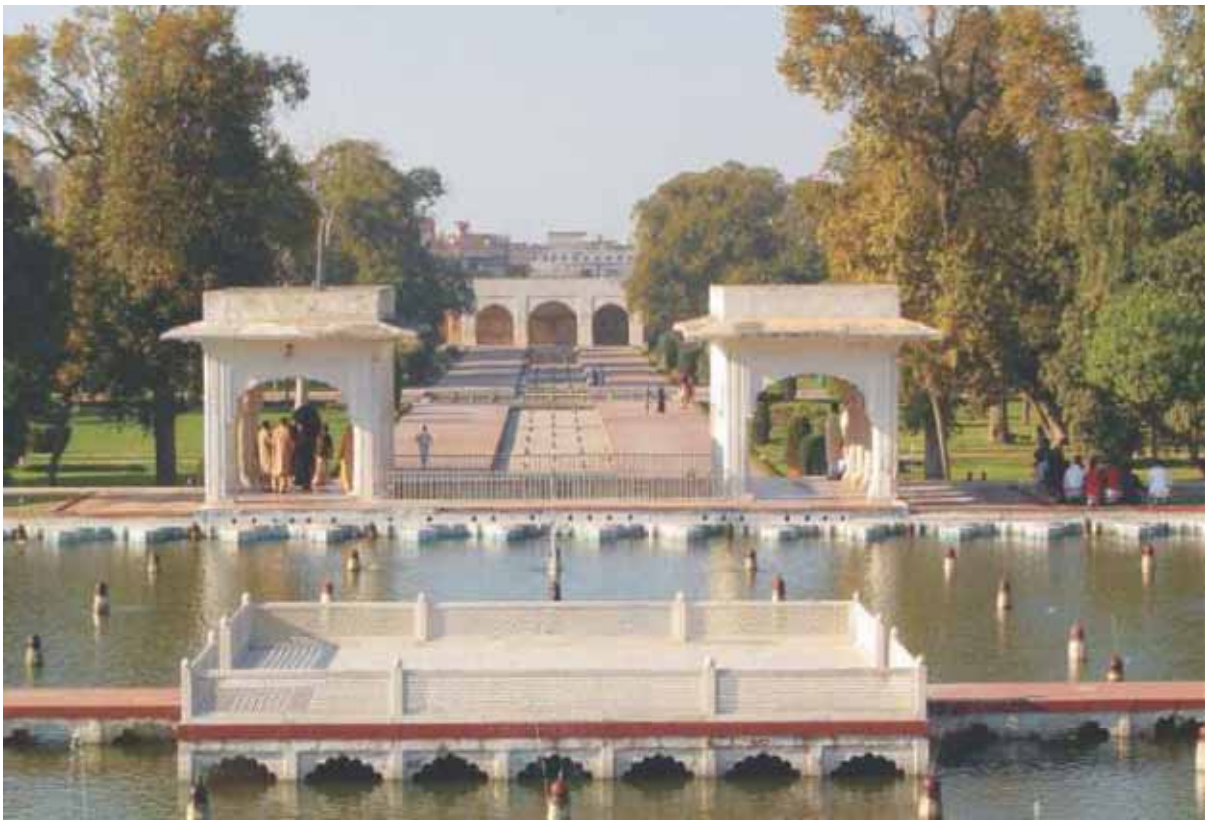
This section of the Management Plan sets out the cultural significance of the World Heritage Site through an assessment of the World Heritage values according to the UNESCO World Heritage Committee's criteria, and other values of local, regional, national and international importance. Understanding the full significance of Shalamar Gardens is the basis for making informed and effective management decisions and is therefore a fundamental part of this Management Plan. It will assist in ensuring that the outstanding universal value of this World Heritage Site are protected for future generations.

The assessment that follows is divided into two parts. The first is a summary statement of significance. The second deals with other requirements of inscription/ attribution of outstanding universal value: the authenticity and integrity of the site and the provision of protection and management of the site.

3.2.2 Summary Statement of Significance

By the term "cultural significance" is meant the "aesthetic, historic, scientific, social or spiritual value for past, present or future generations….embodied in the place itself, its setting, use, associations, meanings, records, related places and related objects" (Burra Charter, Article 1.2). Significance assessment relates to understanding the ways in which a given site is considered to be important so that managers may prioritize the heritage management activities. The overall significance of a site is determined through an analysis of all the values attributed to it.

The Outstanding Universal Value based on the exceptional significance of the site has been recognized by its status as a UNESCO World Heritage site. It is deemed to represent a masterpiece of human creative genius, exhibiting an important interchange of human values within a cultural area of the world and



Sawan Bhadon and the Mahtabi in the foreground

developments in technology, planning and landscape design. It is considered to bear exceptional testimony to a cultural tradition and civilization which has disappeared.

The site is significant for its historical associations with a particular imperial period within the history of the Mughal sub-continent. It represents a rare intact example of the vibrant garden tradition of that period, characteristic of the many linked gardens of Lahore of which Shalamar Gardens was perhaps foremost. This important landscape tradition combines technological innovation in hydraulics with aesthetic planting principles and the symbolism of symmetry and vista to create an encapsulation of Mughal genius.

This significance is enhanced by the many individual elements that make up the whole. The following are of particular note:

- The unaltered spatial distribution of elements
- The remains of the sophisticated Mughal hydraulic system
- Intact enclosing perimeter wall and its decorative features
- Monumental gates and their tile mosaic decoration
- The sole extant example of a Mughal period *hammam*
- The complex of water works features including fountains, waterfalls, channels and pools creating a dramatic visual display
- The placement of pavilions, rest houses and platforms for royal enjoyment
- Traces of the original planting pattern

In the contemporary context, Shalamar Gardens plays a symbolic role as one of the nation's most significant and valued heritage sites. It has enormous untapped potential to educate and inform the public regarding many historical and cultural themes of Pakistan's past and future.

The site is significant to the local community as a rare green space in the congested urban environment. It could also be an important economic resource for this


Chadar of the Main Tank


Upper Terrace channel and central pool

community through sustainable tourism and related activities which involve and extend into the local areas.

Table 3.1 and 3.2 present a summary of the cultural and contemporary socio-economic values of Shalamar Gardens upon which its cultural significance is based

CULTURAL VALUES	
Identity value — The emotional ties of society to the site (aesthetic and spiritual value, continuity, memorial, legendary, political, patriotic and nationalistic) It is based on recognition and influences selection of a resource.	*Shalamar Gardens is an icon for national identity, acknowledged as such by all levels of society even if not fully understood. It is symbolic of both historical and legendary versions of the past which are shared by all Pakistanis; a tangible representation of Muslim rule in the subcontinent. It provides a link with the pre-colonial past reviving memories and sentiments related to a free subcontinent.*
Relative artistic or technical value — The importance of the design and the significance of its technical, structural and functional concept and workmanship. It is based on research and influences the strategy for treatment of a resource.	*Shalamar Gardens embodies the Quranic garden concept of paradise on earth. The site retains the essential Mughal char bagh plan and the original distribution of built elements, pathways, water features and planting areas.*
Rarity value — Defines the resource's rarity, representativeness or uniqueness in relation to other examples of the type. It is based on statistics and influences the level of protection accorded to a resource.	*Shalamar Gardens is one of only a few intact Mughal gardens and represents the classic form.*
Physical and Visual value - The value inherent in the scale, location, physical form and its impact on the viewer. It is based on recognition and influences overall treatment, particularly of site setting.	*Shalamar Gardens is an elegant and visually stunning representation of Mughal court life in the language of landscape.*

Table 3.1 Statement of the Cultural Values of the World Heritage Site

CONTEMPORARY SOCIO-ECONOMIC VALUES	
Economic value The value generated by the heritage resource or by its conservation in terms of potential revenue from tourism, commerce, use and amenities. It is based on inherent qualities and their marketing and influences community priorities and future conservation funding.	*Shalamar Gardens is a potentially rich economic resource with potential revenue generated through visitation and appropriate hospitality infrastructure in the vicinity; economic benefits could be felt in the local community resulting from integrated development. It has the potential for income generation for the community through craft-sales based on designs of the Bagh.*
Educational value The extent to which a resource can inform the present about its past in the context of cultural tourism. It is based on assessment of physical integrity and historical research and influences re-use and interpretation decisions.	*Shalamar Gardens provides a highly visible and dramatic tool for informing the present about the many historical and cultural themes of Pakistan's past; it contains a wide array of didactic forms, both built and intangible, to enrich the visitor experience.*
Recreational and Social value the potential for social interaction and establishing community identity. It is based on assessment and influences interpretation and presentation of the site and visitor interaction.	*Shalamar Gardens stands at the physical centre of Lahore and the symbolic centre of the nation; as such, it is the metaphorical property of a wide community. Involvement of the community in safeguarding and caring for the site creates a sense of pride and commitment in all elements of society and strengthens social cohesion.*

Table 3.2 Statement of the Contemporary Socio-economic Values of Shalamar Gardens.

3.2.3 Meeting the Test of Authenticity

A site may be understood to meet the conditions of authenticity if its cultural values (as recognized in the nomination criteria proposed) are truthfully and credibly expressed through a variety of significant attributes including:

- ∞ form and design;
- ∞ materials and substance;
- ∞ use and function;
- ∞ traditions, techniques and management systems;
- ∞ location and setting;

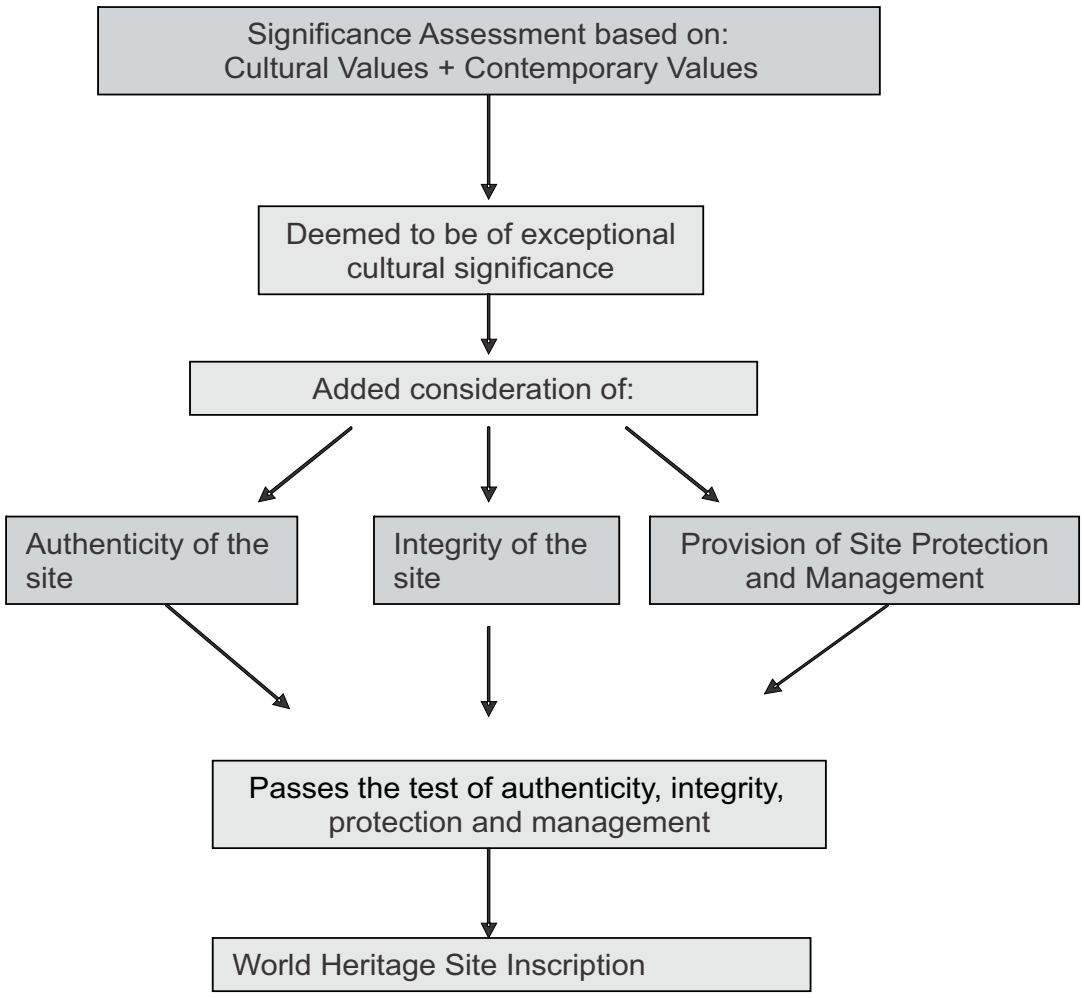


Fig. 3.1 Diagram showing the World Heritage evaluation process

- language, and other forms of intangible heritage;
- spirit and feeling; and
- other internal and external factors.

The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful. "Information sources" are defined as all physical, written, oral, and figurative sources, which make it possible to know the nature, specificities, meaning, and history of the cultural heritage (*Nara Document on Authenticity*, 9.)

The authenticity of different aspects of Shalamar Gardens varies widely. The original Mughal garden design of Shalamar Gardens is clearly and fully preserved in the present plan and layout of the site. The terracing survives in its original form with the complex arrangement of paths and decorative network of

water channels and display features unaltered from the original. Similarly, the structures of the Mughal period remain in their original relationship to garden and water. This is particularly important in terms of the retention of the royal vista and lines of vision along the length of the landscape. All of the basic components of the cultural landscape are spatially intact.

The site is also authentic to the extent that it reflects "the significant phases of construction and utilization in different phases of its historical time line" (*Management Guidelines for World Cultural Heritage Sites,* pg.74). Within the original Mughal design there are later Sikh structures and interventions and British elements, particularly in terms of planting. Throughout its life the site has been consistently used as a garden, originally for royalty, then as an orchard and now as a garden for the community.

In terms of materials and workmanship the authenticity of site has been compromised to some degree. A number of the built elements of the site have been partially or fully restored, in some cases using intrusive materials. The standard of workmanship has often been of an inadequate standard for a World Heritage site and not in the tradition of the original craftsmen. Decisions have repeatedly been made without the benefit of research. Similarly, the setting of Shalamar Gardens has been compromised by uncontrolled urban development and encroachment. However, the greatest threat to the authenticity of the site is from the loss of knowledge regarding the species planted in the Mughal period garden and their patterning within the landscape. In this respect the direct link with the past has been lost.

3.2.4 Measurement of Integrity

Parks Canada defines integrity as "the health and wholeness" of a heritage resource. "A resource can be said to possess integrity when the values for which it was designated are not impaired or under threat; they are effectively communicated to the public; and are respected in all decisions and actions affecting the site." (Parks Canada 1994) To measure integrity the *Operational Guidelines* require assessment of the extent to which a site:

a) includes all elements necessary to express its outstanding universal value;
b) is of adequate size to ensure the complete representation of the features and processes which convey the property's significance;
c) suffers from adverse effects of development and/or neglect.

Many of the values for which Shalamar Gardens was inscribed are severely impaired and under serious threat; notably, the setting of the site, fabric of the

peripheral wall and other structures, the Mughal hydraulics system and the planting of the gardens. These are all elements which are fundamental to the outstanding universal value of the site.

The size of the site as currently delineated is adequate to represent the main features of Shalamar Gardens but not to include the external hydraulic elements and remains of related Mughal gardens which are an important part of the site's "story". The greatest threat to the World Heritage site's integrity, however, comes from the combination of uncontrolled urban development in its immediate environs and years of neglect and inadequate care.

3.2.5 Protection and Management

To be deemed of outstanding universal value, a property must also have adequate legal and/or traditional protection and management mechanisms to ensure the conservation of the nominated cultural properties or cultural landscapes. (*Operational Guidelines for the Implementation of the World Heritage Convention.* (2005))**.** Protection and management of World Heritage properties should ensure that the outstanding universal value, the conditions of integrity and/or authenticity at the time of inscription are maintained or enhanced in the future.

The legal and regulatory protection provided for the site is discussed in Part 4. The delineation of boundaries is another essential requirement in the establishment of effective protection of nominated properties. Boundaries should be drawn to ensure the full expression of the outstanding universal value and the integrity and/or authenticity of the property. For properties such as Shalamar Gardens nominated under criteria (i) - (vi), "boundaries should be drawn to include all those areas and attributes which are a direct tangible expression of the outstanding universal value of the property, as well as those areas which in the light of future research possibilities offer potential to contribute to and enhance such understanding." (*Operational Guidelines*, pg. 25)

Wherever necessary for the proper conservation of the property, an adequate buffer zone should be provided. A buffer zone "an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection." (*Operational Guidelines*, pg. 25).

The boundaries and buffer zone of Shalamar Gardens were not clearly defined at the time of inscription on the UNESCO World Heritage List.

3.3 IMPLICATIONS FOR THE MASTER PLAN

World Heritage inscription does not provide specific statutory protection or financial aid from UNESCO. It is, rather, an internationally recognized designation which encourages national governments and site managers to ensure the long term protection of sites of global significance.

The *Burra Charter* states that the aim of conservation is to retain the cultural significance of a place (Article 2.1) and that places of cultural significance should be safeguarded and not put at risk or left in a vulnerable state (Article 2.3). It is this cultural significance which is the basis for World Heritage inscription and it is the responsibility of states parties to "maintain the authenticity and, in the case of World Heritage sites, the cultural values for which the site was inscribed" (*Management Guidelines for World Cultural Heritage Sites* (*MGWCHS*)).

Design and implementation of the Master Plan for Shalamar Gardens must, therefore, focus clearly on the maintenance and protection of these physical elements and the place itself, its setting, use, associations and meanings in order to meet this obligation. Specifically: the spatial and symbolic relationship between the three terraces; the role of vegetation in terms of sight and smell; the interaction of garden features with water and planting patterns, the period fabric of garden features and structures, the details of style and decorative schemes, the balance of periods represented by new features and alterations to existing garden aspects, must be safeguarded.

All conservation treatments should guarantee protection of the authenticity of the site, prolong the duration of its integrity and prepare it for interpretation. A balanced judgment based on a hierarchy of resource values and a systematic process of evaluation is therefore essential for the establishment of an appropriate conservation methodology and treatment strategy.

Definition, description and the implementation of boundaries and buffer zones for the World Heritage site are a major aim of the master planning process. An important additional goal is to address the issues of critical concern to the World Heritage committee, resulting in removal of the site from the UNESCO list of World Heritage in Danger.

3.4 LEGAL AND REGULATORY FRAMEWORK

The World Heritage Site of Lahore Fort and Shalamar Gardens is governed by the stipulations of *Federal Antiquities Act 1975* (Act VII of 1976). The Act stipulates the following points relevant to the World Heritage site:

- ∞ It states that the Federal Government will constitute an Advisory Committee (Clause 3).
- ∞ According to the Act, the Federal Government may, by notification in the Official Gazette, declare any antiquity to be a protected antiquity for the purposes of the Act (Clause 10 (1)). There is also a requirement to fix a notification in a "conspicuous place of or near the antiquity."
- ∞ The Act is clear regarding the use that the protected monument or site may be put to. Clause 18 states that "A protected immovable antiquity shall not be used for any purpose inconsistent with its character or for a purpose other than that directly related to its administration and preservation."
- ∞ Clause 19 clearly stipulates the fine and punishment in case the 'antiquity' is damaged or destroyed: " No person shall, except for carrying out the purposes of this Act, destroy, break, damage, alter, injure, deface or mutilate or scribble, write or engage in any inscription or sign on, any antiquity or take manure from any protected antiquity". Infringement is punishable (19(2)) "with rigorous imprisonment for a term which may extend to three years, or with fine or with both".
- ∞ Clause 22 requires that "no development plan or scheme or new construction on, or within a distance of two hundred feet of a protected immovable antiquity shall be undertaken or executed except with the approval of the Director General."
- ∞ Clause 23 (i) prohibits placing of "any neon signs or other kinds of advertisement, including bill posting, commercial signs, poles or pylons, electricity or telephone cables and television aerials, on or near any protected immovable antiquity."

The *Punjab Heritage Foundation Act 2005* creates a foundation with the primary purpose to preserve, maintain and rehabilitate the Punjab Heritage "through various means, including technical or financial assistance and to create awareness among the people for preservation of the Punjab Heritage." It also creates a Fund comprising grants-in-aid from government, voluntary contributions, income from leases, property sales, ticket sales and other sources. Management of the Foundation is by a Board of Governors empowered to utilize the Fund, undertake measures for preservation, conservation, maintenance and rehabilitation of the Punjab Heritage; prepare and approve projects, authorize expenditures, acquire heritage properties, promote heritage, research and publication, and frame and approve policy about the use of Punjab Heritage. The Act creates a *Tajdeed-e-Lahore* separate committee for preservation of cultural heritage within the revenue limits of Lahore District. A Panel of Experts can be established to give advice. The Act clearly states that "no alteration or any other measure for improvement, maintenance, conservation or preservation of the Punjab Heritage shall be taken except in accordance with the provisions of this Act."

PART 4

Theoretical Framework

PART 4

THEORETICAL FRAMEWORK

4.1 GUIDING PRINCIPLES TO ACHIEVE A LONG TERM VISION

The principals below reflect the theoretical approach taken by the study team in carrying out the design of the Shalamar Gardens Master Plan. They are presented in order to clarify the framework in which work has been carried out.

4.1.1 Maintenance of the Authenticity and Values of the Site

The study team has adopted the principle stated in the *Burra Charter* (Article 2.2) that the single most important aim of conservation is to retain the cultural significance or authenticity of a place, the "aesthetic, historic, scientific, social or spiritual value for past, present or future generations". The study team also acknowledges the *Draft Hoi An Protocols (UNESCO 2004)* regarding prerequisites for conservation and maintenance of authenticity:

"The authenticity of monuments, buildings and structures is integrally linked to the temporal narrative embedded in their fabric. Understanding the chronological development of a monument and the multiple and complex structural, spatial and decorative layers which result is essential to the conservation of authenticity. " (Art. 5.2)

It is essential that the values which give Shalamar Gardens meaning and significance be clearly stated and that all preservation efforts should focus on their retention. Tables 3.1 and 3.2 in the previous part of the Plan present a preliminary statement of those values which make the site significant, and, as such, are the elements of the World Heritage Site which must be safeguarded.

Given that values can change in nature and perception, the assessment of values should be reviewed at stages, listing further values and to broaden the focus of to protection of all significant values present by complementary management.

4.1.2 Perceiving Shalamar Gardens as a Cultural Landscape

Cultural landscapes are defined by UNESCO World Heritage as "combined works of nature and man…illustrative of the evolution of human society and settlement over time, under the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal" (*Operational Guidelines*, pg. 14)

Historic gardens such as Shalamar Gardens fall within the category of a "clearly defined landscape designed and created intentionally by man. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles."

The *Florence Charter on Historic Gardens* states that "The historic garden is an architectural composition whose constituents are primarily vegetal and therefore living, which means that they are perishable and renewable." (*Art. 2*)

Art. 5." As the expression of the direct affinity between civilization and nature, and as a place of enjoyment suited to meditation or repose, the garden thus acquires the cosmic significance of an idealized image of the world, a "paradise" in the etymological sense of the term, and yet a testimony to a culture, a style, an age, and often to the originality of a creative artist. "

The aesthetic values of a designed landscape must therefore be identified and safeguarded; it is the interconnected systems of land, air, water and vegetation which have dynamic qualities that differentiate cultural landscapes from other cultural resources, such as historic structures. Thus, their documentation, treatment, and ongoing management require a comprehensive, multi-disciplinary approach.

4.1.3 Safeguarding of All Original Remnants is the Priority of Conservation

The study has taken the position that "The aim of safeguarding of World Heritage sites is to maintain their authenticity and the values for which they have been listed. Therefore, any treatment should be based on the strategy for minimum intervention." *(MGHCHS,* pg. 21*)* All interventions should be reversible and should maintain the authenticity of the resource.

The original elements to be safeguarded include those accrued with the passage of

View of the Lower Terrace

Detail of water flowing over a chadar

time and changes in historical circumstances. These accumulated changes have themselves become part of the historical character and material substance of the site. "This material substance represents the intrinsic values of the cultural resource; it is the bearer of historical testimonies and of associated cultural values, both past and present. (*MGWCHS*, pg. 21*).*

The importance of retaining original fabric and its inherent values was recognized by John Marshall, whose *Conservation Manual* written in 1923 has served as the main reference for generations of Lahore World Heritage site custodians: " Although there are many ancient buildings whose state of repair suggests at first sight a renewal, it should never be forgotten that their *historical value is gone when their authenticity is destroyed,* and that our first duty is not to renew them but to preserve them. …… Broken or half decayed original work is of infinitely more value than the smartest and most perfect new work." (Marshall 1923: 9-10)

4.1.4 Decision Making Must be Based on Full Documentation and Research

The Master Plan has taken the following statements to reflect the pivotal importance of research and detailed documentation to the conservation process:

"Decisions regarding the type and extent of intervention carried out as part of a conservation plan should only be taken after extensive research, expert discussion and weighing of conservation options. Intervention should be the minimum required to ensure the preservation of the heritage values and authenticity of a monument or building. " *(Hoi An Protocols*, 4.1.6 *)*

"No restoration work and, above all, no reconstruction work on an historic garden shall be undertaken without thorough prior research to ensure that such work is scientifically executed and which will involve everything from excavation to the assembling of records relating to the garden in question and to similar gardens. Before any practical work starts, a project must be prepared on the basis of said research and must be submitted to a group of experts for joint examination and approval." *(Florence Charter, Article 15)*

4.1.5 Conservation and Management Programming Must be Sustainable

All programmes and action plans addressing the protection and maintenance of Shalamar Gardens must be sustainable. This means that decisions are made on the basis of up-to-date, reliable and usable information and that all actions are at best reversible, or at least the minimal needed, "changing as much as necessary but as little as possible" (*Burra Charter*, Article 3.1*)* and fully documented. Programming should be designed in such a way that it can continue along clearly

defined paths, following well designed and focused methodologies, regardless of changes in staffing or administration at the site.

4.1.6 Tourism Should Support Conservation Needs - Not Conservation to Meet Tourism Needs

The consensus of the Project Team is that preservation of cultural heritage and support of creativity and living culture must be given precedence when developing the Master Plan. All efforts for the promotion of cultural tourism need to include adequate controls to prevent the intrusive and destructive impact of tourism witnessed at many historic sites. Proposals and recommendations should ensure that tourist activities do not undermine the authenticity and integrity of the historic site. Intensification of tourism can only be justified if the major portion of all earnings is directed towards the maintenance of cultural assets and the communities on which tourism is based. With these provisos, there is ample scope for cultural tourism to develop and benefit local communities and their heritage.

4.2 STANDARDS FOR INTERVENTION

The reason for selecting one level of intervention over others depends upon a number of factors, including the nature and heritage value of the building or site, the goals of the conservation project, the scale of the resource being conserved and the financial and human resources available.

Most heritage conservation projects, by necessity, involve a combination of approaches rather than isolated interventions. Within a project that seeks to return a building to an earlier appearance ('restoration'), it may be necessary to reinforce historic structural elements (consolidation) upgrade entrances, exits, and services ('rehabilitation'), and, perhaps, dismantle a section in order to replace intrusive elements and support historic portions ('reassembly').

The most critical stage in the conservation process is deciding which one or more approaches to take. This decision determines the extent to which the integrity of the historic fabric is retained. The preferred levels of intervention are always those which show full respect for historical fabric, maintaining and supporting existing fabric with a minimum of modern addition. Actions falling into the second level of intervention, those which exhibit only moderate respect for original material, should only be employed in rare situations and with detailed justification. Actions showing little respect for historical fabric should be avoided whatever the circumstances.

Efforts must be made to ensure the following:

- ∞ That an assessment of which level(s) of conservation are appropriate should be carried out in advance of any conservation decision making;
- ∞ The assessment should be based on authentic information and full documentation;
- ∞ This can be assisted by following international standards and guidelines for conservation as listed in Annexure 1;
- ∞ All decisions should include reference to these standards and should be made after full discussion between the custodians of the site, the Project Management Team and the Technical Committee;
- ∞ All decisions should be publicized for public comment.

4.2.1 Approach to Intervention in a Cultural Landscape

The US National Parks Service Preservation Brief 36: *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes* (1994) describes various broad approaches to the treatment of cultural landscapes:

(1) A landscape with a high level of integrity and authenticity may suggest preservation as the primary treatment. Such a treatment may emphasize protection, stabilization, cyclical maintenance, and repair of character-defining landscape features. Changes over time that are part of the landscape's continuum and are significant in their own right may be retained, while changes that are not significant, yet do not encroach upon or erode character may also be maintained.

(2) Rehabilitation is often selected in response to a contemporary use or need--ideally such an approach is compatible with the landscape's historic character and historic use. Rehabilitation may preserve existing fabric along with introducing some compatible changes, new additions and alterations.

(3) When the most important goal is to portray a landscape at an exact period of time, restoration is selected as the primary treatment. Unlike preservation and rehabilitation, interpreting the landscape's continuum or evolution is not the objective. Restoration may include the removal of features from other periods and/or the construction of missing or lost features and materials from the reconstruction period. In all cases, treatment should be substantiated by the historic research findings and existing conditions documentation.

(4) In rare cases, when evidence is sufficient to avoid conjecture, and no other property exists that can adequately explain a certain period of history, reconstruction may be utilized to depict a vanished landscape. The accuracy of this work is critical."

In the case of Shalamar Gardens, the authenticity of the site has been partially

compromised by historical and modern interventions. It is not possible to roll back time to display an original Mughal landscape. Discussion of options for various levels of intervention at Shalamar Gardens is in Part 7 of the Plan, where proposals for treatment of plantation, water works and the landscape as a whole is presented.

Interventions in the planted components of an historic garden must be based on evaluation of the significance and integrity of the planted features. This integrity can only be judged on the amount and reliability of information available regarding the historical planting, such as the species used and their locations compared to detailed recording of the existing condition of the garden planting.

Clearly, if the original species and their distribution are intact or known from historical sources, there is scope for preservation or re-planting to create a reliable "historical garden". If, as at Shalamar Gardens, current planting bears no relation to historical patterns then interventions must be decided on the basis of how much reliable historical documentation is available.

If researchers are confident that historical planting can be restored, the case must be well argued. Otherwise, it may be preferable to rehabilitate the garden and simply plant in keeping with documented Mughal tastes and patterns. Whatever approach is taken, it is important that the process be documented and that the visitor be informed clearly about what they are seeing.

At Shalamar Gardens discussion of treatment of the hydraulic system needs to be at two levels: firstly, interventions in the original, non-functioning Mughal system; and secondly, treatment of the functioning modern system.

4.2.2 Intervention in Architectural Features

For discussing various levels of architectural conservation intervention at Shalamar Gardens, a standardized terminology and definitions have been adapted from the *British Columbia Rehabilitation Principles and Guidelines*. Interventions are divided into those showing full, moderate and limited respect for the historic fabric of a building. A discussion of these various levels, their conservation implications and the circumstances under which they might be employed is presented in Annexure 2 . They should be fully understood by all those involved in conservation planning and should be referred to regularly during the decision making process.

4.3 PRIORITIZATION OF CONSERVATION INTERVENTIONS

There is a need for setting of priorities for conservation action at a complex site such as Shalamar Gardens in order to ensure efficient and effective investment of time and money. Work should be carried out on the basis of need as assessed by analysis of the severity of the conservation situation. A stated in the *Management Guidelines for World Cultural Heritage Site "* the inevitable contradictions of the planning process should be resolved first by examining the implications of all viable alternatives, and then by deciding which is least harmful to the significance of the heritage site." (pg. 43)

Severity can be assessed as the relative relationship between inherent significance in relation to current physical condition and the nature and extent of threats. The data needed to carry out this measurement includes statements of significance for individual built, hydraulic and planted elements, regular monitoring reports and expert assessment.

4.3.1 Conservation Situations

Conservation situations can be categorized as:

a. Very Poor: Critical and in need of Emergency and/or Stabilization Action:
   Element(s) of high cultural significance are in poor condition which is progressively worsening and there is imminent danger of loss of those qualities/features which are the basis of significance. Immediate action is required which will substantially improve the situation in both environmental and conservation terms.

b. Poor: Serious and in need of Preventive Conservation:
   Elements of high or medium cultural significance are in poor condition which is progressively worsening; there is growing danger of damage to or loss of those qualities/features which are the basis of significance. The problem is serious and may have existed for a long time; however, short term action begun within the next six months to a year and completed promptly will significantly improve the situation.

c. Fair: Ongoing and in need of Conservation Action:
   Elements of high or medium cultural significance are in poor condition which is long term and relatively stable and there is a danger that they may eventually result in damage to or loss of those qualities/features which are the basis of significance. Longer term action in the form of studies may be needed and should be started as soon as possible; however, the whole process may require a longer time scale before improvement can be seen.

d. Good: requiring monitoring and preventive maintenance only
   Elements of cultural significance are in stable condition without immediate risk of loss of those qualities/features which are the basis of significance.

4.3.2 The Aim of Prioritization

The aim of prioritization is threefold:

a. To identify the significant elements of each heritage resource as a whole which are in "Very Poor Condition" and require emergency action;
b. To identify "Poor Situations" which are progressively deteriorating and require preventive conservation action in the short term;
c. To identify "Fair Situations" in need of study and/or longer term conservation planning.

Initial steps have been undertaken as part of the catalogues and inventories presented in Part 5 of the Master Plan; individual elements and features have been identified as being in Critical Condition and requiring immediate action. These sources are meant to serve as the basis for planning and implementing conservation at the World Heritage site.

The Action Priority List in Part 7 of this Master Plan presents those elements of the site in need of priority conservation action. However, the condition of historical resources is not static and it will be necessary to update and amend this documentation at regular intervals based on regular monitoring.

Decisions as to what conservation action is required should be based on the condition assessments included in the Catalogue, informed by research into past interventions and maintenance, if any, and the assessments of ongoing monitoring of the resource. All decisions should be made in the context of international best practice as set out in relevant charters and guidelines presented in Annexure 1 and take into consideration the relative significance of the resource and the nature and extent of the threats it faces.

PART 5

The Inventory of Heritage Resources

PART 5

THE INVENTORY OF HERITAGE RESOURCES

5.1 BACKGROUND TO THE INVENTORY

Comprehensive recording and documentation are pre-requisites of any programme aiming to preserve the universal value of a World Heritage site such as Shalamar Gardens and to retain its authenticity. As stated in *The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes* "Although there is no single way to inventory a landscape, the goal of documentation is to provide a record of the landscape as it exists at the present time, thus providing a baseline from which to operate. All component landscapes and features that contribute to the landscape's historic character should be recorded. The level of documentation needed depends on the nature and the significance of the resource." (pg. 4).

The inventoried components that contribute to the historic character of Shalamar Gardens include:

1. Planted Features trees, flowers and other plants forming part of the botanical display
2. Water Distribution Elements functional elements which move water into and around the garden
3. Water Display Elements features which create a display of water in the garden
4. Garden Features non-structural elements within the garden
5. Built Heritage Resources buildings and structures which form part of the garden

Each of these diverse components requires a different type of documentation which in combination present as full as possible a record of existing elements, their integrity and condition. The UNESCO NORAD GOP recording methodology developed by the Heritage Foundation for documentation at Lahore Fort has been modified to the requirements of the Shalamar Gardens. For ease of reference each element has been numbered using the system presented in Table. 5.1. Fig. 5.1 is a map illustrating the location and numbering of all the elements of the site.

The Aiwan and Main Tank

Garden plan of the Middle Terrace

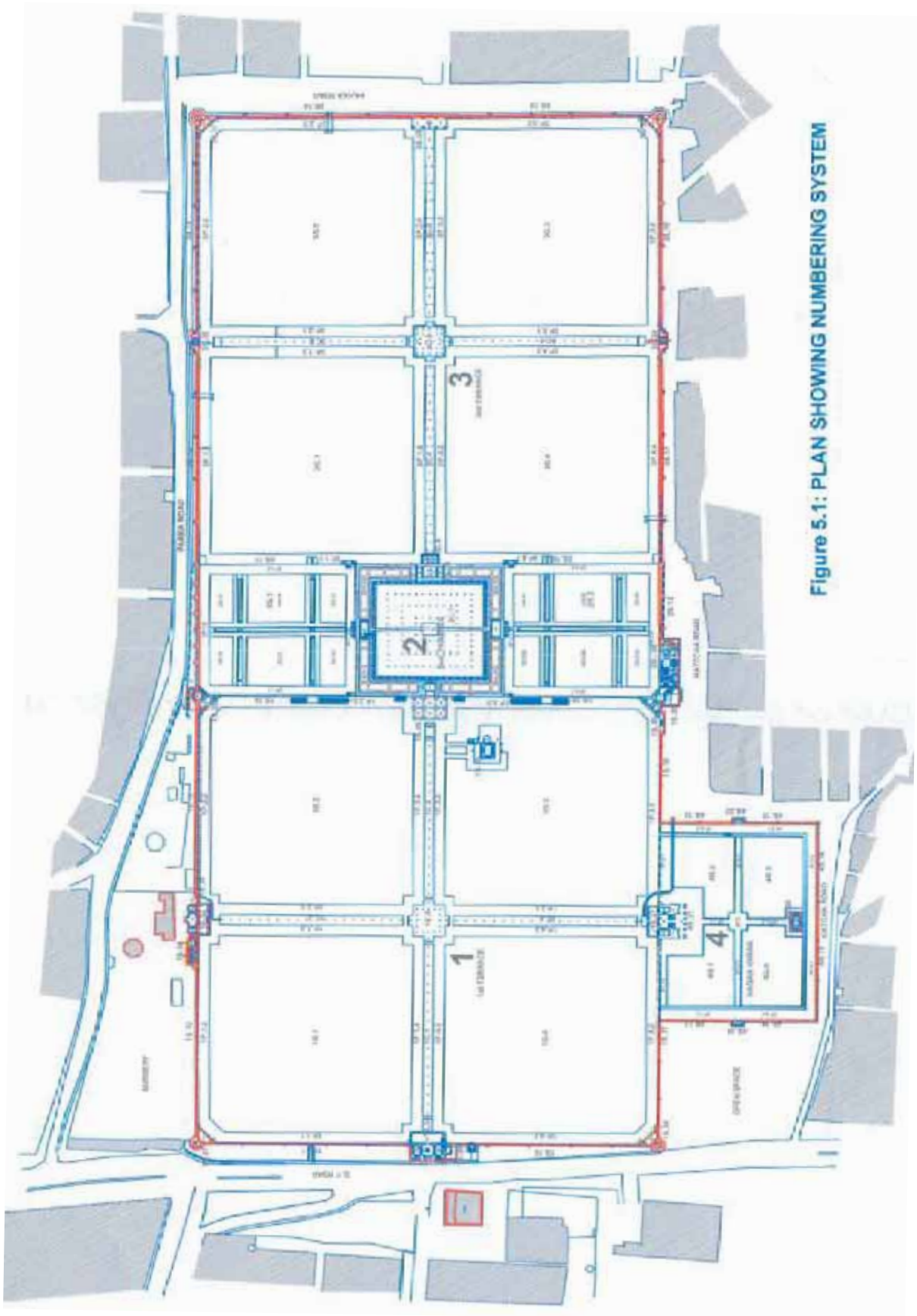


Figure 5.1: PLAN SHOWING NUMBERING SYSTEM

Garden Areas:

1	G.	1 - 4
Terrace ref [1 – 3]	Garden/ char bagh	Quadrant numbered clockwise from SW

Water Channels:

1	C.	1 - 5
Terrace ref [1 – 3]	Channel	Segments numbered clockwise from S; #5 is central pool in terrace 1 & 2

Pavements:

1	P.	1	1 -4
Terrace ref [1 – 3]	Pavement	Quadrant numbered clockwise from NE	Segments numbered clockwise from S

Perimeter Wall:

1S.	1	1 - 8
Terrace ref [1 – 3]	Perimeter Wall	Segment numbered clockwise from the SW

Burj:

1S.	21-14
Terrace ref [1–3]	Burj numbered clockwise from SW

Buildings and Structures:

1S.	31-
Terrace ref [1–3]	Building / structure number

Table 5.1 Explanation of the numbering system used for the inventory of features at Shalamar Gardens

5.2 INTERVENTIONS TO THE SITE

Several volumes of *Dossiers of Historical Accounts and Records of Interventions to Shalamar Gardens* have been prepared. The dossiers carry excerpts from all reports and printed documents that could be located to date. For ease of reference each dossier carries an index regarding the excerpts to be found in it. The front page of each report, document or publication precedes the excerpts to allow accurate notation when documents are referenced. The dossiers are available as Annexure 3

Although at present most of the excerpts are from pre- and post-Independence Archaeological Survey reports, it is intended that in future excerpts from other sources will be added. Thus in addition to being a source for conservation work, these dossiers can also be utilized by scholars and historians.

5.3 INVENTORIES OF HERITAGE RESOURCES

5.3.1 Planted Heritage Features

The lawns of the Upper and Lower Terraces are presently planted with lawns in the *chahar bagh* pattern of four quadrants. In his mission report of 1998, de Jong commented that the lawns would have originally been sub-divided further into 16 squares, and that this pattern had been lost during the British period. However, archaeological testing was carried out in both terraces in 2001 and revealed that there was no further sub-division and that the pattern of paths and channels seen today is original.

The pattern of plant species presently cultivated in the garden was introduced during the British period. It does not reflect research into original Mughal species selection. Similarly, some of the beds now planted with flowers and shrubs were

Detail of a Burj

Interior fresco work, Shahi Hammam

TABLE 5.2:
EXISTING PLANTATION AT SHALAMAR GARDENS

No.	Plant Species	Family name	Vernacular Name	First Terrace	Third Terrace	Middle Terrace
1	Albizzia lebbeck (Linn.) Benth.	Mimosaceae	Siris	---	1 (D)	---
2	Albizzia procera (Roxb.) Benth.	---	---	---	1 (D)	---
3	Artabotrys hexapetalis (Linn.) Bhandari.	Anonaceae	Atrobotro	20 (7H + 3D + 2T)	---	---
4	Bauhinia purpurea Linn.	Cesalpinaceae	Kachnar	/	---	---
5	Bougainvillea spectabilis Willd.	Nyctaginaceae		3 (H)	2 (--)	---
6	Butea monosperma Lam.Taubert.	Papilionaceae	Dhaak	11 (7H + 3T)	---	---
7	Calotropis procera (Ait). Ait.f. ssp. hamiltanii (wight) Ali	Asclepiadaceae	Ak	1(T)	3 (H)	---
8	Cassia fistula Linn.	Caesalpinaceae	Amaltas	14 (5H + 7D + 2T)	5 (H)	---
9	Citrus medica Linn.	Rutaceae	Khatta	---	---	21(15H+ 3D+2T)
10	Crataeva religiosa Forst.f.	Capparidaceae	Barna	---	1(--)	---
11	Cupressus semperbirens Linn.	Cupressaceae	Saru	41 (14H + 8D + 19T)	30 (20H + 8D + 2T)	10(7H +3T)
12	Ehretia serrata Roxb.	Boraginaceae	Punna	---	5 (--)	---
13	Eriobotyria japonica (Thumb.) Lindley.	Rosaceae	Lokkat	---	3 (T)	---
14	Erythrina suberosa Roxb.	Papilionaceae	Gule-Nashter	---	2 (---)	---
15	Ficus benjamina	Moraceae	---	/	---	---
16	Ficus virens Dryand	Moraceae	---	12 (3H + 3D + 5T + 1Dd)	---	---
17	Hamelia patens Jacq.	Rubiaceae	---	/	2 (1H+ 1T)	
18	Hibiscus rosa- sinensis Linn	Malvaceae	China rose	3 (H)	23 (17H+3D+2T+1Dd)	---
19	.Jasminum arborescens Roxb.	Oleaceae	Chambali	4 (H) /	32 (--)	---
20	Jatropha curcus Linn.	Euphorbiaceae	Jatropha	---	4 (--)	---
21	Lagerstroemia reginae Retz	Lythraceae	---	---	4 (--)	---
22	Magnolia grandiflora Linn	Magnoliacea	---	3 (H)	8 (--)	---
23	Mangifera indica Linn.	Anacardiaceae	Mango	132(38H+61D+25T+8Dd)	64(23H+19D+16T+6Dd)	---
24	Melaleuca leucadendron Linn.	Myrtaceae	---	---	2 (--)	---
25	Melia azedarach Linn.	Meliaceae	Neem	---	3 (--)	---
26	Mimosops elengi Linn.	Spotaceae	Moulsori	22 (13H + 2D + 7T)	---	---
27	Morus laevigata Wall. ex Brandis	Moraceae	Shahtoot	---	2 (--)	---
28	Murraya koenigii (Linn.) Spreng.	Rutaceae	Marwa	34 (25H + 4D + 5T)	83 (32H + 24D + 26T)	---
29	Nerium oleander Linn.	Apocynaceae	Kanare	2 (--)	13 (--)	---
30	Nyctanthes arbor-tristis Linn.	Oleaceae	Harsinghar	---	4 (--)	---
31	Phoenix sp.	Arecaceae	Date Palm	---	9 (6H + 2D + 1T)	---
32	Platanus orientalis Linn.	Plantanaceae	Chinnar	1 (H)	8 (2H + 4D + 2T)	---
33	Plumeria acutifolia Ait.	Apocynaceae	Gule-Chene	4 (2H + 2D)	---	---
34	Prunus sp.	Rosaceae	---	---	11 (--)	---
35	Psidium guajava Linn.	Myrtaceae	Amrood	---	2 (1H + 1T)	---
36	Punica granatum Linn.	Punicaceae	Annar	6 (4H + 2D)	6 (--)	---
37	Putranjiva roxburghii Wall.	Euphorbiaceae	Patagen	1 (H)	2 (H + 1T)	---
38	Pyrus malus Linn.	Rosaceae	Apple	---	11 (5H + 6D)	---
39	Salmalia malabericuna (DC). Schott & Endlicher	Malvaceae	Sumbul	---	1 (--)	---
40	Stercularia sp.	Sterculiaceae	---	1 (H)	---	---
41	Syzygium cumini Linn.	Myrtaceae	Jaman	35 (16H + 12D + 7T)	59 (21H + 20D + 18T)	---
42	Terminalia arjuna (Roxb. Ex DC.) Wt & Arn	Combretaceae	Herrer	---	4 (H)	---
43	Thuja occidentalis Linn.	Cupressacea	More Punk	1 (D)	30 (20H + 6D + 4T)	---
44	Tubernaemontan divaricata (Linn.) R. Br.	Apocynaceae	Chandana	---	10 (--)	42 (41H + 1T)

H = Healthy D= Damaged T= Tilted Dd= Dead

TABLE 5.2:
EXISTING PLANTATION AT SHALAMAR GARDENS

No.	Plant Species	Family name	Vernacular Name	First Terrace	Third Terrace	Middle Terrace
1	Albizzia lebbeck (Linn.) Benth.	Mimosaceae	Siris	¤	---	----
2	Albizzia procera (Roxb.) Benth.	---	---	¤	---	---
3	Artabotrys hexapetalis(Linn.) Bhandari.	Anonaceae	Atrobotro	---	¤	---
4	Bauhinia purpurea Linn.	Cesalpinaceae	Kachnar	---	¤	---
5	Bougainvillea spectabilis Willd.	Nyctaginaceae		¤	¤	---
6	Butea monosperma Lam.Taubert.	Papilionaceae	Dhaak	---	¤	---
7	Calotropis procera (Ait). Ait.f. ssp.hamiltanii (wight) Ali	Asclepiadaceae	Ak	¤	¤	---
8	Cassia fistula Linn.	Caesalpinaceae	Amaltas	¤	¤	---
9	Citrus medica Linn.	Rutaceae	Khatta	---	---	¤
10	Crataeva religiosa Forst.f.	Capparidaceae	Barna	¤	---	--
11	Cupressus semperbirens Linn.	Cupressaceae	Saru	¤	¤	¤
12	Ehretia serrata Roxb.	Boraginaceae	Punna	¤	---	---
13	Eriobotyria japonica (Thumb.) Lindley.	Rosaceae	Lokkat	¤	---	---
14	Erythrina suberosa Roxb.	Papilionaceae	Gule-Nashter	¤	---	---
15	Erythrina suberosa Roxb.	Moraceae		---	¤	---
16	Ficus virens Dryand.	Moraceae		¤	---	---
17	Hamelia patens Jacq.	Rubiaceae		¤	¤	---
18	Hibiscus rosa- sinensis Linn.	Malvaceae	China rose	¤	¤	---
19	Jasminum arborescens Roxb.	Oleaceae	Chambali	¤	---	---
20	Jatropha curcus Linn.	Euphorbiaceae	Jatropha	¤	---	---
21	Lagerstroemia reginae Retz.	Lythraceae		¤	---	---
22	Magnolia grandiflora Linn.	Magnoliacea		---	¤	---
23	Mangifera indica Linn.	Anacardiaceae	Mango	¤	¤	---
24	Melaleuca leucadendron Linn.	Myrtaceae		¤	---	---
25	Melia azedarach Linn.	Meliaceae	Neem	¤	---	---
26	Mimosops elengi Linn.	Sapotaceae	Moulsori	---	¤	---
27	Morus laevigata Wall. ex Brandis	Moraceae	Shahtoot	¤	---	---
28	Murraya koenigii (Linn.) Spreng.	Rutaceae	Marwa	¤	¤	---
29	Nerium oleander Linn.	Apocynaceae	Kanare	¤	¤	---
30	Nyctanthes arbor-tristis Linn.	Oleaceae	Harsinghar	¤	---	---
31	Phoenix sp.	Arecaceae	Date Palm	¤	---	---
32	Platanus orientalis Linn.	Plantanaceae	Chinnar	¤	¤	---
33	Plumeria acutifolia Ait.	Apocynaceae	Gule-Chene	---	¤	---
34	Prunus sp.	Rosaceae		¤	---	---
35	Psidium guajava Linn.	Myrtaceae	Amrood	¤	---	---
36	Punica granatum Linn.	Punicaceae	Annar	¤	¤	---
37	Putranjiva roxburghii Wall.	Euphorbiaceae	Patagen	¤	¤	---
38	Pyrus malus Linn.	Rosaceae	Apple	¤	---	---
39	Salmalia malabericuna (DC). Schott & Endlicher	Malvaceae	Sumbul	¤	---	---
40	Stercularia sp.	Sterculiaceae		---	¤	---
41	Syzygium cumini Linn.	Myrtaceae	Jamman	¤	¤	---
42	Terminalia arjuna (Roxb. Ex DC.) Wt & Arn.	Combretaceae		¤	---	---
43	Thuja occidentalis Linn.	Cupressacea		¤	¤	¤
44	Tubernaemontan divaricata (Linn.) R. Br.	Apocynaceae	Chandana	¤	---	—

laid out during the British and modern periods and are not part of the original Mughal garden plan.

All existing plantation has been identified and mapped to serve as baseline data for an historical re-planting scheme. Also presented in the inventory is a list of plant species used by the Mughals in their gardens; this includes references to plantation in Mughal gardens in general and, while not exclusively related to Shalamar Gardens, provides an indication of Mughal horticultural tastes and preferences.

The baseline information for Planted Heritage Resources therefore comprises:

(a) Inventory of Existing Plantation
(b) List of plants referred to in Mughal sources or identified from Mughal garden sites

(a) Existing Plantation

A total of 44 species belonging to 29 families were recorded at the site. The criterion for the estimation of the quantity was based on counting the number of plants of each species and placing them on the map in its exact location. The criterion for assessing quality was based on examining the status of the trees and shrubs growing there. The status was evaluated on the bases of girth size, damage to the canopy and tilting as a result of overcrowding. In order to conduct the survey the site was divided by terrace, sub-divided into quadrants and then into transects. A summary of existing plantation is presented in Table 5.2.

(b) Original Planting Pattern

The inventory and mapping of existing plantation shows that the original Mughal or Islamic Garden design is lost. Although the original garden divisions are intact, the arrangement of plants within these divisions and the selection and distribution of species is not represented by existing plantation.

Botanically speaking the middle garden appears to be closest to the original garden design. It has cypresses, *thujas* and orange trees, all species described by the great botanist Jaquemont who visited the garden in 1832 (Ali Akbar 1991). Additionally, evidences from contemporary gardens in the form of historic evidences Laleh Bakhtiar (1976) and miniature paintings strongly suggests the small trees and shrubs and local fruiting trees were preferred to enhance the landscape of pleasure garden.

The Upper Terrace is dominated by 132 mango trees in poor condition; the understory is dominated by jaman (35) and mimosops (22). The waterways are dominated by the shrubs *Bougainvillea*, *Ficus benjamina*, *Artabotrys hexapetalis,*

Hibiscus rosa sinensis as envisaged in a typical Mughal garden. Most of them are tilted and are overshadowed by the spreading crowns of mango trees.

The Lower Terrace is more diverse as compared to the Upper Terrace. There is co-dominance of Jaman and Mango. The rest of the species are scattered in a haphazard manner. Most of the species are from the temperate subhimalayan regions *(Artabotry*s, *Pyrus, Prnus),* other trees are weedy species naturally colonizing the area *(Morus, Melia, Salmalia, Ehretia, Ficus* sp.). The three shrubs *Murray*a, *Hamilia, Punica* and *Hibiscu*s, which are, known to be typical shrubs of Mughal period (Ali Akbar, 1991) are well represented here. Most of these shrubs are tilted and damaged.

(c) List of Mughal Plants

The following table presents a preliminary list of plants used in Mughal gardens; they have been identified from text and pictorial references and from archaeological contexts.

Common Name	**Scientific Name**
Mango	*Mangifera indica* L
Date Palm	*Phoenix* sp.
Coconut	*Cocos nucifers* L.
Palmyra Palm	*Borassus flabelliformis* Murr.
Banyan	*Ficus bengalhensis* L.
Gular	*F. Glomerata* Roxb.
Jujube	*Zizyphus luluba* Lam.
Cypress	*Cupressus sempervirens* L.
Red Cedar	*Toona ciliate* M.J. Roem.
Chirunji	*Buchanania latifolia* Roxb.
Champa	*Michelia* sp.
Cockscomb	*Celosia cristata* L.
Lotus	
Orange	
---	*Ficus benjamin*a
Marwa	*Murray*a
Annar	*Punica granatum*
---	*Hamilia*

China rose	*Hibiscus rosa sinensis*
Atrobotro	*Artabotrys hexapetalis*
Chambali	*Jasminum*
Niasbo	
Poppy	
Violet	
Rose	
	Althea rosea
Narcissus	
Iris	
	citrus
Bougainvillea	*Bougainvillea*
Tulip	
Jaman	*Syzygium cumini* Linn.
Dillenia	
Apple	*Pyrus malus* Linn.
Cherry	
Peach	
	Celosia
Tulsi	
Mint	
	Foeniculum

Table 5.3 A preliminary working list of Mughal plants from various sources

5.3.2 Water Distribution Elements

The original Mughal water distribution system comprised a complex network of ducts, conduits, wells, tanks, waterwheels and pipes which carried water for display, consumption and irrigation from the Shah Nahr and wells through the gardens. Most of the elements outside the garden itself have been buried or destroyed. However, excavation as part of this project has revealed additional features which add to our understanding of the system. Elements of the Mughal system inside the site remain intact, below the hydraulics system laid in the 1960s. A limited understanding of their layout, materials and functions has been

acquired through test pit excavations and remote sensing. These investigations have expanded our understanding of the sophisticated Mughal system for distributing water to create displays and to irrigate the extensive areas of plantation.

The inventory presents the following:

(a) Research on the components of the system and how the system as a whole functioned
(b) Findings from test pit excavations carried out in 2001 and 2005
(c) Findings of the remote sensing study of 1978-9.

This information is presented in detail in Annexure 4 and summarized here.

(a) The Hydraulic System and its Components

Shah Nahar

The Shah Nahar brought water from the Chamba Hills of Rajpur, presently Madhupur in India, from a distance of over one hundred and fifty kilometers to Lahore. It was planned by Ali Mardan Khan, the Persian Canal engineer of Shah Jahan, and completed by Mulla Ala ul Mulk Tuni, an expert in hydrology. The total cost incurred was two *lakhs rupees* in 1642. Water left the Shah Nahar and was brought by channels through Anguri Bagh, northwards through Inayat Bagh and then via the complex of settlement tanks into Shalamar Gardens. After being used to irrigate the gardens and fill the channels of the upper garden and main central tank, it exited under the Daulat Khana-e-Khas into the Mehtabi Bagh to the north. Ultimately it was discharged into the Ravi River. (Fig. 5.2)

Wells

There were three wells serving Shalamar Gardens in the Mughal period:

(1) Bara Hatta to the southwest, behind the Begum Ki Kwabgah ten-sided brick construction measuring about 11'; the well exists but is dried up and filled with debris
(2) to the south, in the vicinity of the sedimentation tanks exact location is unknown; thought to lie to the east of the hydraulics remains near a large tree
(3) to the east, behind the Shahi Hammam exact location unknown; thought to lie beneath an earth and debris mound immediately southeast of the Hammam

These wells operated with Persian Wheels which lifted water to elevated storage tanks to create the required water head.

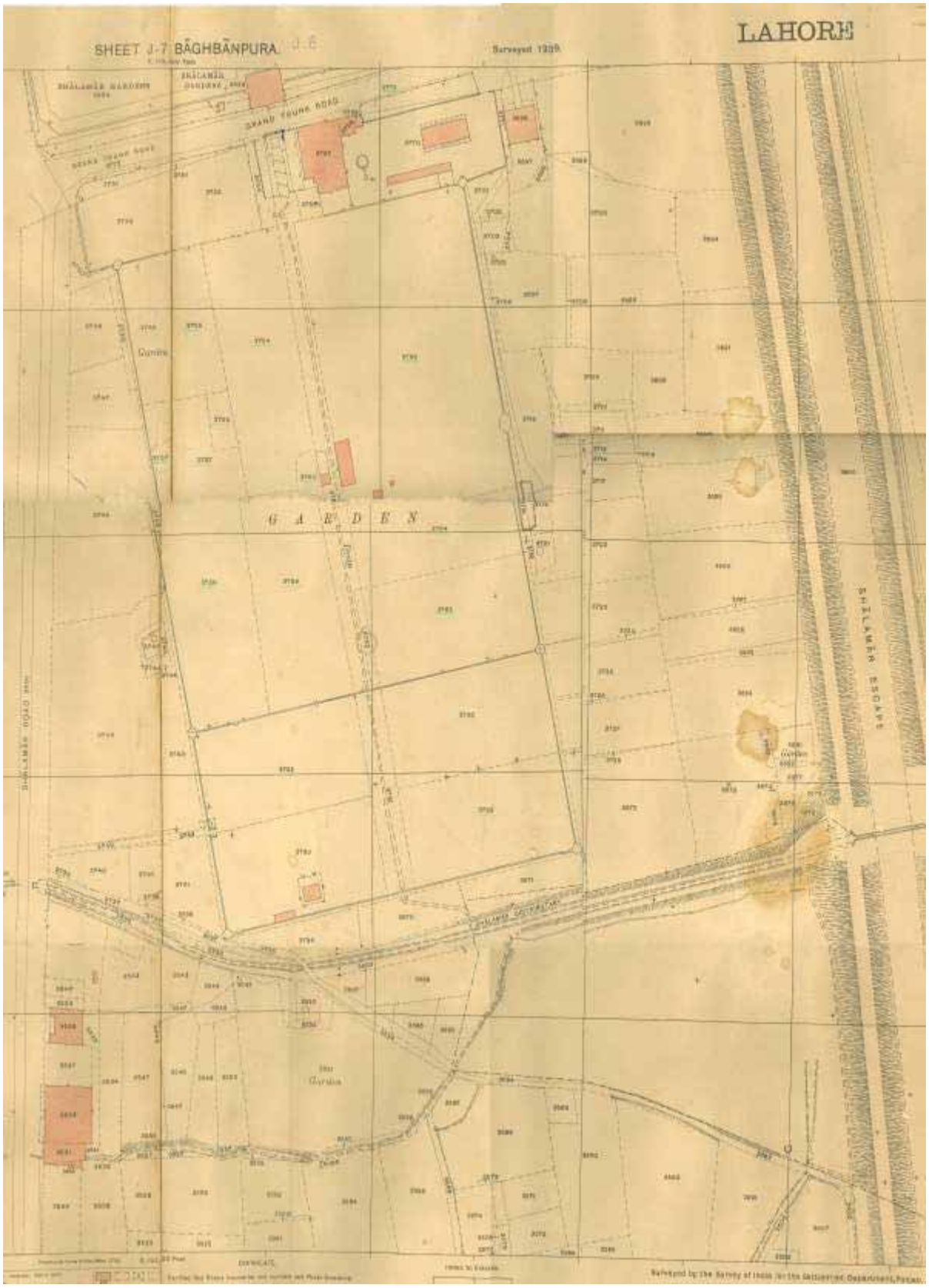


Fig. 5.2 MAP OF LAHORE Showing Flow of Water from Shah Nehar to Shalamar Gardens *(Survey of India- 1939/40).*

Southern Hydraulic Complex

A complex of brick built sedimentation/ filtration tanks stands to the south of Shalamar Gardens, in the area between it and the north wall of Inayat Bagh. Much of the complex was destroyed when the GT Road was widened in the 1970s. Originally it comprised a series of filtration tanks. Water was lifted from by Persian Wheels and deposited in the first tank (19 x 5.5m.) where the heavier sediment particles were settled. Near the top of the tank were three holes, each about 10 cm. in diameter that took the water to a second filtration tank. From here the upper layers of relatively clean water spilled across the wall into two chambers with four holes vertically positioned. The depth of each tank was 1.4m. The water processed by this system was used to feed the fountains.

(b) The Findings of Test Pit Excavations

Test pit excavations were carried out in 2001 in order to find out whether the Mughal *chahar bagh* arrangement of four garden quadrants was originally sub-divided further into additional squares. Pits were located at points where, if they existed, evidence of original Mughal paths and water channels sub-dividing the garden spaces would be found. The findings of the excavations were two-fold:

(a) no remains of water channels or paths sub-dividing the garden quadrants was found; this means that the present division into four is in keeping with the original layout.

(b) information was gained regarding the Mughal irrigation and drainage system used in both terraces.

Further test excavations were carried out in 2005 as part of the hydraulics study presented in Annexure 4. These were located in all terraces to further clarify issues regarding the Mughal and current hydraulic systems and to provide information for the specialist study. Two of the test pits were located outside the walls of the site to the south. The pit directly south of the Aramgah, across the Grand Trunk Road revealed an *in situ* decorative fountain discussed below in section 5.3.3.

(c) The Findings of the Remote Sensing Survey by PINSTECH

In 1987 the Pakistan Institute of Nuclear Science and Technology carried out a remote sensing survey of the main tank in the Middle Terrace in order to locate the source of leakages. This survey generated information regarding the construction of the tank and layout of the pipelines, inlets and outlets, sumps and other interconnected elements of the system which fed the 152 fountains.

5.3.3 Water Display Elements

One of the primary functions of the complex water distribution system was to deliver water to precise locations in exact amounts at balanced pressure to create a

dramatic display of water in motion. Water was manipulated to create flows, gushes, bubbling, cascading sheets and cooling sprays. The Mughal display system remains integral although many of the individual controlling elements have been heavily restored or even replaced. The inventory describes the various features designed to direct water to create these effects.

(a) Water Channels

When water entered the gardens it was moved from terrace to terrace through a series of open channels which paralleled the pavements dividing each level into a *chahar bagh*. The pattern of channels is shown in Fig. 5.3.
The channels of the Upper and Lower Terraces are of identical pattern and dimensions. They are constructed of brick and are now lined with cement concrete; no evidence of original surface treatment remains. Within the channels are weirs to filter the water and control volume.

At the intersection of the channels, in the centre of the upper and lower terraces, there is a pool. Water enters the pool of the upper terrace from the south, east and west and exits northwards towards the middle terrace; similarly, water collects in the central pool of the lower terrace where it then flowed northward to exit the garden under the Daulat Khana-e-Khas to enter a pool inside the Mehtab Bagh.

During clearance and reconstruction work in the Naqqar Khana evidence of a similar arrangement of channels was unearthed.

The channels of the middle terrace have a different arrangement and dimensions. To the east and west of the large central tank, channels divide the garden into six parts, with the central parts being larger. Water enters from under the Aiwan, over the main cascade, and exits northwards through the *chini khanna*. The channels are brick built and lined with cement concrete; no evidence of their original material is available.

All of the channels are original, with only their surface treatment being modern. They have been adequately maintained and are in fair working condition.

(b) Fountains

There are a total of 410 gushing fountains in Shalamar Gardens: 105 in the Upper Terrace; 152 in the large central tank of the middle terrace; 153 in the Lower Terrace channels and central pool. (Fig. 5.3)

All of the original Mughal fountains were replaced in the 1960s and 1980s with concrete copies painted red to look like the original sandstone. The fountains are

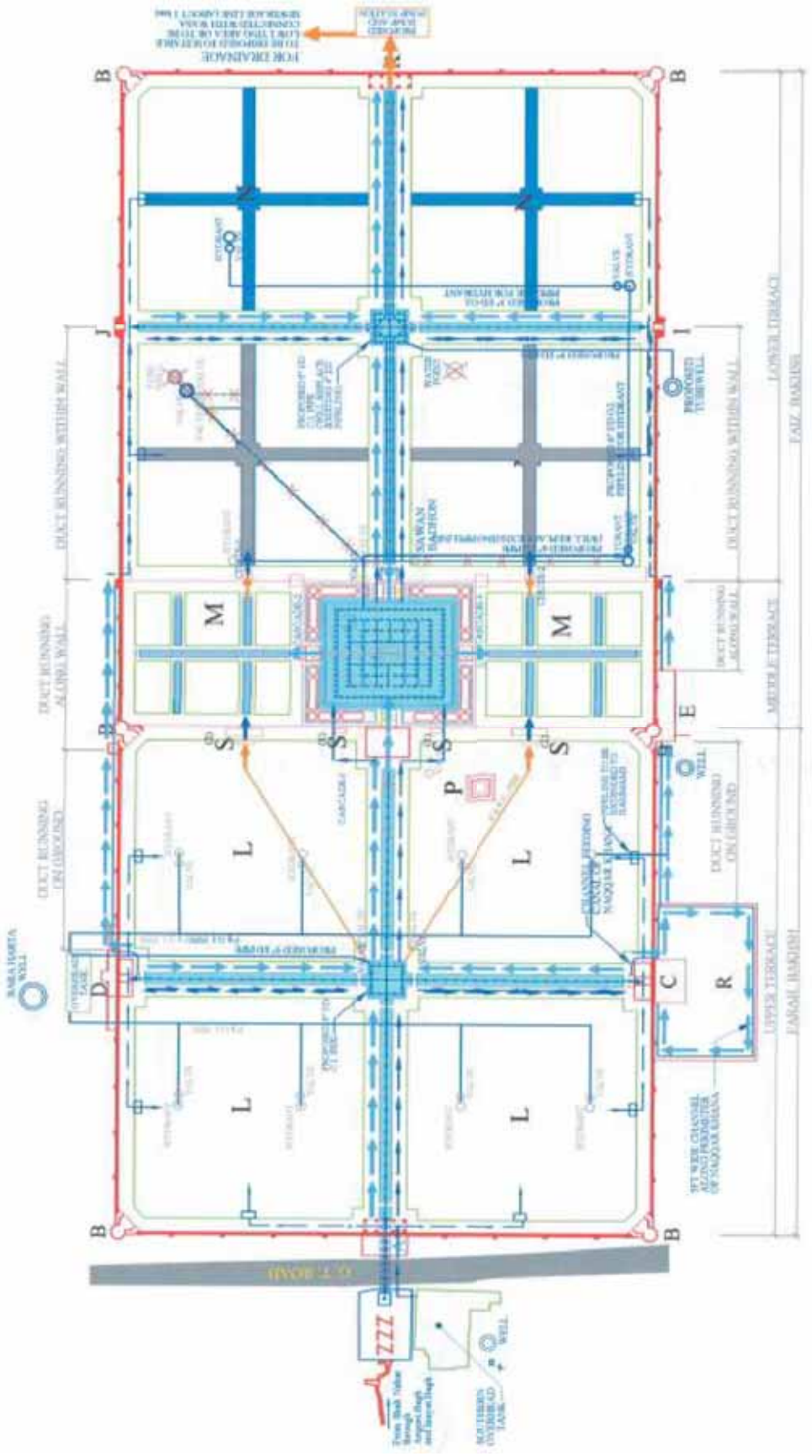


Figure 5.3: PLAN SHOWING GENERAL LAYOUT OF MUGHAL PERIOD

in fair condition and are all operating adequately.

In addition, there is a "bubbling fountain" or *chashma-e-jushan*; it is located in the forecourt of the Aramgah. The water bubbles constantly at a low level. The fountain is in the shape of a lotus bud set in a shallow basin carved in a lotus motif from white marble set in turn in a rectangular basin decorated with coloured stone set in a zigzag inlay pattern.

Excavations along the southern exterior of the site revealed the remains of a fountain in alignment with the central channel of the garden (Fig. 5.4). It is located to the northwest of the filtration tanks and was found at a depth of approx.45' below current surface, just south of the Grand Trunk Road. Remarkably, it is still connected to the main hydraulic system of the gardens as when water was running inside the site, evidence of water could be also seen escaping the excavated fountain.

(c) Cascades/Chadar

Chadar are slanting decorative stone slabs down which water falls. There are six *chadar* which move water from one level of the garden to another. The main *chadar* or *abshar* takes water from the upper to middle terrace; water runs from the central channel of the upper terrace under the Aiwan and then cascades down the slope of the *chadar* to a pool below in the middle terrace. It is made of white marble and is decorated with black stone inlay and a carved shell pattern. The *chadar* is original, although the black inlay work has been replaced.

The next cascades are a pair, one in front of each of the red sandstone pavilions on the east and west of the main tank. They are built of yellow stone inlaid with black marble strips in a zigzag pattern. The *chadar* are original. Water runs down them from the central tank to the channels of the middle terrace.

Water runs down another pair of *chadar* located either side of the Sawan Bhadon from the channels of the middle terrace to the channels of the lower terrace. They are made of red sandstone with a carved wave pattern. The location is original but the cascades were replaced by new ones in 1989.

The final cascade is located in front of the *chini khanas* in the lower terrace; it is only 10" high, original and made of marble with a herringbone pattern.

(d) Main Tank

The main tank is located in the centre of the middle terrace. The tank is laid in a floor of 6' thick brick masonry in lime mortar. The tank is lined with cement

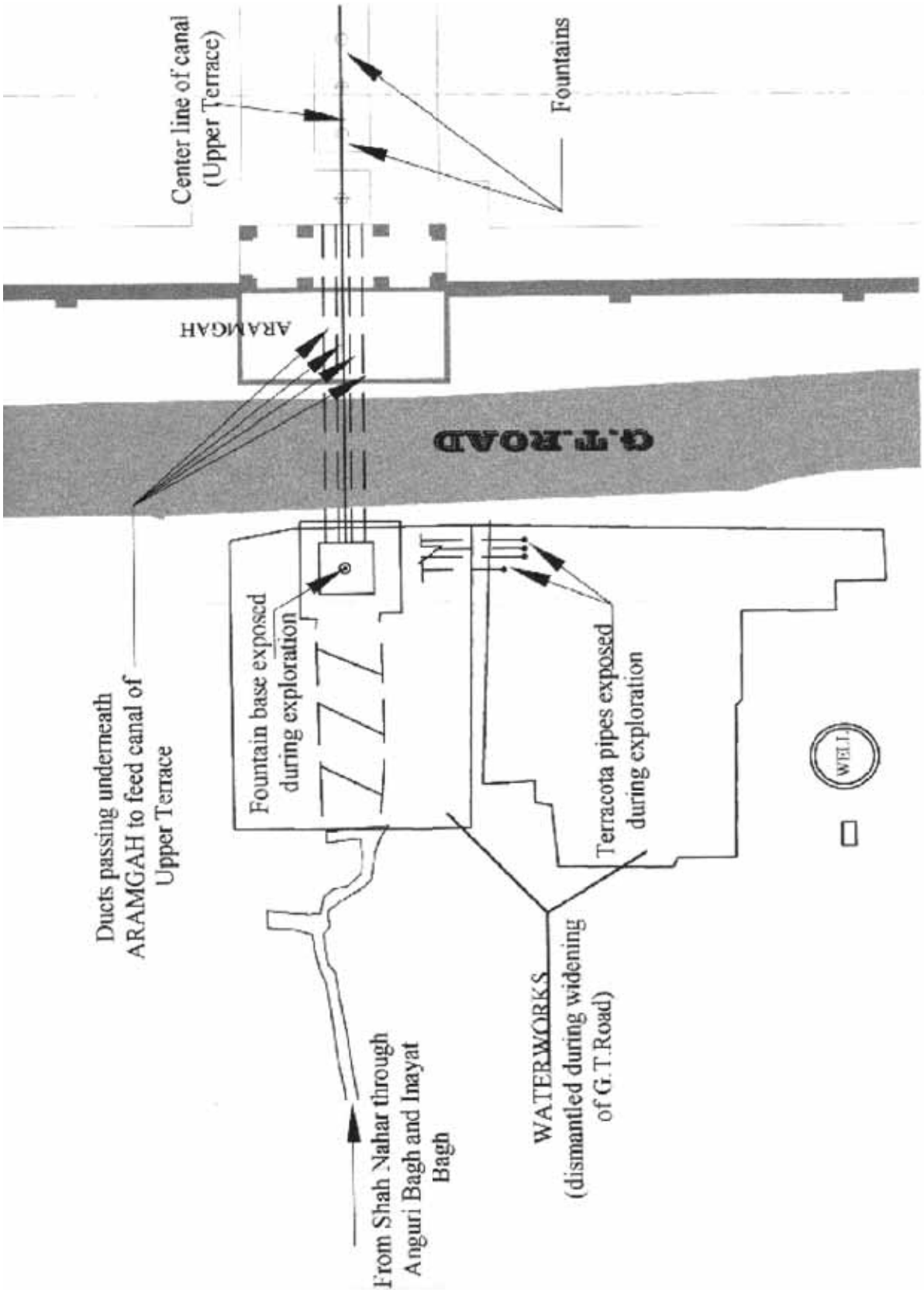


Fig. 5.3 Location of Excavation Fountain

concrete and its edges are decorated with inwardly projecting lotus motifs. Water enters the tank via the large *chadar*; it then flows to the side gardens of the middle terrace via the smaller *chadar* in front of the red sandstone pavilions, and to the lower terrace via the *chini khana*. The surface of the tank has been repeatedly treated and repaired but is otherwise original and in good condition.

(e) The Mughal Water Display

The present water display is created entirely by the modern cast iron hydraulic system put in place in the period 1947-60. The original location and number of fountains, cascades and other water features were retained and fed by this replacement system, however, no study was made of the original system to understand what the Mughal display may have looked like.

5.3.4 Garden Features

This section inventories those elements which guide people through the *chahar bagh* and offer them places to rest and enjoy the views. The original Mughal spatial concept remains intact with a system of paths through the gardens, causeways over water bodies, ramps and staircases to access the different terraces and places for the royal entourage to sit and enjoy the spectacle.

As in the case of the water display features, although the overall plan is original, many of the individual components have been heavily repaired or altered in keeping with the original. It should be noted that according to literary references and pictorial sources many of the original garden features would have been portable, including: *sayaban, shamiana*, pillows and carpets and tables and other furniture.

(a) Brick on edge pavements

The network of pavements leading people through the garden are laid in brick on edge in decorative patterns. Most of the pavements have been replaced with brickwork laid in a damp proof course over cement concrete on sand. However, sections of pavement shown in Figure 5.5 have been identified as original (Annexure 10). These are extremely fragile and in very poor condition.

(b) Causeway

The *mehtabi* in the centre of the large tank is reached by a causeway built of red sandstone paving over a decorative white stone substructure. Much of the walkway was restored early in the 20th century, but maintaining original portions of sandstone.

(c) Ramps

Brick ramps leading from the Middle to the Lower Terrace are intact and a later addition.

(d) Staircases

A pair of staircases leads from the upper terrace, from the sides of the Aiwan, to the middle terrace gardens.

(e) Chini khana

Rows of carved niches line three sides of a recess between the white pavilions, Sawan Bhadon, on the northern edge of the middle terrace. Water flowed from the middle terrace to a pool at the foot of the *chini khana* creating a waterfall effect in front of the lamp lit recesses. The four rows of *chini khana* are carved from white stone; they have been repaired but are otherwise original (Annexure 10).

(f) Mahtabi

The rectangular Mahtabi platform is located in the centre of the main tank and is accessed by the causeway. It is built of white marble with red sandstone inlay. It has a decorative white marble floor and low, carved railings. It stands on the same decorative substructure as the causeway. The *mehtabi* was completely rebuilt in new materials in its original location and in Mughal style in 1983.

(g) Shah Nasheen/Throne

The white marble throne stands in front of the basin of the main *chadar* below the Aiwan. It is rectangular and has low decoratively carved railings, black stone inlay and stands on carved feet. There is no reference in the dossiers of any interventions other than cleaning. It is in good condition.

(h) Parterres

Brick edged flower parterres are located around the central tank in the middle terrace. Floral shapes of eight petals alternate with double-ended floral shapes. Garden plots laid out in the lawns of the middle terrace are a modern introduction from1916 -18.

5.3.5 Built Heritage Resources

The buildings and structures in Shalamar Gardens play a supportive, secondary role to the garden and its hydraulic display. The inventoried structures, with the

exception of the Sikh Pavilion or "Moorcroft Building", are all from the Mughal period but with many Sikh interventions. Some buildings or parts of them have been heavily restored in the British and post-Independence periods, but the overall patterning of buildings in the site remains intact. Extant built elements dating from the Mughal period are marked on Figure 5.6.

The built heritage resources include the following:

Upper Terrace

1S.1-3	Perimeter Wall west side
1S.4	Terrace Wall west section
1S.5	Terrace Wall east section
1S.6-8	Perimeter Wall east side
1S.21-24	Burj
1S.31	Aramgah
1S.32	Mughal Chambers 1
1S.33	Behum Ki Khwabgah
1S.34	Mughal Chamber 2
1S.35	Aiwan/ North Baradari
1S.36	East Gateway
1S.37	Jharoka-e-Daulat Khana-e-Khas-o-Aam / East Baradari
1S.38	Moorcroft Building

Middle Terrace

2S.11-12	Perimeter Wall
2S.31	West Baradardi/ Red Sandstone Pavilion
2S.32	North Pavilion/ Sawan Bhadon west section
2S.33	North Pavilion/ Sawan Bhadon east section
2S.34	East Baradari/ Red Sandstone Pavilion
2S.35	Shahi Hammam

Lower Terrace

3S.11	Terrace wall west section
3S.12-17	Perimeter Wall
3S.18	Terrace wall east section
3S.21-22	Burj
3S.31	Chini Khana
3S.32	Western gateway
3S.33	Northern Baradari / Daulat Khana-e-Khas
3S.34	Eastern gateway

Naqqar Khana

4S.31	West Chambers / Jharoka e Daulat Khana e-Khas o-Aam
4S.32	Northern gateway
4S.33	Bangladar Pavilion / Arz Beg
4S.34	Southern gateway

External Elements

5.S.31	Bara Hata
5S.32	Mughal well
5S.33	East well
5S.34	South water tanks
5S.35	Well outside south perimeter wall
5S.36	Well under tree south perimeter wall
5S.21	Burj Inayat Bagh NW
5S.22	Burj Inayat Bagh NE
5S.23	Burj Inayat Bagh W
5C.1	Excavated fountain outside south perimeter wall

The Mughal period buildings and structures of Shalamar Gardens fall into four functional categories:

(1) Walls that enclose the site and gates that provide access to different parts
- ∞ Peripheral Wall and its Burj
- ∞ Gates
- ∞ Retaining walls between terraces

(2) Pavilions primarily for viewing the garden display
- ∞ Sawan Badun
- ∞ Sandstone Pavillions
- ∞ Aiwan

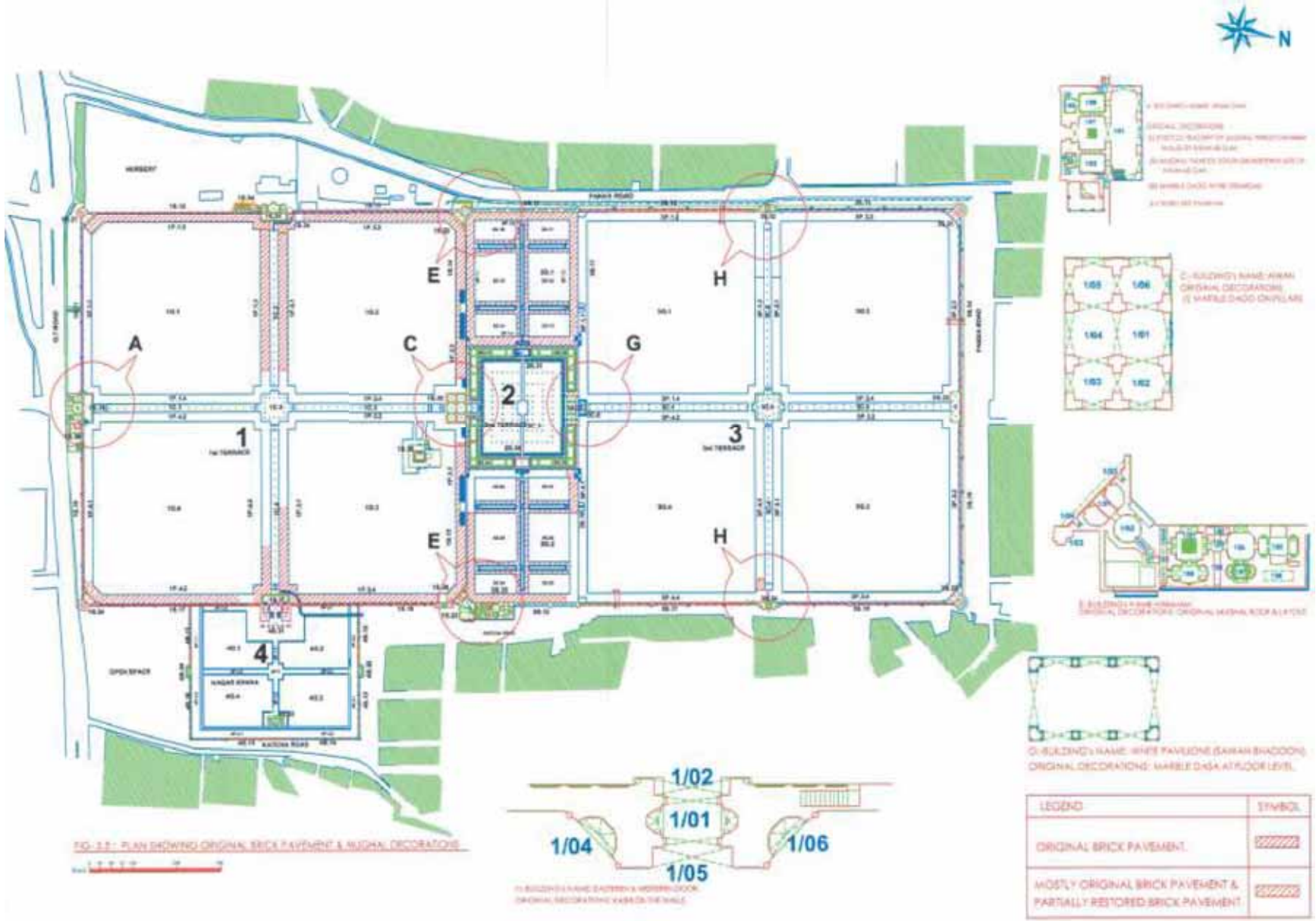
(3) Structures for royal use (residences, baths, ceremonial etc.) most of which are built into the peripheral wall of the site
- ∞ Aramgah
- ∞ Begum Ki Khwabgah and its side chambers
- ∞ Shahi Hammam
- ∞ Jharoka e Daulat Khana e- Khas o -Aam
- ∞ Daulat Khana e- Khas
- ∞ Arz Begi

(4) Structures for hydraulic and other practical uses; these fall outside the garden peripheral wall.
- ∞ Wells
- ∞ Water tanks

The full inventory includes the following:

a. Baseline Survey Folios (Annexure 5)

The record developed through this process is designed to assist conservation professionals and specialists in the tasks of management, carrying out further research, analysis and maintenance activities. Effort has been expended to provide accurate data through graphic, photographic and written means in order to present the configuration and condition of various historic elements.


N
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1/01
1/04
1/06
1/05
LEGEND
SYMBOL
ORIGINAL BRICK PAVEMENT.
MOSTLY ORIGINAL BRICK PAVEMENT & PARTIALLY RESTORED BRICK PAVEMENT.

Information has been developed regarding standing structures to varying degrees of detail which can be classified as Detailed, Medium and Preliminary Levels. At the time of writing, some structures will be recorded to the Preliminary Level only, i.e. plan footprints. However, since the work is ongoing those structures which are recorded at Medium or Preliminary Levels will be taken to Detailed Level of recording at a later stage.

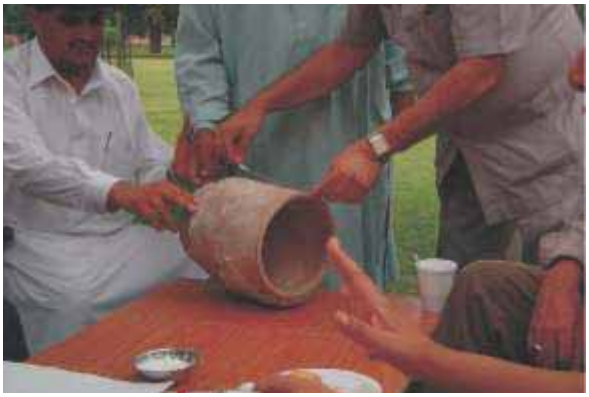
Each primary, secondary and decorative element carries a dedicated number which is marked on the relevant measured drawing. The Schedules, which are prepared for each structure, provide information regarding each element: its number, location, description, dimensions, condition, material along with numbered photograph and period of interventions if known. The Folios are available at the Lahore Fort UNESCO-NORAD Documentation Centre.

b. Documentation Catalogue (Annexure 6)

The Documentation Catalogues have been developed specifically from the point of view of developing priorities for undertaking conservation works along with maintenance and monitoring priorities. The Heritage Foundation format consists of a comprehensive two page form for each structure. It provides summary information at a single view regarding the following:

a. Graphic and photographic information consisting of location on the Site Plan, Plan footprint and a general view.
b. Written information consisting of name, location, classification regarding its category, status, accessibility and present use; ownership, representation in existing surveys, description of condition, significance consisting of the period and statement of significance,
c. References such as bibliographical, dossier, condition survey and baseline survey folio reference; description, brief history, dates of known interventions,


View of Shahi Hammam


Mughal period terracotta pipe

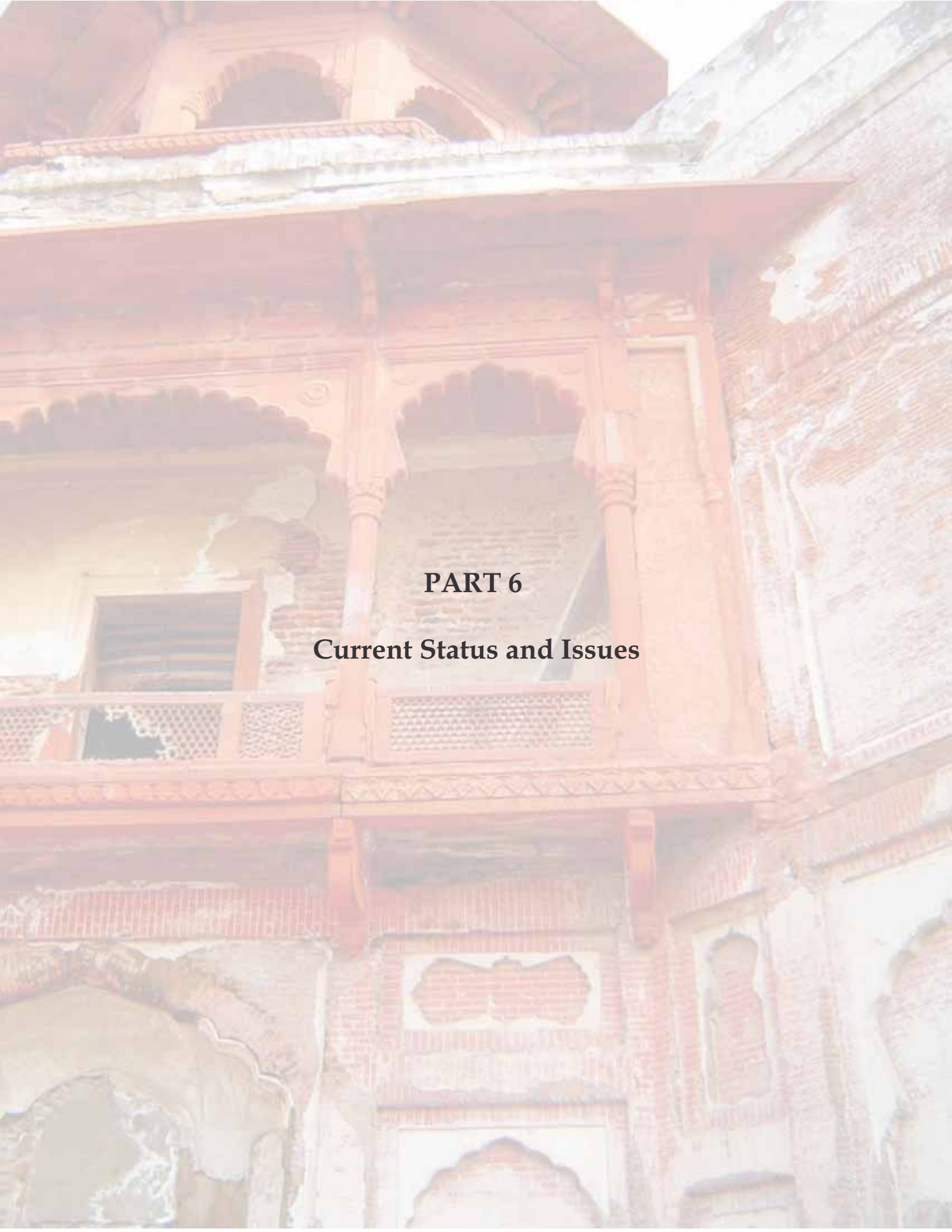
d. Checkpoints for monitoring and maintenance schedules, remedial measures required and approximate costs.

This comprehensive catalogue is expected to be a useful tool when developing strategies or packages for undertaking conservation activities. The information regarding remedial measures, whether emergency, stabilization, preventative maintenance or conservation requirements, has been developed on visual examination and is of a preliminary nature.

c. Dossiers of Historical Accounts and Records of Interventions

The *Dossiers of Historical Accounts and Records of Interventions to Shalamar Gardens* are described above in section 5.2 regarding interventions at the site. They include references to changes to horticulture at the site, additions to the hydraulic system and architectural interventions in addition to routine maintenance activities, "special repairs" and preparations for special events. They provide a general background to understanding the evolution of the site and are a fundamental tool in making decisions regarding future conservation and presentation. They form Annexure 3 and are available at the Lahore Fort UNESCO-NORAD Documentation Centre.

Decorative Western Gateway



PART 6

Current Status and Issues

PART 6

CURRENT CONTEXT AND ISSUES

6.1 INTRODUCTION

In December 2002 Pakistan submitted its 6-year *Periodic Report* to the World Heritage Committee on the legislative and administrative provisions and other actions taken for the application of the World Heritage Convention, including the state of conservation of its World Heritage properties. The custodians of the Shalamar Gardens identified the following issues:

- ∞ The borders of the Shalamar Garden are not considered adequate and, due to encroachments, a buffer zone is desired
- ∞ New roads, encroachments and industry are affecting the surrounds of the site
- ∞ Staff levels are viewed as inadequate
- ∞ Training needs are identified in fields of curatorship, materials conservation, hydraulics and landscaping for conservators
- ∞ Funding is recognized as inadequate
- ∞ There is no access to information technology
- ∞ The need for improved visitor information and children's facilities have been identified
- ∞ The need for a Visitor Management Plan is recognized
- ∞ There is no education programme
- ∞ The site faces a number of threats and risks:
  - — inappropriate alterations, additions & damage in the period before Pakistan's independence.
  - — age, water, humidity, temperature and wind.
  - — chemical & electrochemical pollution.
  - — uncontrolled growth of vegetation.
  - — insect infestation.
  - — earthquakes, floods & sudden downpours of rain.

Although all of the issues and concerns raised above are valid and of long standing, some of the most important and fundamental points have been missed. In particular:

- ∞ There is a lack of emphasis on conservation and interpretation on the "garden" aspects which give the site its cultural significance,
- ∞ There is no comprehensive long term planning for the site
- ∞ The funding and administration structure at the World Heritage site is acknowledged to be inadequate and in need of radical rethinking
- ∞ There is no clearly defined and widely implemented understanding of what conservation of a World Heritage site means and how it should be done.

The Report mentions the following Counteractive Plans:

- ∞ There is an acknowledged need for an emergency or risk preparedness plan.
- ∞ Specific emergency plans are in process to address problems of encroachment and the hydraulic system in Shalamar Gardens.

Both of these approaches are important to the future of the World Heritage site; however, as discussions below will illustrate, rather than "emergency plans", energies need to focus on broad based and detailed programmes to address all issues.

6.2 SITE MANAGEMENT ISSUES

6.2.1 Custodianship and Oversight

The World Heritage site has been in the care of the Federal Department of Archaeology and Museums. until custodianship was transferred to the Punjab Department of Archaeology in 2005. This change has inevitably resulted in a break in management procedures and some confusion over issues and responsibilities. The problem is augmented by the fact that the new custodians have become responsible for a large number of heritage resources without a commensurate increase in departmental capacity.

There are no effective mechanisms in place at the national level to oversee the management status of Shalamar Gardens. A degree of international oversight is provided by the UNESCO World Heritage Centre who monitor the status of the site through investigative missions and the reporting system for sites on the World Heritage in Danger list. This involvement, however, is irregular and reactive.

6.2.2 Enforcement of Legal Protection

As discussed in section 2.3, The *Federal Antiquities Act 1975* (Act VII of 1976) provides various forms of legal protection in support of preservation and best-practice management of the World Heritage site. However, in almost every case there is a failure to take advantage of this potential and the site suffers as a result.

- ∞ Although the Act stipulates that the Federal Government will constitute an Advisory Committee (Clause 3), no committee seems to be in existence.
- ∞ Clause 18 of the Act is clear regarding the use that the protected monument or site may be put to. However, the spirit and letter of this clause are not enforced when permission is given for events to be held at the garden.
- ∞ In spite of the stringent fines and punishments that are laid out in Clause 19 for willful damage to a monument, it has not been possible for the Department to protect the various structures from graffiti and other forms of vandalism.

There are insufficient number of guards and problems enforcing punishment since the Department does not enjoy magistrate's powers necessary for enforcement.

- Clause 22 requires that "no development plan or scheme or new construction on, or within a distance of two hundred feet of a protected immovable antiquity shall be undertaken or executed except with the approval of the Director General." However, since such a clause is not incorporated in Building Byelaws or Urban Planning Byelaws of the Acts governing city development, Clause 22 has been contravened in almost all cases, unless the Department has shown foresight in acquiring the land in the buffer zone. There is no local and provincial government legislation related to development which protects the 200 foot buffer zone around the site from encroachment, garbage, road works and the resulting damage to the integrity of the World Heritage site.
- Clause 23 (i) prohibiting direct attachment of any item on or near a protected monument is regularly and systematically contravened. Unless this clause also becomes part of local government legislation, Shalamar Gardens will continue to suffer with electricity poles and cables, handbills posting and other intrusions. In spite of threat of imprisonment and levying of fines, the helplessness of the Department is obvious from a tour around the perimeter walls of the garden.

The Punjab Heritage Foundation Act 2005 creates a foundation with the primary purpose to preserve, maintain and rehabilitate the Punjab Heritage "through various means, including technical or financial assistance and to create awareness among the people for preservation of the Punjab Heritage." It also creates a Fund comprising grants-in-aid from government, voluntary contributions, income from leases, property sales, ticket sales and other sources. Management of the Foundation is by a Board of Governors empowered to utilize the Fund, undertake measures for preservation, conservation, maintenance and rehabilitation of the Punjab Heritage; prepare and approve projects, authorize expenditures, acquire heritage properties, promote heritage, research and publication, and frame and approve policy about the use of Punjab Heritage. The Act creates a Tajdeed-e-Lahore separate committee for preservation of cultural heritage within the revenue limits of Lahore District. A Panel of Experts can be established to give advice. The Act clearly states that "no alteration or any other measure for improvement, maintenance, conservation or preservation of the Punjab Heritage shall be taken except in accordance with the provisions of this Act."

6.2.3 Funding Procedures

The existing departmental funding situation, relying solely on government sources, falls far short of the ideal and is further complicated by the systems in

place to access funds. With the creation of the Punjab Heritage Fund this situation is expected to ease. The following summarizes the current funding situation at Shalamar Gardens World Heritage Ste:

a. Government Allocation and Sources:

The Government funds are allocated through the recurring grants-in-aid for operational expenses and development grants for specific projects.

Recurring Funds

With the administration of the World Heritage sites being taken over by the Punjab Government in January 2005, the GoPunjab is now essentially responsible for providing recurring annual grants-in-aid. Allocations are expected to be increased and must be sustained with a budgetary increase yearly to cover inflation. The recurring grants-in-aid are operated through a PLA system which must be simplified to allow the site managers timely and appropriate action for safeguarding the cultural property.

Development Funds

Additionally Government sources can be obtained though the development grants in the yearly ADP, through timely submissions of PC-1 development proposals for consideration of the following year ADP. The development grants are disbursed to the DG Archeology on a quarterly basis and monitored by the government through well established procedures, ensuring that the project is implemented as envisaged in the grant proposal and funds are utilized according to the cash plans. All development funds are lapsable funds. At the time of writing this plan the Government is planning a five years development support of Rs.300 million each to the Shalamar Gardens and the Lahore Fort. This will contribute substainally to the safeguarding of the World Heritage Site.

b. Departments' Own Sources

This includes revenue generated by the Shalamar Gardens through sale of entry tickets, and other contracts such as canteen, shops, parking, special event charges. The master plan envisages the gate money to be made available to the World Heritage Site in accordance to the undertaking given by the Federal Ministry of Culture to UNESCO that the gate money will be invested to sustain the World Heritage Site. The revenue is expected to be enhanced in the future with increased visitation, regular planned events in keeping with the historicity and appropriate use in designated areas, the establishment of the tourist facilities and sale of craft products in the Naqar Khana.

c. Additional Funding Sources

Special Project Funding / National and International_Funds from national and international donors can be obtained through specific projects proposals to

supplement the routine/ recurring expenditures. The national sources are as indicated in (a) above. International sources such as NORAD, Getty Foundation and such can also be accessed.

6.2.4 Staffing

The Federal Department of Archaeology as former custodians of the site, was rarely able to engage local or overseas experts for specialist advice, and the staff has had to rely on inadequate resources within the Department. Too often, the professional staff managing the site is placed in the difficult position of having to choose between what they know to be the correct conservation decision and what is politically demanded of them.

Custodianship of the World Heritage site has recently been transferred to the Provincial Department of Archaeology which was first established as a conservation unit of the Auqaf Department to maintain/ conserve the Auqaf property in Punjab. As such they had no developmental budget of their own. They would only look after the waqf property with the finances of the Auqaf department. They were later upgraded to the Directorate General to look after other monuments/-protected buildings in the province as well.

At the moment the provincial department of archaeology has 247 monuments and protected buildings to look after. Out of these 98 are located in Lahore and the others up and down the province of Punjab. The world heritage sites of Lahore Fort and the Shalamar Gardens have recently been transferred to them, and according to the director general, another 145 monuments / protected buildings are being transferred from federal to provincial department of archaeology in the near future. These sites will include the archaeological remains of Taxila and Harappa as well as Rohtas fort. This will make the total number of sites/ monuments under their control as 392 which is large number.

The provincial department of archaeology, which is still in the formative stages, has its office in the provincial capital, Lahore, is headed by a director general and is attached to the Ministry of information and culture. Table 6.1 gives the organizational chart for the provincial department of archaeology. A close look at Table 6.1 reveals that The department of Archaeology at the federal level is seriously understaffed. There is simply not enough staff available for the large number of monuments, they have to attend to.

At present. the total staff employed in Shalamar Gardens numbers 112, of which 56 are regular employees and 56 as work charge. Whatever staff is available is not necessarily properly qualified. Only two people, the archaeological conservator and the conservation foreman have relevant qualifications and/or experience for conserving and maintaining the site. The conservation and maintenance teams are visibly under-equipped and have to make do with outdated and inefficient

tools for their many tasks. This includes equipment needed for maintenance, conservation, garden care and documentation.

Various professionals with expertise in their relevant fields who may be required for the scientific investigation / conservation of this world heritage site i.e. the Shalamar Gardens which includes the structures, the lawns and plantations , the water channels and tanks as well as elaborate hydraulic works, have neither been employed nor consulted. At the same time, staff is not provided with opportunities for training or upgrading in the conservation and management skills needed.

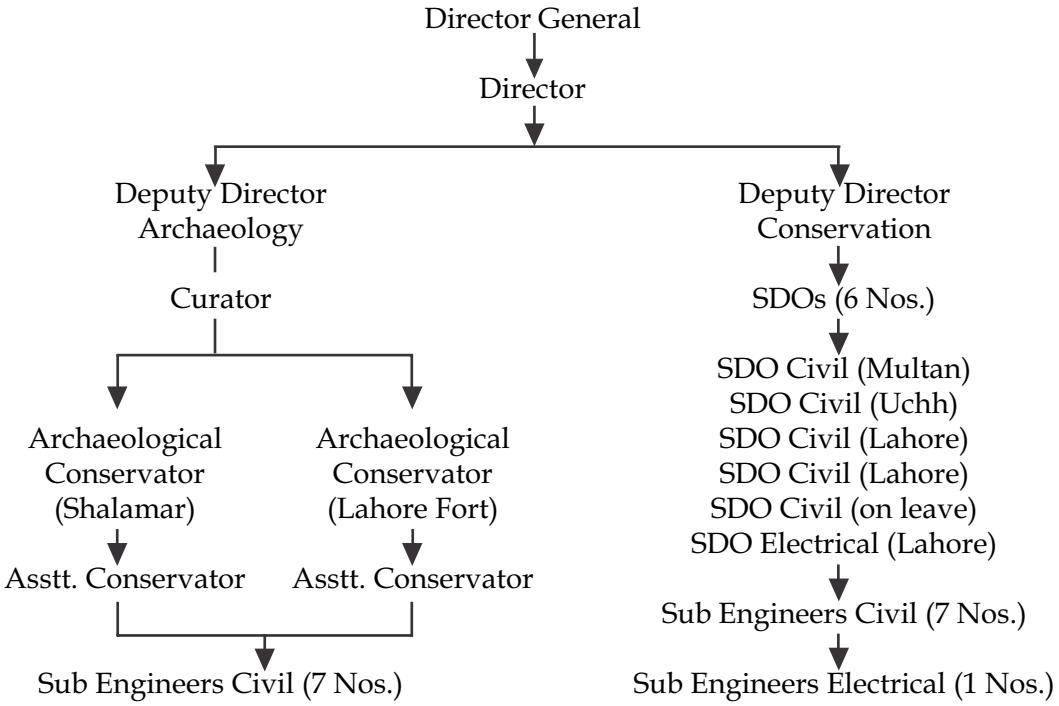


Table 6.1 Organizational Chart of the Provincial Department of Archaeology

6.2.5 Past Master Plans

The first *Master Plan for Shalamar Garden Preservation & Restoration* was prepared in 1973. A total of Rs. 22 million were required of which Rs. 15 million were approved. Proposed works included restoration, replacement and other interventions in most parts of the site. Work was commenced in 1973-4 and continued up to 1988-9. Although planned for completion in 5 years, for various reasons the scheme remained incomplete after 15 years. The scheme was therefore revised in 1988-9 and increased to Rs. 87.74 million but was returned unapproved.

In 1997 a Master Plan was drawn up proposing landscaping work to return the gardens to their Mughal state. This included laying of new turf and the conservation of old mango trees by trenching and treatment. It also proposed planting of ornamental trees, creepers and shrubs of the Mughal period. At this time there was also a plan to develop the Naqqar Khanna into a tourist service area and to convert burjs into display centres and museums to be funded by outside sources.

A Master Plan was submitted in 1999 specifically for works in the Lower Terrace. These included the excavation of trial trenches to reveal architectural details of the water channels, relaying of walkways, water channels and tanks, and the installation of new red sandstone elements and other works in the Aramgah and corner burj.

All these Master Plans have been in the form of PC-1 documents. These are designed to serve as applications for government funds for specific works, giving a brief background of proposed works and quotations for manpower and materials. The PC-1 normally provides only general information on civil works items. Schemes prepared on PC-1 proforma do not require any detailed justification for proposed works; the information given on the proforma fails to provide details regarding location and measurements of an item of work and thus cannot be a substitute for a full and detailed report.

The lack of detailed work specifications as a part of the PC-1 proforma leaves the use of funds and decisions regarding treatment of historic fabric mostly at the discretion of the site supervisor. This has often resulted in sub standard and inappropriate interventions.

Almost all schemes were revised repeatedly, in many cases because funds were not provided according to the phasing envisaged in the Scheme. As a result no Scheme has been completed on time. Formulation of a new Scheme while previous ones are still in progress created problems for the staff of the Department as the increase in work was not necessarily matched by additional staffing. The result is that normal maintenance and repairs have been abandoned and all aspects of the garden not included in the new schemes suffer further neglect.

A PC-1 document is being prepared by the Punjab Department of Archaeology at the time of writing of this Master Plan; it intends to base its proposals on the recommendations of the Shalamar Gardens Master Plan.

6.2.6 Training

No structured or regular training opportunities are provided for staff of the Gardens or the World Heritage site as a whole. Education in conservation and

management of heritage sites is sorely needed for professional and technical staff and all employees would benefit from task related and on the job training.

Issue 1:	There is no structured, multi stakeholder management system to guide conservation and management
Issue 2:	The current funding approach in inefficient and inadequate to safeguard the World Heritage Site
Issue 3:	The management team is inadequately informed regarding conservation in general and cultural landscape handling in particular
Issue 4:	There is no focused training in conservation and management
Issue 5:	There is a lack of clarity regarding required job skills for all levels of staff
Issue 6:	There is no clear definition of job scope for all levels of staff
Issue 7:	Management systems need to be upgraded and to include a variety of management tools
Issue 8:	The site custodians are not connected to regional and international support networks

Table 6.2 List of Management Issues

6.3 MONITORING AND MAINTENANCE ISSUES

6.3.1 General Monitoring Issues

There is no formal monitoring methodology in place at Shalamar Gardens and no dedicated staff regularly assessing conditions. As a result, conservation crises can arise without warning and situations can deteriorate without any organized response. Instead of being spotted and dealt with as minor maintenance problems, situations are left until they become much more serious conservation issues. These are more expensive and need more professional input which is not always available.

Deterioration of the brick of the perimeter wall

Deteriorating fabric and evidence of poor maintenance

Roofs of buildings in need of maintenance

The result of this superficial approach to monitoring is that the site as a whole presents a dilapidated and rundown appearance, with a general impression of filth and lack of care. The problem is particularly severe in the lower terrace and around the internal periphery of the site.

6.3.2 General Maintenance Issues

The records of Shalamar Gardens describe a cycle of maintenance which is administratively referred to as "Annual Repairs". These include the following:

- Thorough cleaning of the site
- Cleaning marble cascade, basins, causeway, chini khana etc.
- Painting fountains and iron grills around plots
- Distempering in pavilions
- Colour washing interior and exterior of canals, perimeter wall and burjs
- Brasso polishing fountains, burj finials and colour washing domes
- Varnishing pavilion ceilings
- Wax polishing marble floors
- Blue painting main tank and canals
- Painting wood work, distempering booking office and iron outer grill
- General garden clearance
- De-weeding pavements and tops of walls
- Remove fungus and algae and fill with clean water
- Cut back weeds
- Sweep pavements
- Clean toilets
- All marble cleaned
- All roofs cleared of wild growth and spouts cleared to allow rain water flow

These are augmented by one-off preparations for state visits, receptions and other events which tend to focus on sprucing up the main buildings, cleaning and colour washing the tank and channels of the upper and middle terraces and polishing the main entrance.

The current situation is described in further detail in Annexure 7, *Water Penetration Study and Management Issues*. Monitoring and maintenance deficiencies are in a large part due to staffing limitations. At the World Heritage site, one Archaeological Conservator and three non-specialist staff are responsible for all maintenance of the historic site. The wide range of professional expertise needed for safeguarding such a large and complex monument is lacking, with inevitable results.

Routine maintenance, or "Annual Repairs", is carried out on verbal instruction; systematic records are kept only in exceptional circumstances. Separate systems do not exist for monitoring the condition of the monuments and for implementing required maintenance. There is only one team carrying out both with no system of

cross-checking and certification. In addition, no specific research or site investigations are carried out in advance of conservation and maintenance interventions.

Even though Shalamar Gardens and Lahore Fort form one World Heritage site they do not share a linked approach to monitoring and maintenance. This means that resources and personnel are not used in the most efficient manner.

i) There is only one archaeological conservator along with a staff of only two peoples (out of which one post has been lying vacant) to carry out maintenance/ monitoring works at Shalimar Garden.
ii) The routine maintenance works are carried out verbally. Systematic record of all such works is not kept unless the matter is of serious nature when it is reported in writing.
iii) No investigative studies are carried out prior to undertaking the maintenance works.
iv) Separate systems of monitoring and maintenance do not exist. There is only one team carrying out the entire job. Weekly / monthly reports are required to be produced by the in charge of the monument which is seldom done.
v) With the number of people so small, division of responsibility i.e. monitoring & maintenance is not possible, so no checks and balances

6.3.3 Specific Horticultural Monitoring and Maintenance Issues

Monitoring and maintenance decisions and format mold and impact on the significance of an historical garden: "Although routine horticultural activities, such as mowing and weeding, or general grounds maintenance, such as re-laying pavement or curbs, may appear routine, such activities can cumulatively alter the character of a landscape. In contrast, well-conceived management and maintenance activities can sustain character and integrity over an extended period." (*The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes)*

There is no programme of systematic monitoring of the condition of the garden and no formal arrangements for implementing maintenance procedures. An informal seasonal round is carried out based on inherited practice; neither the process nor decisions are recorded. Work is carried out with limited staff of one garden supervisor and 10 mali; inadequate equipment and a faulty irrigation and drainage system. The result is inadequate care for most of the garden and continued erosion of the character of the site.

Lawns are the most widely used component of the garden complex, and therefore require serious day to day maintenance/ monitoring. The lawns include all sorts of ground covers in the form of grass, flowerbeds, hedges, as well as shrubs and

trees. These are the areas used by most people. People sit, relax and move about in the lawns families use these lawns both in summer and winter. During summer, there are used for sitting under the shades of trees and during winter for sitting in the sun. The ground cover is therefore most vulnerable to damage and decay. The up keep of grass and other ground covers is extremely difficult unless done very regularly on a daily basis. The type and quality of grass present in the gardens is not very good and the maintenance level very poor. Particularly the third terrace is full of wild growth.

Seasonal flowers also form substantial ground cover. A system of replacement of the seasonal flowers should be worked out to replace these at appropriate timings. The trees form a very important component of this pleasure garden. Most of these being fruit trees are also a source of income for the authorities.

6.3.4 Monitoring and Maintenance of the Modern Hydraulics System

(a) Water Display

The build up of silt in the original terracotta pipes due to the deterioration of the filtration process led to choking of the system. The present water control system using 4" dia, metal pipes was then installed, overlaying the original, in all three terraces. The water was sourced from two tube wells:

- one near the Upper Terrace: feeding canals, fountains and hydrants of the Upper Terrace
- the other on the Lower Terrace: designed to feed the fountains of the Lower Terrace, Middle Terrace Tank and hydrants in the Lower Terrace; this well is currently not functional.

An overhead reservoir is located near the upper well and is used to supply water to the canals. There are 13 control valves to adjust the system. Water is not filtered but is of satisfactory standard. Seepage and evaporation within the system are considered to be insignificant.

Fountain nozzles vary is size and condition with quite a few missing in the Lower Terrace and a number damaged, non-functional or tampered with throughout the system, but particularly in the Lower Terrace. All the fountains are modern replacements.

The Study on the waterworks, Annexure 4, contains a detailed description of the modern hydraulics system, its condition and recommendations for revitalizing it to present a Mughal-like display.

Past interventions did not respect the old system for irrigation/fountains and the whole system is now in shambles. The material used were not proper. At most

places this was done using cement sand mortar which will not bind with the original materials. Proper care was also not exercised in the application of these materials.

This has resulted in cracks appearing in the channels from where the water seeps spoiling the pavements. The walls and the floors of the tanks also have cracks from where the water continuously seeps through. Elaborate investigations need to be carried out to set the system right both for fountains to work efficiently and the irrigation of the lawns so that there is no wastage and its seepage into the structures and other elements of the garden.

(b) Irrigation and Drainage

The specialists' report recommends changes to upgrade the system for irrigation and drainage of the site, however, they found that the existing system is basically adequate.

Irrigation is managed by means of a series of hydrants installed at various points around the site. The system is manually operated with water is fed into the lawns through openings in the sides of the canals at several points. This is augmented by hand watering in cases of system failure or maintenance closures. Water is conveyed through a system of mains, sub-mains and laterals in the Upper Terrace, each unit having its own valve control. Provision exits for coupling flexible hoses. There is no such system of hydrants in the Lower Terrace.

There are drainage problems in the Lower Terrace where the drain that removes excess water from the north of the terrace is blocked; as a result, after a certain period of fountain operation and flow through the Sawan Bhadon slits, canal water fills up and is used for irrigation of the lawns of the Lower Terrace. When the lawns are saturated the pumps and the fountains of the lower terrace have to be stopped.

Water in the main central tank and channels becomes stagnant due to the inefficiency of the current hydraulic system. There is a continual problem with the growth of algae and vegetation and resulting water quality.

6.3.5 Issues Regarding Monitoring and Maintenance of Built Heritage and Garden Features

The failure to regularly monitor the condition of historical structures has resulted in a range of structural problems and damage or loss of many decorative features. Attention has focused on the main buildings of the Upper Terrace and the baradari around the Main Tank; even here maintenance has been superficial and restricted to distempering, varnishing and touching up of painted surfaces.

A monitoring programme is needed which will include regular checking of problems relevant to the garden, such as the effects of irrigation on building foundations, rising damp and pressure damage to the peripheral wall and the frequency of cracks at the crown of arches in many of the buildings.

Four problems in particular pose serious threats to preservation of built heritage at Shalamar Gardens; these are discussed further in Annexures 7 and 10:

(1) The action of water on various structures, in particular the perimeter wall; water rising from the ground and the rainwater causing severe dampness And rising salt efflorescence including the leakage from water channels and the tanks
(2) The threat from the lateral pressure to perimeter wall and structures integrated with the wall.
(3) The condition of roofs which have been closed off for a long time resulting in clogged drains, water problems and general disintegration of conditions
(4) There is one defect which is common to all the buildings i.e. the typical crack observed at the crown of arches. The cracks in all the arches are identical where the section of the arch is minimum. It appears to be a structural defect. No key stone has been provided at this section so due to radial shear force at this section cracks have been developed in this ageing motor which has lost its strength with passage of time.

Specific issues arise concerning the monitoring and maintenance of garden features, in particular:

∞ features subject to constant or intermittent water action, such as chadar, basins, channels and fountains: algae and vegetal growth, staining, corrosive action etc.

∞ important marble decorative features, such as the mehtabi, shah nasheen and chini khana: marble erosion, staining etc.

∞ delicate brickwork pavements and parterre edgings: brick degradation, damage from vegetation growth, etc.

These need to be addressed at the monitoring and then at the maintenance stages, in particular for those elements which are original.

6.3.6 Monitoring of maintenance work carried out at the site

Maintenance work carried out at the site is not monitored to ensure that it is done in adherence to best conservation practice. There is no system to record methods and technologies employed.

6.3.7 Cleaning of Garden Features and Structures

Although cleaning of the site is part of the "Annual Repairs", as discussed above, the general standard of cleanliness of the site and all its elements is very poor. Lack of cleaning of surfaces has resulted in the accumulation of grime, fungi and deposits of chemicals on all surfaces, resulting in damage, the extent of which remains undetermined.

Some staff members were sent to ICCROM for training in cleaning marble and other stone surfaces. There skills are applied to the highly visible marble features of the middle terrace; other materials are less well maintained. Cleaning of the monuments is important not solely for appearances. It is not possible to make informed decisions about how to maintain and conserve the monuments when they are covered in filth, therefore regular cleaning is a necessary first step in the conservation process.

6.3.8 Technical Issues

Many built features of the site are adversely impacted by excessive moisture from the ground eroding and chemically reacting with the fabric of the site. However, there has been no research into the soils as a geomorphological and geotechnical medium and the implications for drainage and stability.

Another source of damage is the constant damp state caused by watering of plantation in close proximity. This problem particularly affects pavements and walls and requires detailed examination. The fact that the restored paths have been laid 6" above the levels of original paths augments this problem and alters drainage patterns.

Termite infestation has been recorded in many of the dead and damaged trees on the site. It is also present in the woodwork of a number of the historical buildings. TO date no treatment has been carried out.

6.3.9 Maintenance of Ruins and Archaeological Remains

There are no exposed archaeological ruins or remains in the site needing special care, however, the entire site should be regarded as an archaeological site with extensive underground deposits built up over the centuries. Excavations carried out for works inside the gardens are not monitored for the occurrence of archaeological evidence. This is unacceptable by international standards and results in the loss of important data which could tell us much about the site.

Immediately outside the site and in the nearby vicinity there are archaeological remains above and below ground which indicate, not surprisingly, that the entire area is rich in archaeological material and historical information and needs to be conserved and managed for posterity.

Issue 9:	There is no system for monitoring conditions at the site and arriving at appropriate maintenance actions; this includes specific methodologies for maintaining the proposed plantation scheme, revised hydraulic system, garden features and historical buildings
Issue 10:	Monitoring and maintenance needs of the revised planting scheme
Issue 11:	Monitoring and maintenance needs of the upgraded modern hydraulic system
Issue 12:	Monitoring and maintenance of garden features and built heritage
Issue 13:	Maintenance works carried out are not monitored for standards
Issue 14:	The need for an approach to the maintenance of archaeological remains
Issue 15:	The general filth of the monuments and need for regular cleaning,
Issue 16:	The need for a review of the watering regimen in view of damage being caused to remains / structures / foundations

Table 6.3 Monitoring and maintenance issues

6.4 CONSERVATION ISSUES

6.4.1 Past Conservation Approach

Review of the records collected in the Dossiers of Histories of Interventions shows that during the last years of the 19th c. and early 20th c. frequent attempts were made to consolidate monuments and control the serious problems caused by the drainage system which was out of control. Most building and structural interventions were "maintenance" and emergency repairs, culminating in the opening of the site vista by tree removal and planting of flowers around the central tank.

From about 1913 the number of direct interventions increased, with more replacement, repair and restoration of decoration and major structural work on walls.1916-23 was a particularly busy period with interventions in planting (rose garden, mango culling and planting asokas and avenues of amaltas) wall repairs and roofing replacements.

In 1921-2 The Prince of Wales visited the site and the account of the year's work shows that all energy was spent on preparations, including whitewashing, desilting the waterworks, raising the fountains and putting up new main doors for his arrival.

The 1920s as a whole seem to have been devoted to planting shrubbery hedges, Mughal parterres and lowering plots to improve irrigation drainage. In contrast, in the 1930s efforts were expended on improving the water features, with replacement of fountain heads, piping, tank and channel repairs.

Interestingly, in the 2002 World Heritage Periodic Reporting exercise, the custodians of the Shalamar Gardens identified "inappropriate alterations, additions and damage in the period before Pakistan's independence" under the heading "Threats and Risks". In fact, all major interventions took place after partition.

The first major event noted after the war years was a flood in 1955 which caused serious damage to the monument. Efforts were devoted to repairing collapsed wall sections, laying a new piping system and repaving all the pathways. Concerns regarding the stability of the peripheral walls continued into the 1960s and major works were undertaken to patch and underpin it in many sections.

At the beginning of the 1970s there was an increase in serious interventions, with buildings being dismantled and restored. Reference to the 1973 Master Plan shows a trend towards replacement of building elements with new materials, replacement of Sikh elements and reproduction of decorative features. This approach flourished in the 1980s when we see the complete replacement of pavilions with new structures. There are repeated entries regarding renewal of fresco and other decorative elements "as per original".

The 1980s also saw a renewed planting programme. From the late 1980s onward there were increased efforts at Shalamar Gardens on preparations for receptions

General poor state of building conservation

and state events (distempering of monuments, colour washing of channels and tanks, weeding, dusting and polishing of brass). In fact, from this point on there are virtually no references in the records to any major conservation interventions. Work was devoted to regular maintenance (Annual Repairs), garden upkeep and preparation for state and other visits and events held at the site.

The past and current approach taken to the conservation and management of Shalamar Gardens can be summarized as follows:

- ∞ Priority has been given to the conservation of buildings over those aspects which give the site its value as a Mughal garden such as the planting, waterworks and display.
- ∞ Conservation efforts at Shalamar Gardens have lacked a comprehensive plan based on international standards. The custodians of the monuments still follow an outdated conservation manual, written decades ago by Sir John Marshall (1923).
- ∞ Decisions to conserve have too often been taken arbitrarily or in a reactive manner without reference to need or assessment of priorities.
- ∞ There has been too much renovation (replacing faded or slightly damaged original elements with new copies in similar materials) and reconstruction with minimal respect fro original fabric and without adequate historical research or artisan skill; and without clear identification of "new" vs. "original".
- ∞ Conservation efforts have tended to deal with surface appearance without addressing serious structural issues;

Internal face of the west Perimeter Wall showing bulging

Exposed fresco work on exterior of the Perimeter Wall in need of conservation

6.4.2 Prioritizing Critical Conservation Issue

The 23rd Session of the World Heritage Committee (1999) acknowledged that the perimeter wall of the gardens was in critical condition; it also highlighted the destruction of several exterior elements of the Mughal hydraulic system and the crisis of overall care at the site. However, no comprehensive exercise has been undertaken to identify all the conservation needs of the site and to prioritize them as a guide to long term planning.

6.4.3 Procedures for Implementation of Conservation Work

Conservation work is being carried out at Shalamar without sufficiently standardized procedures. This includes alterations to the hydraulics system, building interventions and proposals for landscaping the garden. There is a need to clearly identify the steps to be carried out in order to ensure that all work is justified, carefully planned and implemented.

At present there is little reference to the many international guidelines, manuals and case studies available. Work in other parts of the sub-continent, Southeast Asia and further afield would provide useful models and provide new ideas and approaches. However, there is no resource library available at the site for the use of the site managers.

6.4.4 Focus on the landscape elements of the garden

One of the problems with past and current approaches to conservation at the site has been a lack of focus on those important elements which define the significance of Shalamar Gardens. By this we mean the pattern and content of plantation within the site and the movement of water for irrigation and display. Conservation efforts have been restricted to replacement and /or superficial improvements to the appearance of the site. There has been no research or systematic archaeological programme to inform conservation decisions and there is no overall plan for how to maintain these character-defining elements of the World Heritage site.

Understanding of the original Mughal plantation at Shalamar has been lost as a result of historical events. With the fall of the Mughal empire at the death of Aurangzeb (1707), Lahore experienced a long period of conflict and the gardens were used as camping grounds for invading armies. Ganda Singh recounts the fate of the city's gardens during a war between the local ruler Muin-ul-Mulk and Ahmed Shah Durrani:

"The neighbourhood of Lahore was then full of beautiful gardens and orchards, reminding them of the old grandeur of the capital, but they were all cut down for the purposes of entrenchments…. And green gardens were converted into dry and dusty lands, studded with trenches all over." (Singh 1959)

The Sikhs became the rulers of Punjab in the mid 18th century. The gardens as a whole were neglected and described by W.G. Osborne as being "so overgrown with jungle as to have become the haunts of tigers and wild beasts." (Osborne 1973). The water supply to Shalamar Gardens failed during this period; it was reinstated in 1806 when Ranjit Singh ordered the restoration of Shah Jahan's Canal. During Ranjit Singh's rule the gardens were generally restored, although vandalism continued. In 1831, the French traveler Monsieur Jacquemont observed that Shalamar Gardens was "planted with orange, cedar, lime and pomegranate trees which now form an impenetrable copse" (Gorret 1935).

During the British period (1849 1947) buildings continued to be vandalized, decorative elements were removed, building foundations dug and sold for bricks. In 1883 the garden was leased for the cultivation of fruit trees which resulted in thick plantation of the upper and lower terraces (Cole 1885). Many of these trees were removed in 1922 after Shalamar was placed under the control of the Department of Archaeology. The middle terrace was cleared and planted with a rose garden in the English style.

Planting since Independence has continued this ad hoc pattern, including opening new flower beds in the Lower Terrace, setting out of flower pots along the pavements and frequent returfing of areas under shade trees. Horticultural interventions have been idiosyncratic and without any overall design.

6.4.5 Documentation

One of the fundamental management tasks at a World Heritage site is to fully document the site using a variety of media and methods, including maps, plans, architectural details, photographs, film and text. Custodians must also record in detail every intervention into the fabric and form of the site, documenting it again in a series of before and after presentations.

As part of this UNESCO- Government of Punjab project initial documentation has begun at Shalamar Gardens, following the system set up by the Heritage Foundation for documentation at Lahore Fort. To date, the following documentation has been carried out:

a. Detailed topographic mapping of the site and its environs
b. Numerical designation of all heritage features of the site

c. Drawing Folio of all Built Heritage Resources: plans, sections and elevations

d. Preparation of dossiers for each identified heritage feature, based on information culled from various Archaeological and Department of Archaeology reports.

This will form a basis for further documentation at the World Heritage site.

6.4.6 Conservation Laboratory

There are no laboratory facilities at Shalamar Gardens; any conservation materials analysis or other lab requirement must be sent to the Central Archaeological Laboratory at Lahore Fort which is a national facility of the Department of Archaeology. The Laboratory was set up in the 1960-70s and has received little or no upgrading since in terms of equipment and materials. All of the equipment and technical machinery is outdated and most no longer works or, if it works, the knowledge of how to use it is lacking. The lab offers no particular expertise in horticultural chemistry, water analysis and other requirements for garden care.

6.4.7 Archaeological Repository

There is no facility at Shalamar Gardens for collection, storage and conservation of any architectural and archaeological material and samples from the site. The lack of systematic inventory means that valuable material is not available for study or re-use in conservation and is at risk from inadequate standards of curation. This is an issue shared with Lahore Fort, where the situation is even more pronounced.

6.4.8 Particular Conservation Skills needed for the Site

At present there is no expertise available at the site in historical garden management and care and in hydraulics. Both of these areas are critical to the conservation of a World Heritage site garden.

Issue 17: The need for an updated, professional overall approach to planning and implementing garden conservation in keeping with international standards and guidelines

Issue 18: The many critical conservation situations which need to be addressed and the lack of set priorities for addressing them

Issue 19: Remains of the original Mughal hydraulics system are not fully understood and there is not focused plan for their conservation

Issue 20: The modern hydraulics system is in need of treatment in order for it to play a role in the presentation of the World Heritage site

Issue 21:	The original planting scheme and how it changed through time is not fully understood and, as a result, the existing plantation detracts from the integrity and authenticity of the site
Issue 22:	The built elements of the site are in need of specific conservation and an overall conservation plan and approach
Issue 23:	There is no detailed and standardized documentation system in use at the site
Issue 24:	There is a need for a reorganized, focused and upgraded conservation laboratory
Issue 25:	Archaeological and architectural fragments, material samples, artifacts etc. are stored in a haphazard manner without record
Issue 26:	There are no publications and other resources on conservation issues available for use by the custodians of the site
Issue 27:	Too much of current conservation work is carried out by outside contractors rather than an in-house staff team

Table 6.4 List of Conservation Issues

6.5 RESEARCH AND PUBLICATION

6.5.1 Overall Situation

Shalamar Garden has been researched in the context of the study of Islamic gardens in general and Mughal gardens in particular, in terms of its place in the historical development of the char bagh garden, its architecture and landscape and its hydraulics. It formed an important part of the Mughal Garden Project, undertaken by the Smithsonian Institution in the early 1990s (Hussein, Rehman and Wescoat 1999) which collated information regarding the many gardens of Lahore. Individual scholars have written abut its history, significance and landscape symbolism; in particular, Kausar, Wescoat, Hussein, Rehman and Koch.

There is, however, no research agenda for the World Heritage site and no body or institution for interested scholars to attach themselves. A great deal of research and study is needed to better understand the site and to aid in conservation and management efforts. Cells to address these needs have been suggested as part of proposed Pakistan Conservation Institute in the UNESCO-UNDP-GOP Project Report on *Cultural Tourism in Lahore and Peshawa*r. Some of the components are already in place in their seminal form as part of the present UNESCO-NORAD-GOP Project of Lahore Fort. Thus a beginning has been made. All efforts should now be directed towards a greater organization of the various components. More funding should now be sought to make them into fully functional inter-connected and inter-related components which will provide the necessary information and

background to both conservators and researchers and also to the presenters of the garden and its various aspects in an authentic fashion.

6.5.2 Publication

There is no publication policy or strategy and no material has been generated concerning the World Heritage site. In view of the importance of the site there should be a constant flow of information consisting not only of the works that are undertaken but also in depth studies and research based on historical records. The publications need to be in the form of print and soft copies for wider dissemination.

6.5.3 Archaeological Research

Excavations were carried out in 2001 under a UNESCO programme in order to clarify the arrangement of drains and pavements in the char bagh of the upper and lower terraces. Additional test pits were excavated as part of the specialist hydraulic study (Annexure 4). These were carried out inside the site to clarify aspects of the original Mughal water distribution system and to the south of the site to investigate arrangements in the vicinity of the sedimentation tanks.

6.5.4 Library

There is no reference library at Shalamar Gardens. There is a need for a basic working library comprising books, journals, relevant charters and guidelines and unpublished material to inform management and conservation at the site. At present, this role is partly filled by the Federal Department of Archaeology library at Lahore Fort.

6.5.5 Archival Material

No archival material is housed at the site. However, during the process of preparing this Master Plan a wide range of historic and recent maps, photographs, unpublished papers and reports and other documents, all in need of inventory and appropriate storage, have come to light.

Issue 28:	There is no research being carried out and no research focus to induce scholars to undertake studies regarding various aspects of the garden
Issue 29:	No publication policy or programme is in place to generate basic, reliable data
Issue 30:	No systematic archaeological research is carried out at the World Heritage site and no research oriented programme is in place
Issue 31:	There is no accessible archival and research materials on site

Table 6.5 Research issues

6.6 SITE VISITATION

6.6.1 Visitor Numbers and Profile

In 2001 a total of 308,373 people visited Shalamar Gardens; of these 217,089 were adults, 87,604 were children or students and only 3,680 were foreign tourists. On average approximately 1000 people visit the gardens each day, with up to 20-25,000 on holidays and festival days, in particular during Mela Charaghan. The gardens are used for special juma prayers during Ramzan and other festivals when doors are opened in the morning for free use by pilgrims.

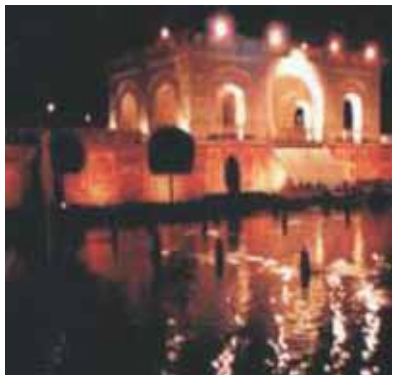
The bulk of visitors are family groups who visit the site for its recreational value and to picnic, sit in the gardens, play games and enjoy the cool fragrant ambience of the place. Most are repeat visitors. Few visitors are interested in the heritage aspects of the site beyond a casual awareness of their antiquity. It is notable that a large proportion of visitors are school students and their teachers, more than any other monument in Lahore. Most of these students are from nearby schools; however, some are from further away and stop at Shalamar as part of a Lahore tour. At present there are no services or programmes to interpret or present the site to them.

Years	Children	Adult	Students	Armed Forces	Foreigners	Total
2000	23708	250817	51865	-	4006	330396
2001	68764	214794	54873	-	7100	345531
2002	108782	279405	18839	-	1718	408843
2003	132789	285014	17267	-	205	435275
Upto July, 2004	268420	81601	1251	-	672	363044

Table 6.6 Visitation figures for Shalamar Gardens

Uncontrolled visitors in the Upper Terrace

Unsuitable and poorly located visitor facilities



Shalamar Gardens lit up for night visits

6.6.2 Present Site usage

The gardens are open from early morning until half an hour before sunset. Observation of visitor movements shows that most people follow a similar route through the site and repeatedly utilize the same spaces. Visitors enter the gardens from the north where there is no clearly identified reception area. Visitors walk down the central pathways flanking the main channel towards the Aiwan. They stop to take in the magnificent vista from the edge of the Upper Terrace and then walk down to the middle level. Here they stroll around the central tank, stopping to admire the water features and the display, if water is available. They have their picture taken seated on the marble throne and then rest in one of the marble or red sandstone pavilions. This is the limit of most visitors' exploration of the site. Some may venture to the Lower Terrace to buy refreshments, others return to the Upper Terrace to sit under the trees. (Fig. 6.1)

6.6.3 Estimating Carrying Capacity of the site

Improved management, a planned conservation programme and resulting increased publicity and educational programmes will lead to increases in tourist numbers. While current visitor impacts may be manageable, planning is needed to ensure that it remains the case. Determination of carrying capacity is difficult since it may be impossible to determine the exact number beyond which negative impacts will become evident. An approach is needed which addresses the question of long term sustainability: "How can visitor management and site use planning assure a quality visitor experience while at the same time safeguarding heritage resources?"

6.6.4 Emergency Protection of Fragile Elements

Some fragile areas of the site are at immediate risk from inappropriate visitor use and numbers. Emergency measures are needed to curtail damage while an overall policy for visitation and visitor control is being put in place. This particularly applies to planted garden elements and water features.

At present there is no mechanism to protect the monuments from visitor damage except direct enforcement by barricading certain areas and restricting activities. There is a need for additional indirect means in order to affect compliance through education, information and persuasion. A combination of direct and indirect methods is needed to minimize visitor impact. Protection can range from complete closure of areas, to temporary barriers and increased numbers of guards.

6.6.5 Interpretation of the Site

There is no comprehensive policy on how to interpret and present Shalamar Gardens to the public in an informed and entertaining manner. Signage at

Shalamar Gardens is limited to one information board at the entrance which identifies the site as a UNESCO World Heritage property. There are no pamphlets, maps or brochures available for free or on sale. No information is provided within the site, no tours or recommended routes are identified.

6.6.6 Interpreting Shalamar Gardens in the Context of Lahore's Gardens

Their may exist an important relationship between Shalamar Gardens and the other adjacent gardens which maybe are part of the same design concept. Unfortunately, this has not been adequately researched and thus the historical interpretation has not been presented to visitors and potential tourist routes and packages have not been developed.

6.6.7 The Use of Historical Buildings and Areas for Events

The site is occasionally hired for special private events such as corporate receptions and there have been a few performance events staged over the years. These events often involve food preparation, installation of lighting and sound systems and opening of fragile parts of the site to visitors. Although staging of theatrical events can bring vitality to the site and can be a valuable interpretive tool, there have to be restrictions on its indiscriminate use and guidelines for staging of events.

Similarly, plans for the re-use of historical buildings for tourism use require care in modifying them to meet modern needs. There are many instances where modern utilities and conveniences have been installed without due care for original fabric and materials and with long term damage to structures.

6.6.8 On-going Monitoring of the impacts of visitation

Visitors to any site have direct and indirect impacts on its physical fabric and environment; these can range from dislodging of bricks caused by climbing on walls to compromising the appreciation of the site by unrestricted crowding. Over time these impacts can cause permanent damage to the site. There is no system in place at Shalamar Gardens to monitor the nature and extent of impacts caused by tourism at Shalamar Gardens or design remedial action.

6.6.9 Visitor Services and Facilities

Visitor facilities at Shalamar Gardens are limited and of poor quality.

(a) Parking facilities

No formal parking area is designated for use by visitors to the gardens. The strip of government owned land between the south wall of the site and the GT Road is currently used for parking of up to about 20 vehicles.

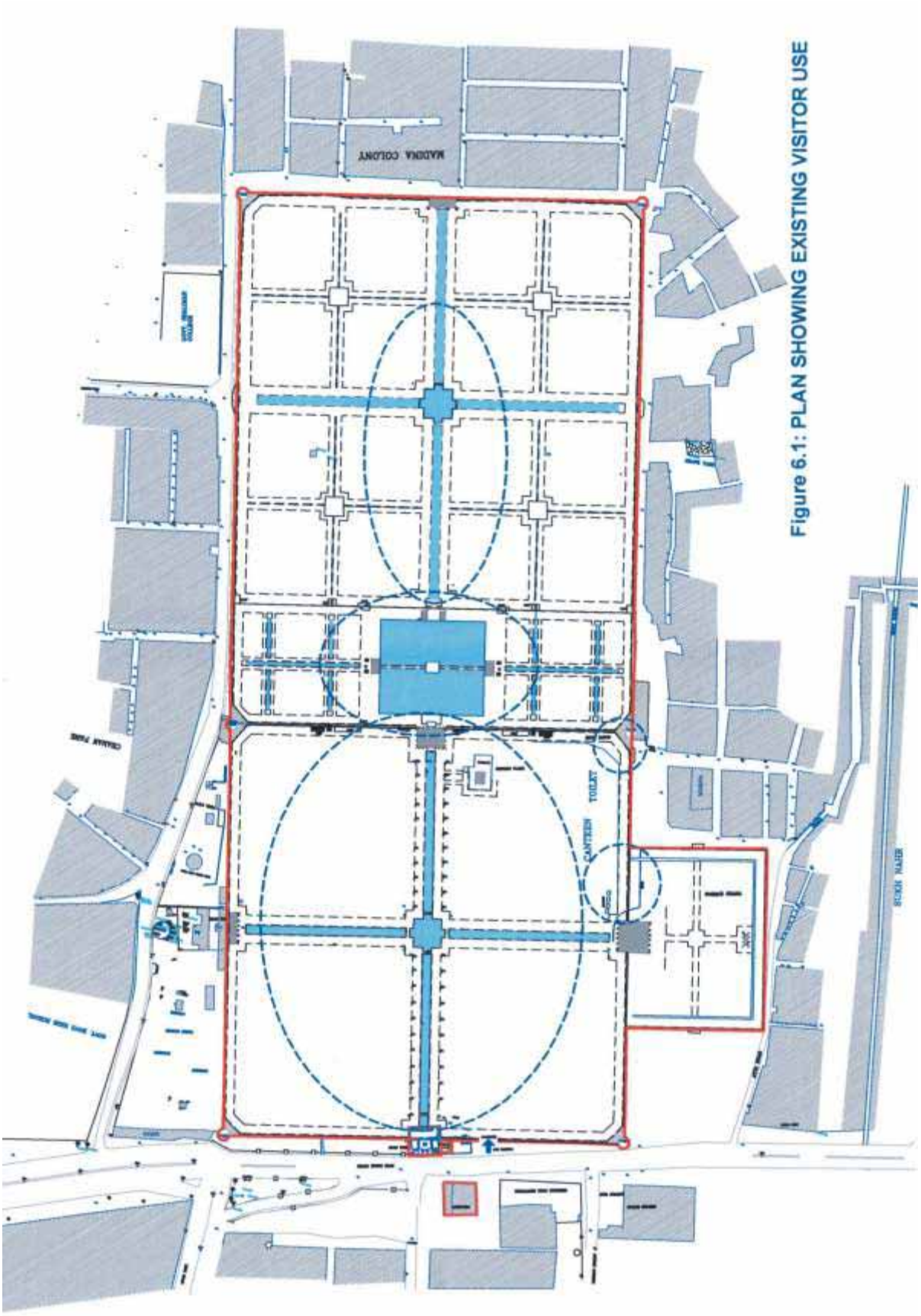


Figure 6.1: PLAN SHOWING EXISTING VISITOR USE

(b) Catering
On site catering consists of a number of concession stalls in the eastern portion of the lower terrace, These stalls sell drinks and snacks, with waiters wandering the grounds looking for customers resting and picnicking on the lawns.

(c) Waste disposal
There are a number of large swing bins located around the site for depositing picnic and other rubbish.

(d) Toilets
Substandard, facilities are inappropriately located in the royal Hammam.

(e) Shops
There are none.

6.6.10 Museums Display

There are no museums exhibits or displays at Shalamar Gardens.

6.6.11 Guides and Tour facilities

There are no professional or casual guides working at Shalamar Gardens and although the site is publicized in national, provincial and city tourism literature and web sites, there are no formal guided tours available at the World Heritage site.

6.6.12 Community Involvement

Neither the local nor the greater Lahore community plays any part in planning or managing or participating in tourism at Shalamar Gardens. No facility has existed within the garden to provide liaison between the administrators of the site and the local community and to involve the public in safeguarding the site. Residents of Lahore have had no involvement in caring for, interpreting or investing in the World Heritage site.

Similarly, there are no programmes to engage women and the general public in safeguarding the site and to develop 'duty of care' among the community. Mechanisms involving large numbers of people from all walks of life, need to be put in place in order that each visitor becomes aware of his/her responsibility in safeguarding the historic environment.

6.6.13 Income Generation

At present, income generation is confined to ticket sales and occasional fees for use of parts of the gardens for holding receptions and events.

6.6.14 Sustainable Craft Production based on Cultural Heritage

There is a need to encourage women in the communities around Shalamar Gardens to make cultural products using the designs found in various structures

in the monument. First steps towards this are planned, through encouraging the women of the area to make handicrafts items for sale, using motifs which are based on the Mughal features. An outlet for such products is needed which will allow for direct sales of women's crafts. In collaboration with the documentation centre, the Documentation Centre can also provide facsimiles of designs and other information which can help in production of craft products.

Issue 32:	There is no comprehensive visitor management plan for the World Heritage site.
Issue 33:	The values for which Shalamar Gardens was inscribed as a World Heritage site are at risk and must be protected in the context of existing and increased levels of tourism
Issue 34:	No assessment has been made of the degree of fragility or robustness of different elements of the site; some important elements of the site which are too fragile or visitation are not protected
Issue 35:	No assessment has been made of which parts of the site can withstand visitation and varying degrees of use intensity
Issue 36:	There is inadequate information about and interpretation of the site to visitors
Issue 37:	The impacts of tourism on a World Heritage site need to be monitored over the long term; there is no mechanism in place to achieve this
Issue 38:	Visitor services in and around the site are inadequate and often inappropriate for a World Heritage site
Issue 39:	There are no guidelines on the use of areas of the site for special events
Issue 40:	There is a need for standards and methodologies to guide adaptation of historic buildings for modern tourism uses
Issue 41:	There are no museums or other displays at the site
Issue 42:	The need to address a lack of understanding and a feeling of ownership and commitment within the community; particularly youth; the community receives no financial benefit from having a World Heritage site in the area
Issue 43:	The role of Shalamar Gardens in the urban garden landscape of Mughal Lahore has not been explored or presented to visitors

Table 6.7 Site visitation issues

6.7 ENVIRONMENTAL AND PHYSICAL INFRASTRUCTURE ISSUES

6.7.1 *Overall Situation*

Environmental conditions inside and around Shalamar Gardens pose a threat to the preservation and integrity of the site. Details concerning existing conditions can be found in the *Environmental Issues and their Impact on Shalamar Garden,* Annexure 9. These include impacts from roads encircling the site, problems with drainage and solid waste removal, parking and access and electricity. The result is a continual worsening of the environmental problems it faces which adversely affect the garden, water features, structural fabric and fragile decorative elements.

6.7.2 *Environment in the Areas Surrounding the World Heritage Site:*

As the city of Lahore has expanded, with GT Road as the primary link between Lahore and Delhi, development occurred along both sides of the road. The expansion of Baghbanpura and Begum Pura, two old villages, resulted in Shalimar Garden being enveloped by a densely built-up area. Today Inayat Bagh, Angoori bagh and Mehtab Bagh are all built settlements (Fig. 6.2).

The area immediately around the Garden is built up with middle, lower middle and low income community and small commercial shops. Some of the properties have legal ownership however encroachments are rampant. The city government has mobilized itself to push back some of the encroachments particularly those that were abutting the Shalimar walls itself. The wall itself continues to be defaced with posters and vendors hanging their wares

Garbage and utilities damaging the Exterior of the World Heritage site

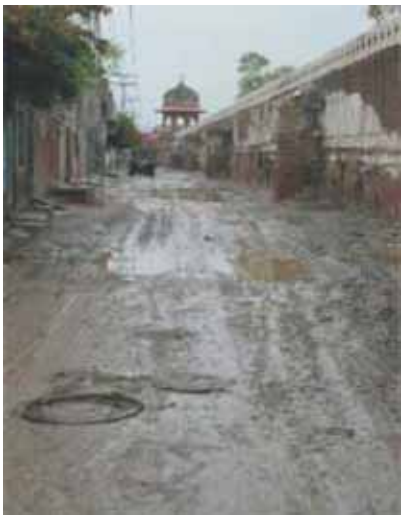
Uncontrolled garbage collection against the wall of the site

a. Vehicular Traffic

The World Heritage site is surrounded on all sides by roads:

South: The Grand Trunk Road is the main 6-lane trunk route of the city north east to north west carrying all forms of heavy traffic. The traffic results in pollution, dust and vibrations having a detrimental effect on the site. An open strip 35' wide separates the road from the external wall of the garden. Expansion of the GT Road resulted in the destruction of part of the historic hydraulics complex.

East: An unpaved access route runs from the northeast Burj southwards to the Naqqar Khana, where it bends east. From the GT Road a tarmac road, Atta Road, provides access to the settlements to the east of the site.



Squalid conditions outside the site and the elevated level of surrounding roads

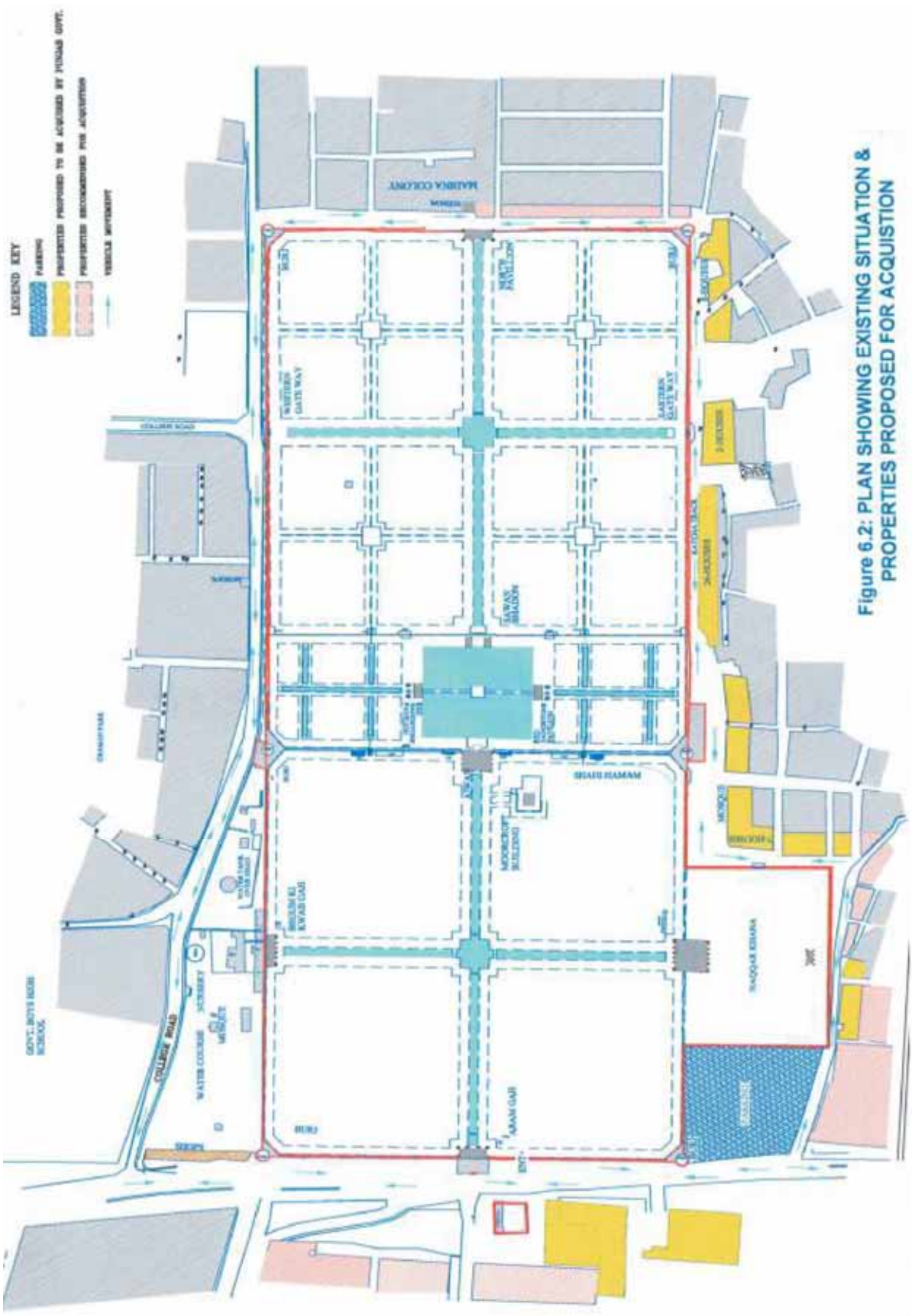


Figure 6.2: PLAN SHOWING EXISTING SITUATION & PROPERTIES PROPOSED FOR ACQUISTION

Encroachments into the road have resulted in buildings and houses coming even closer to the wall of the site.

West: College Road is a major access road to the residential and commercial settlements towards the north and west of Shalimar Gardens. Along the edge of the site there is a pathway which has been occupied by encroaching stalls, with wares hung on the wall of the garden. The footpath is also occupied by overflowing MCL garbage skips.

North: The north road provides access to the Madina Colony, built in the former Mehtabi Bagh. It is approximately 50' wide but narrows where it has been encroached on by housing. The space along the northern side of the site is occupied by several more garbage skips.

The levels of all the peripheral roads are a minimum of 3 feet up to a maximum of 6 feet higher than the internal level of the garden. This has resulted in pressure on the fabric of the peripheral wall.

b. Pollution

The most serious form of pollution is suspended particulate matter from vehicle emissions. Measurements in other parts of the city with equivalent traffic density show levels almost ten times set standards. Suspended particulates cause soiling of the buildings. Nitrogen dioxide has serious effects on colours and materials as do ozone and hydrogen sulphide which bleach the colours of frescoes and alter pigmentation. The fumes and dust created and the high volume of traffic along the southern periphery of the site result in encrustation and corrosion.

c. Parking

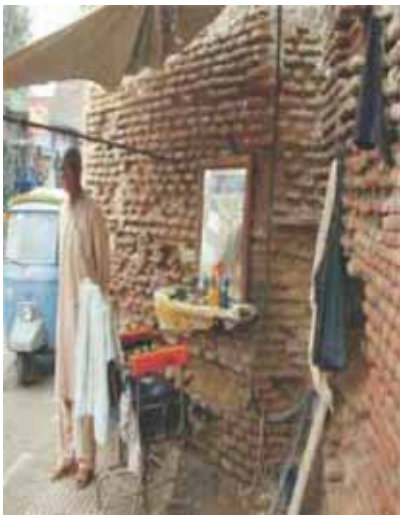
Parking is currently allowed along the southern façade of the site, near the entrance. The space between the garden wall and the Grand Trunk Road accommodates approximately 25 cars.

d. Drainage

The difference in elevation between the external roads and the interior of the gardens has also led to problems with storm water drainage from the higher roads flowing into the garden. This results in saturation of the lower portions of the wall causing damage to the fabric, efflorescence and peeling of the lime plaster.

e. Visual Intrusion

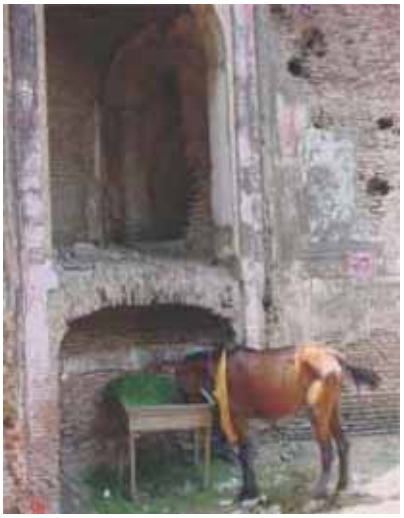
The World Heritage site is surrounded on all sides by residential and commercial development, much of which is more than several stories high. As a result, outside structures are visible from almost every point in the site, intruding on original sight lines and breaking up the historical vista. The situation is made worse by the presence and continued construction of minarets more than 40' high on the west and north of the site.



Stalls and shops against the wall of the site

f. Integrated Urban Context

The degraded environmental situation in the environs of Shalamar Gardens is aggravated by a lack of coordination between city authorities responsible for infrastructure and services, authorities responsible for strategic planning in the area and the site management. This lack of integrated urban planning has resulted in the isolation of the World Heritage site from planning initiatives for its immediate environs.



Inappropriate use of the World Heritage site buffer area

There has been a failure to enforce the Federal Antiquities Act of 1975 which states that "no development plan, scheme or new construction on or within a distance of 200' of a protected unmovable antiquity shall be undertaken or executed". This is the result of a lack of coordination between the custodians of the site i.e. the Federal Department of Archaeology and the city and provincial governments. This failure of the buffer zone, has created a no-man's-land of unauthorized structures and activities, which provides no protection to the site.

The management of the Shalamar Gardens has recently (2004) been taken over by the Punjab

Unacceptable toilet facilities inside the Shahi Hammam

Government with the result that it now the responsibility of the Punjab Government to coordinate and ensure maintenance and fulfillment of the overall responsibilities for the preservation of the World Heritage Site and its immediate environment.

Effective preservation will require successfully addressing the issues of the external environment and setting of the site. Its future is integrally linked to issues of population growth, housing, traffic control and routing in adjacent city areas. At present, the World Heritage site is a lacuna in urban land use and zoning plans with no recognition of the need to use planning tools to protect it and to maximize its potential to generate cultural tourism related activities. It will be necessary to lay down clear guidelines regarding what types of tourism and culture related development will be acceptable within the area around the site to ensure its protection and maintenance of a suitable buffer zone and setting.


The overhead tank serving the site


Poorly maintained valves for watering the gardens


View of the elevated external road in comparison to the level of the site

6.7.3 Physical Infrastructure of the World Heritage Site

a. Sewerage

There are toilet facilities at three locations in the site:

(1) staff facilities in the Aramgah: a toilet is located in the eastern side chamber of the historical building and is connected to a sewage line running along the south of the site. It has deleterious effects on the historical fabric and is inappropriate in such a setting.
(2) washroom for tubewell operators and working staff: located in the nursery area; emptying into a sewage line along the east of the site
(3) public toilets: located in the Shahi Hammam which empty into a septic tank

immediately outside the garden and then into an adjacent sewer line. These facilities are in very poor repair and impact seriously on the historical fabric of the hammam causing water damage, leakage and cracking. The facilities are inappropriately placed inside an historical building.

b. Storm Water Drainage

Light to moderate rainfall infiltrates readily into the grassy surfaces of the gardens; however, heavy or monsoonal rains form thick layers of water film on the lawns which then runs towards the peripheral walls causing damage to the fabric.

c. Water Supply and Distribution

Irrigation arrangements inside the Shalamar Gardens are discussed in Part 6 in the context of the hydraulic system.

Water from the overhead tank supplies the washrooms in the Shahi Hammam and also provides water to the drinking water stand. This is the only provision for drinking water in the Shalamar. It is a brick masonry structure about 6 feet in both length and width with an approximate depth of about 5 feet. Strangely enough, this tank gets the recharge from the first fountain on the west channel of the Upper Terrace This tank does not accommodate enough volume of water to suffice the requirement of the entire Shalamar. Secondly, it is not at all centrally located, so visitors face a lot of trouble in reaching this tank. On enquiring, it was also told that there is no periodic cleaning of this tank either and it is only cleaned when deemed necessary by visual observation. The water from this tank is not potable and might contain fecal coliforms, which are hazardous for human health.

d. Solid Waste

The site produces on an average 0.7 0.8 tons of solid waste per week, depending upon the seasons and construction activities. Most of the waste generated is garden trimmings, leaves, grass and food waste. The rest is either recyclables like paper, plastics, glass and construction waste etc. Grass trimmings and leaves collected by gardeners are collected and disposed of outside the Shalamar Gardens. The visitors drop waste in the tilting type drums provided in the lawns. Sweepings are also stored in these drums. It was observed, that these drums were adequate in size and number to accommodate the waste collected from the Gardens.

The waste collected from the Shalamar Gardens is ultimately disposed of into a 6 square meter metallic container provided by the City District Government, parked all along outside the Shalimar Gardens walls, along the Naqqar Khana the western road and the nursery area .

e. Electrical Systems and Lighting

At present there is a limited system for lighting the office facilities on site but no illumination of the interior or the exterior of the World Heritage site. There are electrical fixtures and wiring directly attached to the exterior of the site perimeter wall which are causing damage to original fabric.

f. Security

A total of 12 staff are employed at the site specifically for security purposes. There are continual problems with misuse of the site and unauthorized entry over the peripheral wall.

Issue 44:	The exact extent of the Buffer Zone is undefined and no limitations on activities in the zone are in place or enforced.
Issue 45:	Parking is inappropriately placed against the façade of the World heritage site
Issue 46:	Heavy local traffic causes vibration and pollution damage
Issue 47:	There are no formal links at city government level to ensure that conservation and planning for Shalamar Gardens is carried out within an Integrated Urban Planning Context
Issue 48:	There is no system in place to assess impacts of development in or around the site on the heritage values of the World Heritage property
Issue 49:	Uncontrolled water is damaging the site
Issue 50:	There is a need for provision of better toilet facilities which do not adversely impact on the site
Issue 51:	A more efficient solid waste removal system is needed
Issue 52:	Removal of electrical facilities, cables and wiring which is directly impacting on monuments;
Issue 53:	Plans for evening use will require improved lighting
Issue 54:	General levels of security at Shalamar Gardens need to be improved

Table 6.8 Environmental and physical infrastructure issues

6.8 SWOT SITUATIONAL ANALYSIS AT SHALAMAR GARDEN

As shown in the previous summary section, a complex array of strengths, weaknesses, opportunities and threats are associated with the preservation and management of Shalamar Garden. On the one hand, the site is without question of extreme cultural significance to Lahore, Pakistan and the world. There is a high level of visitor interest in

the site even though the monuments are in poor to critical condition and visitors are offered virtually nothing in the form of interpretation or facilities. It is clear that at present the vulnerability of the site's situation and the accumulated dangers to it threaten to overwhelm and negate its strengths. This is mainly due to a consistent failure in the past to maximize these strengths and to create or take advantage of opportunities for development of the site's potential.

Strength	Weaknesses
— High cultural significance as reflected by World Heritage status — Popularity with local and national visitors reflected in visitor numbers — National and international expert interest in planned conservation of selected structures of the site — Preparation of the Shalamar Garden Master Plan	— Poor state of conservation and maintenance of all parts of the site — Inadequate documentation — Lack of on-going research — Problematic management and funding procedures — Insufficient trained staff — Failure to integrate the site into city planning and administrative systems — Lack of community involvement in custodianship of the site — Lack of economic benefits to the community from tourism — Lack of a comprehensive vision of conservation
Opportunities	**Threats**
— UNESCO-GOPunjab project & associated higher profile at national level — Controlled use of the site as an educational and performance venue — Research potential of the site — Creation of cultural tourism linkages with related garden sites, shrines etc. — Associated economic benefits for local community — Availability of local youth as guides and local women for production of women's crafts to spread tourism benefits to local community	— Established conservation approach — Insufficient custodial care — Environmental issues in and around the site — Uncontrolled and uninformed visitation — Continuing degradation of the Buffer Zone due to lack of provincial and city level cooperation — Lack of trained personnel — Insufficient allocation and delayed release of funds

Table 6.9 SWOT Situational Analysis at Shalamar Gardens World Heritage Site

PART 7

Programme for Action

PART 7

PROGRAMME FOR ACTION

7.1 INTRODUCTION

This section of the Master Plan presents a series of integrated action plans developed from expert input and designed to address the issues highlighted in the previous parts of the Plan. These Actions constitute the key processes of cultural resource management at Shalamar Gardens which aim to achieve the vision set out for the future of the World Heritage site in both the short and longer term: The programme is intended to be as comprehensive as possible but is not definitive as it is expected that new projects will arise and existing ones will be revised according to changes in circumstances.

7.1.1 Short Term Vision

In the short term or first 3 years:

- ∞ To identify features of the garden in need of emergency action and to design and implement first aid measures;
- ∞ To take all steps necessary to arrest further degradation of the site;
- ∞ To initiate changes in the horticulture of the garden by implementing the initial phases of the Plantation Plan;
- ∞ To initiate changes in the hydraulic system of the garden by implementing the initial phases of the Hydraulic System Proposals;
- ∞ To put in place standard operating procedures for basic tasks carried out as part of conservation and management of the garden;
- ∞ To involve a wide range of stakeholders in decision-making and frame that decision-making in a context of national and international standards of best practice;
- ∞ To address those environmental issues which can be addressed using existing mechanisms and start to formulate new approaches to solving problems which require new partnerships and initiatives;
- ∞ To put in place monitoring and maintenance systems as the basis of sound conservation management;
- ∞ To set a design standard for information display and signage, to put basic, first-step displays in place and provide maps, brochures and other sources of information for visitors;
- ∞ To create a mechanism for community and youth outreach on a regular basis and to propose schemes for local community benefit derived from the World

Heritage site;

- ∞ To create a framework for continuing research to form the basis of presentation of authentic information;
- ∞ To develop a mechanism for ensuring well-looked after and clean premises and grounds.

7.1.2 Longer Term Vision

In the longer term:

- ∞ To achieve the highest standard of conservation of all remaining historical elements of the site in order to preserve the cultural significance and authenticity of the site;
- ∞ To develop a holistic, efficient and practicable management strategy for the garden;
- ∞ To upgrade the environment in and around the World Heritage site, based on a series of protective zones;
- ∞ To enhance the visitor enjoyment and understanding of the garden and further research and understanding of the history and significance of the site within its contemporary context.

The following simplified model has been developed to demonstrate the process of cultural resource management which is proposed for the site, adapted from *Best Practice in Cultural Heritage Management (Historic Heritage on Parks & Protected Areas): A Report to the ANZECC Working Group on National Park and Protected Area Management* (Kelly 2001).

As the model implies, heritage conservation and management follow a sequence of key processes commencing with identification and assessment of heritage resources and leading to maintenance, conservation, infrastructure development,

Encroachments on the wall of the World Heritage site

Deteriorating frescoes of the Shahi Hamam

research and presentation of the site to the public. There is a continuous feedback loop between each of the key processes and the strategic management process. Strategic management is a major process in itself that includes the organizational planning cycle and its links with external agencies (Fig. 7.1).

The Programme for Action reviews the issues presented in Part 6 of the Master Plan. It defines the overall approach taken, reformulates the issues into Objectives to be met and proposes actions for meeting these. Table 7.1 illustrates the correlation between the Issues raised in Part 6 of the report and the Action Plan Objectives presented below. In addition, specific operational tools which can assist in implementation of the proposed actions are recommended.
Each of the Action Plans is introduced below in summary; they are appended in full where relevant as Annexures. .At the end of this section the Shalamar Gardens Objectives - Action Plan 2006 - 2012 (Table 7.1) presents each of the Action Plan objectives, the level of priority, target dates for implementation, identification of milestones and responsible agents, and identification of the resources needed.

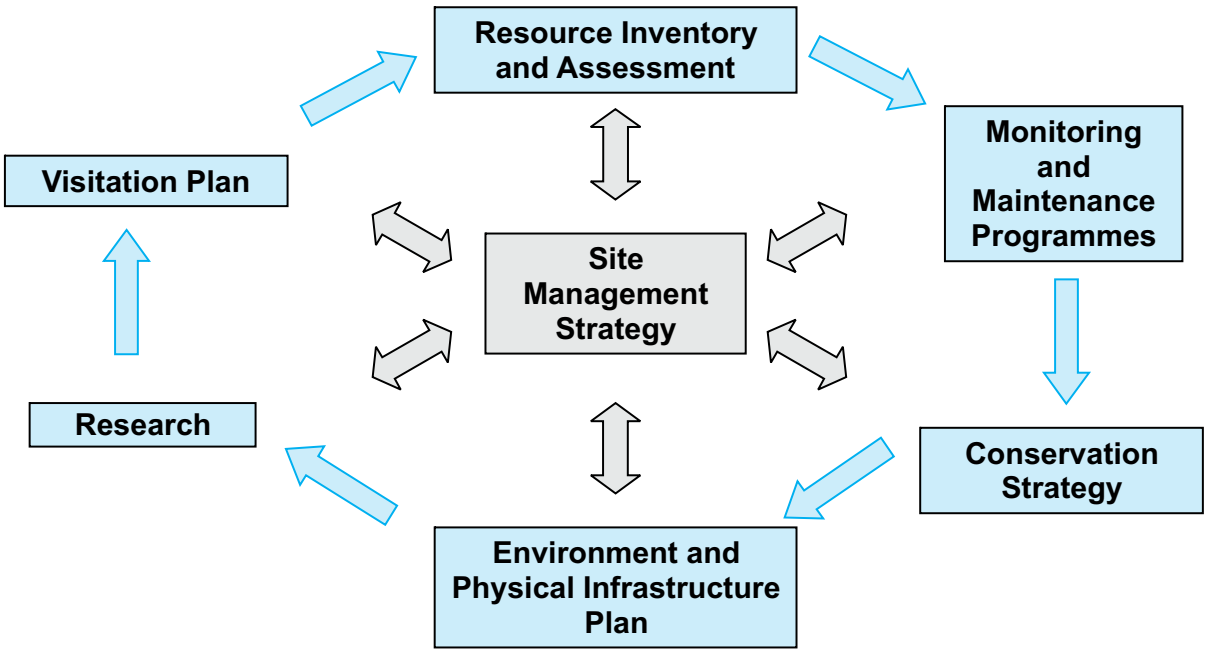


Figure 7.1 Model of cultural resource management

Subject		Issues		Objectives
Site Management	1	Need for an integrated management system	SMS 1	Proposed Management Structures for Oversight and Custodianship
	2	Need for diversified funding approach	SMS 2	Diversified Funding Scheme
			SMS 3	Contributions in kind
	3	Uninformed management team	SMS 4	Presentations and workshops
	4	Lack of training in conservation and related subjects	SMS 5	Crafts Centre and training proposals
	5	Basic job skills unidentified	SMS 6	Core Competency training programme
	6	Scope of jobs not well defined	SMS 7	Standard Operating Procedures
	7	Management tools under-utilized	SMS 8	Logical Framework Analysis, UNESCO Heritage Audits, Risk Assessment and Management and Geographic Information Systems (GIS)
	8	International and regional support network lacking	SMS 9	Recommendations for linkages and networking
Monitoring and Maintenance	9	Lack of regular and systematic monitoring and maintenance of the site	MM 1	Monitoring and Maintenance System
	10	Special monitoring and maintenance needs of an historical garden	MM 2	Monitoring and maintenance of the proposed Mughal planting scheme
	11	Maintenance requirements of the modern hydraulic system	MM 3	Monitoring and maintenance of the modern hydraulic system for water distribution and display
			MM 4	Monitoring and maintenance of drainage and irrigation systems
	12	Monitoring condition and maintenance needs of built heritage	MM 5	Systematic monitoring and maintenance of the fabric of built heritage features
	13	Lack of moniroting of maintenance interventions	MM 6	Recommendations for a system to monitor maintenance work carried out by or under the supervision of the

				department
	14	Need for monitoring of archaeological remains and deposits	MM 7	Archaeological monitoring programme
	15	General lack of cleanliness at the site	MM 8	Proposals for site cleaning
	16	Technical issues regarding maintenance of the site	MM 9	Technical Studies on maintenance issues
Conservation Issues	17	Need for an overall approach to conservation of an historical garden	COS 1	Guiding Principles for Garden Conservation
	18	No set of priorities for carrying out conservation of all aspects of the garden	COS 2	Conservation Action Priority Table
	19	Special conservation needs of the Mughal hydraulic system	COS 3	Recommendations for preserving the remains of the Mughal Hydraulic system
	20	Making the existing hydraulics system efficient and creating an historical display	COS 4	Recommendations for conservation and use of the modern hydraulics system to create an historical display
	21	Current plantation is not authentic and diminishes the values of the World Heritage site	COS 5	Garden Conservation Plan
	22	Need for set procedures for planning and carrying out conservation work	COS 6	Step by step procedures for implementation of Conservation work
	23	Standardized documentation	COS 7	Continuation of the existing Project Documentation Centre; Heritage Foundation recording formats
	24	Inadequate lab support for conservation	COS 8	Proposals for Conservation Laboratory
	25	Scattered and un-inventoried archaeological; and architectural material	COS 9	Proposals for a centralized Materials Repository
	26	Lack of conservation library	COS 10	Proposals for a Conservation Resource Library
	27	Employment of unskilled	COS	Development of in house conservation capabilities

		contractors	11	
Research	28	Lack of research and a research strategy	REF 1	Outline of a Research Framework
	29	Lack of publications of data and material	REF 2	Publication Programme
	30	Lack of archaeological research	REF 3	Programme of Archaeological Investigations
	31	Archival material at risk	REF 4	Proposals for Archival Collection
Site Visitation	32	Need for a comprehensive approach to visitor management	VIP 1	A sustainable approach to Visitation at Shalamar Bagh
	33	Universal values and significance of the site must be preserved and resented	VIP 2	Recommendations for ensuring preserntion and interpretation of values
	34	Unprotected fragile areas and uncontrolled crowds	VIP 3	Emergency Protection Plan
	35	Need to identify uses appropriate to the fragility of the site elements	VIP 4	Tourist Visitation Zones
	36	Lack of interpretation for visitors	VIP 5	Recommendations for an Interpretive Policy
	37	Need to monitor and respond to tourism imoacts on the World Hertage site	VIP 6	System for monitoring tourism impacts
	38	Inappropriately located visitor services and amenities	VIP 7	Recommendations for relocation and ugrading of visitor services
	39	Damage from uncontrolled events and uses on site	VIP 8	Recommendations for Historical Site Use Guidelines
	40	Use of historical structures for tourism related uses must follow conservation standards	VIP 9	Guidelines for Adaptive Re-use of historical buildings
	41	Lack of museums and exhibitions	VIP 10	Museum proposal
	42	Need for community outreach and benefit	VIP 11	Community Outreach recommendations

	43	Severed historical links with nearby Mughal gardens	VIP 12	Recommendations for Consultant Study of Mughal gardens
Environmental and Physical Infrastructure	44	Undefined and unmanaged areas surrounding the site	EPI 1	Proposals for the revitalization of the Buffer Zone
	45	Parking issues and entry into the site	EPI 2	Recommendations for parking arrangements and change of site entry
	46	Impacts of heavy traffic around the site	EPI 3	Phased approach to traffic rerouting and pedestrianization
	47	Failure of communications between site and city on planning and management issues	EPI 4	Recommendations for an Integrated Urban Conservation Planning and Land Use Study
	48	No controls over development in the environs of the site	EPI 5	Cultural Heritage Impact Assessments
	49	Damage to the site from poor drainage	EPI 6	Long and Short term recommendations for drainage improvements
	50	Inadequate and poor toilet facilities	EPI 7	Proposal for additional toilets in appropriate locations
	51	Litter and garbage on site	EPI 8	Proposals for upgraded waste removal and community outreach initiatives
	52	Electrical encroachments on to the monument	EPI 9	Proposals for electrical upgrading and removal of encroaching facilities
	53	Popular evening hours wasted	EPI 10	Recommendations for evening opening of the World Heritage Site
	54	Poor security arrangements	EPI 11	Recommendations for improvements to security

Table 7.1 Correlation between the Issues raised in Part 6 of this report and the Action Plan Objectives

7.2 Site Management Strategy

As stated in the *Management Guidelines for World Cultural Heritage Sites* the role of the site management is "to conserve the heritage resource and to serve the public interest, provided this is not detrimental to the site." An effective management structure, mechanisms and tools must be in place to allow the team to administer in as informed and efficient a manner as possible. To meet this objective, a Site Management Strategy is being proposed which will integrate conservation, training and sustainable management tools into a system of consultation. The intention is to assist the custodians of Shalamar Gardens in efficient management of the site.

7.2.1 Overall Strategy

The fundamental aim of site management is retention of all those things which make the place significant and give it meaning. "What separates the management of heritage sites from other forms of property management is that the fundamental purpose of cultural heritage management should be to preserve the values ascribed to a site be they aesthetic or historical or social. Heritage sites are not simply visitor attractions, there to provide customer satisfaction and a reasonable profit. Such places are defined by the values we attach to them" (Clark 2001).

The success or failure of current management at Shalamar Gardens can be evaluated using an approach developed by Parks Canada called "Commemorative Integrity" (Parks Canada 1994). This concept is based on the idea of the health and wholeness of a site and rests on the answers to three basic questions:

- ∞ Are the resources that represent the site's importance impaired or under threat?
- ∞ Have the reasons for the site's designation been effectively communicated?
- ∞ Has the site's heritage value been taken into consideration in decision making?

When we ask these questions about Shalamar Gardens the unfavourable answers tell us that the "Commemorative Integrity" and authenticity of the site are seriously at risk and that changes in management style and approach are needed.

Management must be sensitive to the special needs of a cultural landscape such as Shalamar Gardens. "Wise stewardship protects the character, and or spirit of a place by recognizing history as change over time. Often, this also involves our own respectful changes through treatment. The potential benefits from the

Preservation of cultural landscapes are enormous. Landscapes provide scenic, economic, ecological, social, recreational and educational opportunities that help us understand ourselves as individuals, communities and as a nation. Their ongoing preservation can yield an improved quality of life for all, and, above all, a sense of place or identity for future generations." (*Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*, 1994; National Parks Service)

The following objectives are aimed at improved management at the site and identification of remedial actions. They form the core of the Site Management Strategy; Tables 7.9 14 present this and all other aspects of the Action Plan giving priority, target dates, key responsibilities and resources needed for successful implementation.

7.2.2 Site Management Strategy (SMS) Objectives

SMS OBJECTIVE 1: Structures for custodianship and oversight

a. Background to the Strategy

In order to ensure the safeguarding of universal values for which the heritage site was inscribed on the World Heritage list, it is essential that a mechanism be in place which will ensure the participation of all stakeholders for the benefit of the site, compliance with Master Plan objectives, periodic review of implementation procedures and direction for future activities. This mechanism will ensure that no conservation activities are undertaken without an in-depth discussion and consultative process.

It is essential to establish a framework which ensures transparency in all actions that are taken by those who are and will be engaged in conservation activities, whether government agencies or non-government heritage conservation organizations. There is too much at stake and too much damage has been done and is likely to be inflicted in the future without a well thought out implementation mechanism.

It is recommended in the *Management Guidelines for World Cultural Heritage Sites* that a Site Commission be constituted in order to ensure effective management of each World Heritage site. The *Guidelines* state that the professional and administrative structure of the Site Commission "may vary according to the situation in each country or the character of the site, but its members should be experienced specialists from various professions. Also, it is in the interest of the World Heritage Site that the Site Commission's relation to the national government should be such that it has sufficient freedom of action."

b. Recommendations for the World Heritage Site Commission

Figure 7.2 presents the structure and composition of the recommended Site Commission. The Commission will be made up of 13 members representing the wide range of stakeholders in the World Heritage site. It will be chaired by the Chief Minister, Punjab with Federal Secretary of Culture as Vice Chair.

The main responsibility of the Commission will be to ensure that World Heritage standards are maintained at the World Heritage sites in the Punjab. As overseers of the heritage sites it will be their task to ensure that all actions and interventions at the sites complies with the recommendations made in the relevant master plans and that these plans are reviewed as required. The Commision will also have final approval of all conservation plans submitted by the Technical Committee, Project Teams and other consultants. The Commission will liaise with the proposed Board of Governors of the World Heritage Site Endowment Fund (see SMS Objective 2) to advise of budget and expenditure of the Fund, based on advice from the Project Management Team and Technical Committee

Site based decision making will lie jointly with a Technical Committee of three to five qualified experts and the Project Management Team at each World Heritage site. The former will identify priorities and give expert advice within the context of the site master plan. They will also monitor all conservation work and review proposals submitted by consultants. The Project Management Team will work at site level to develop proposals for action based on monitoring of site conditions and will supervise and document all works. They will also be responsible for the outreach and community-linked programmes at each World Heritage site.

The proposed system will function with guidance and input from the Department of Archaeology, Punjab. It is recommended that a dedicated World Heritage Site Division be formed within the department to oversee the on-going conservation and management of these sites. Within this division various sub-divisions could be formed, including one devoted to the special needs and requirements of Historic Garden preservation.

SMS OBJECTIVE 2: Adequate financial resources augmented by a diversified funding base

While sustainable financial resources can be increased through involvement of various stakeholders and tapping additional national and international sources, the ownership of stakeholders in the World Heritage Site needs to be clearly delineated and implemented to ensure continued interest and thus sustainability of the funding resource.

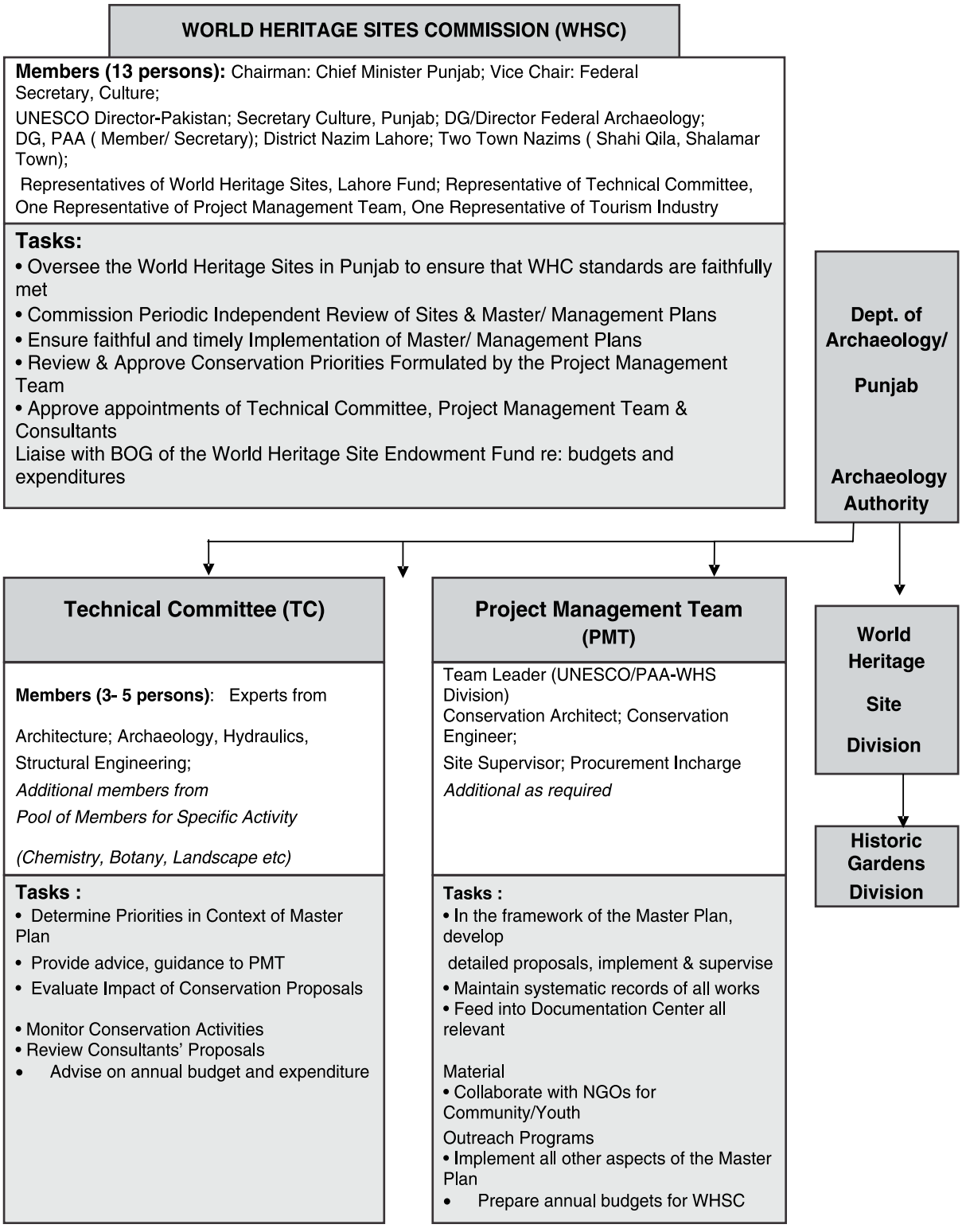


Figure 7.2 Diagramme of the proposed Site Management

Furthermore, the mechanism for accessing funds by the site managers requires to be made simpler. The Punjab Government's plans to provide an autonomous status to the department of archeology will contribute towards this end.

Within the framework of the proposed management system, the funding sources and the administration of the funds is envisaged. The aim is to achieve greater resource availability by harnessing diverse sources, thus increasing the base and putting in place a system of fund management which has the necessary accountability and ease of utilization to ensure timely and systematic conservation of the World Heritage Site including emergency and long term conservation projects; as well as meet requirements of monitoring, maintenance, visitation, presentation and community outreach.

The existing system and a series of suggestions for alternative and additional approaches to achieving a sustainable revenue base are as below and presented in Figure 7.3.

a. Government allocation and sources:

As described in Part 6, government has access to recurring grants-in-aid for operational expenses and development grants for specific projects. In addition, the Punjab Government recently established "Punjab Heritage Fund" can also be source of development funds for special projects. Additionally, the DOA can also access other public funds e.g. the National Heritage Fund, (Federal) as well as other government agencies for specific projects.

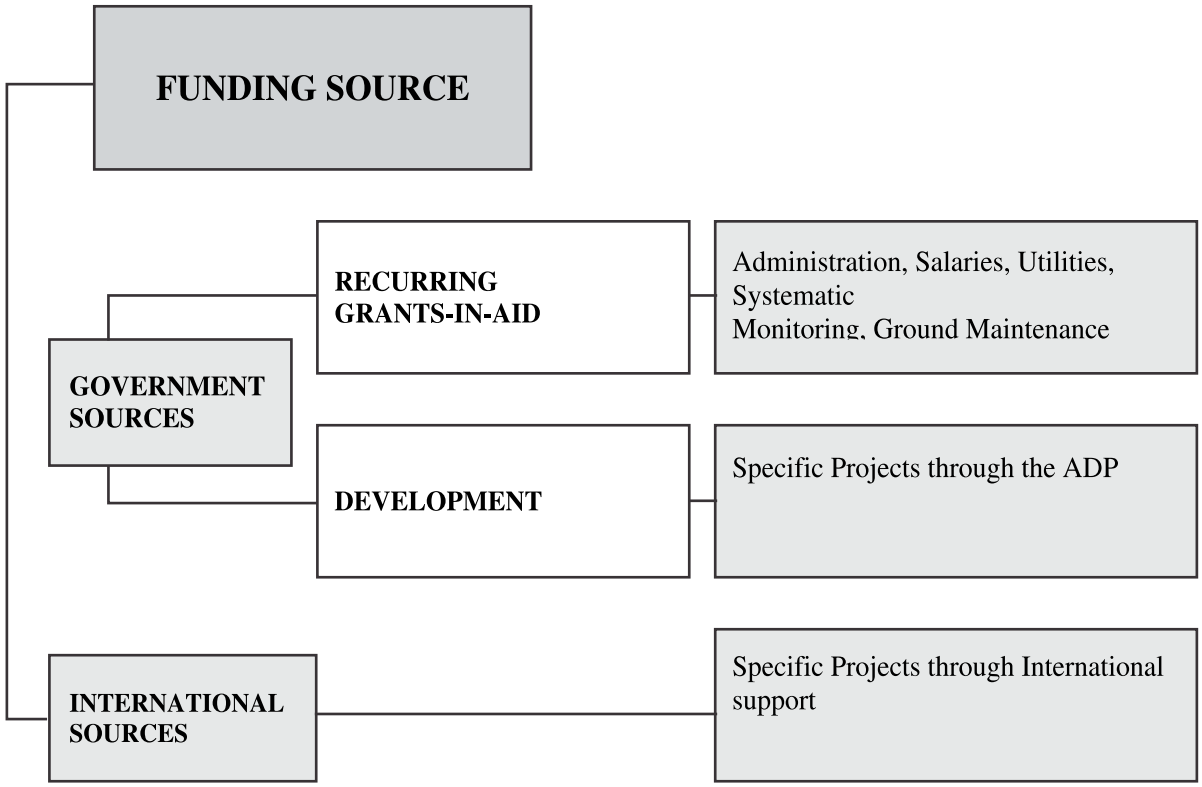
b. Department's own resources

This comprises revenue generated from ticket sales and contracts on site. As discussed in Part 6, this contribution is expected to increase with increased levels of visitation. The expansion of the nursery and sale of specialized Mughal period plants will also add to the revenue collected and assist in the promotion of the Site.

c. Additional funding sources

i. Special Project Funds/ National and International
Current projects at Shalamar Gardens are being funded by special project funding from international sources. It is proposed that for purposes of this mater plan the proposals set out in the Action Plan can be addressed through this source. It is also suggested that funds received from international/national donors/sponsors be dispersed through UNESCO through dedicated project teams.

ii. Public Donations: Corporate and private funds can be accessed through involving the corporate world and other stakeholders. A useful model for the ways in which multiple stakeholders and funding approaches can be integrated



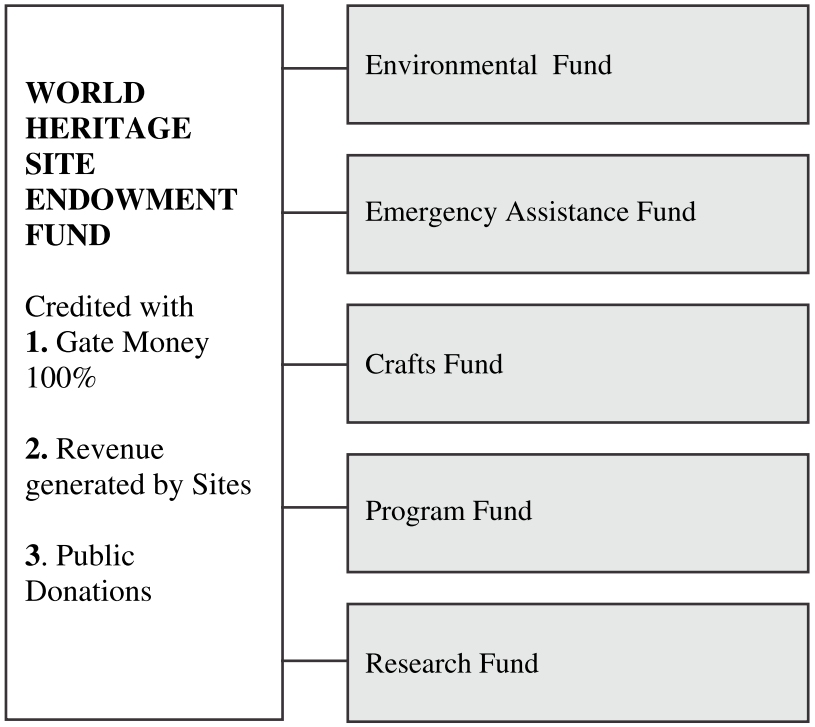


Figure 7.3 Diagramme of the proposed Diversified Funding Approach

into a successful conservation effort is provided by the *UNESCO Lijiang Models for Co-operation*. This set of models and guidelines is based on Asian best practice in fiscal management and sustainability of the heritage resource base (UNESCO 2001). These models and associated documentation can be accessed on the world wide web.

d. Creations of World Heritage Site Lahore Endowment Fund & Project Specific Funds.

To ensure that all key needs of the Shalamar Gardens are fully addressed, it is proposed that a special fund called the World Heritage Site, Lahore Endowment Fund be created for the two components of the World Heritage Site in Lahore, i.e. the Lahore Fort and the Shalamar Gardens within the framework of the Punjab Heritage Fund. The Endowment Fund is proposed to be managed by a Board of Trustees representing government and key stakeholders, and set up in accordance with law. It is envisaged that the creation of such a fund will allow an easily manageable mechanism to ensure that the upkeep of the World Heritage Sites in Lahore maintains standards in keeping with the UNESCO World Heritage Committee policy. The WHSL Endowment Fund can be operated by the Punjab Archeology Department / Authority under management of the WHSL Endowment Fund Board of Trustees, set up in accordance with law or can be operated by the Punjab Heritage Fund. Operation of the fund can be through an annual budget approved by the BOT in keeping with standard practices. The Fund can be credited with the Shalamar Gardens earnings as in (b) and (c-ii) above. It is further recommended that all earnings of both components of the World Heritage Site in Lahore be utilized for the site in the manner proposed in (e) below

Within the framework of the endowment fund, it is further proposed, that project specific funds or budget lines be created to allow special focus on key needs of the World Heritage Site. The following project specific funds/ budget lines are envisaged.

i. Environmental Fund

The fund to cater for expenditure for implementation of all environmental and planning improvements within and in the environs of the site. While the improvement of the environs is expected to be primarily the responsibility of the Municipality and other government departments, the Environmental Fund of the PAA can supplement it if the need arises to ensure that environmental conditions around the World Heritage Site are maintained in an acceptable manner.

ii. Community Outreach Fund

The fund to cater for projects with the community in the surrounds of the World Heritage Site, schools, women, youth and other initiatives focused to creating a sense of ownership amongst the stakeholders.

iii. Emergency Assistance Fund

To enable timely action for any emergent need in the World Heritage Site, the emergency assistance fund is proposed. This fund is to be dedicated to the structures, water works, gardens and all other tangible aspects of the two premises. The utilization of the fund can be both for first aid maintenance needs to enable timely action and arrest any long term repercussions on the structures or fabric. These will usually result from the Maintenance and Monitoring mechanisms proposed and utilized according to the procedures set therein. All records regarding this must be maintained and reported to the relevant level.

The Fund can also be tapped for emergency assistance needs. For such purposes the following mechanisms for disbursement need to be followed.

- ∞ FIR by Site Engineer/ Architect;
- ∞ Review and recommendation by the Project Management Team and confirmation by the Technical Committee;
- ∞ Approval of disbursement by Board of Trustees
- ∞ Completion report by Site Engineer/ Architect;
- ∞ Review and report of completion by Project Management Team and approval by the Technical Committee.

iv. Crafts Fund

The Craft Fund will support the craft workshops already established under the UNESCO-NORAD-GOP funds for the Lahore Fort project and assist in its expansion and sustainability. It will also include the Shalamar Gardens in its ambit, by supporting the work envisaged in this master plan. The Craft Fund will support the craft workshops after the period of two years underwritten by the aforementioned project is completed. It will continue to provide the cost of materials and artisans as envisioned in the concept paper, along with design development to contemporize traditional designs thus increasing their appeal. Marketing initiatives to increase the resource base through regularly organized sales, site outlets, exhibitions and online sales are proposed; for which purposes development of a marketing strategy through contracting experts is recommended.

Craft products are ideal in generating interest of the visitors and have the potential as a great source of revenue generation. If packaged and marketed

effectively there will be substantial benefits:

- ∞ Providing regular employment to the artisans;
- ∞ Making a workforce available for carrying out conservation;
- ∞ Sensitizing visitors regarding the value of traditional craft skills;
- ∞ Creating mementos of the Shalamar Gardens and Lahore Fort based on authentic replication;
- ∞ Creating awareness regarding the value of the World Heritage Site worldwide.

Funds to be credited to it will be all those raised through the sale of craft products/ craft replicas and such others.

(v) Research and Publication Fund

A revolving fund is recommended to finance researchers and their projects. For this purpose donations can be solicited in cash or kind. UNESCO assistance should be sought in finding and pursuing funding options to contribute to this initiative.

In summary, funding for the World Heritage site will come from three different but related sources: Punjab Government, international project funding and money raised by the Endowment Fund. As shown in Figure 7.3 each will finance different types of activities. Government funds will support day to day running and longer term projects; international donors will fund specific projects of set duration; and the Endowment Fund will contribute to a wide range of long and short term programmes and objectives.

It is essential that there be communication and liaison between these three groups to ensure that programme planning is compatible and that there is no repetition, replication or conflict in spending. To make sure that such problems don't arise, the Master Plan recommends annual meetings between all parties. When budgets are in the preparatory stage, a meeting should be held to discuss programming, assess needs and priorities and ways that cooperation can benefit conservation and preservation of the site. Parties represented should include:

- ∞ Punjab Department of Archaeology,
- ∞ any international donor organizations proposing or already supporting projects at the World Heritage site
- ∞ Board of Governors of the Endowment Fund should meet
- ∞ UNESCO Islamabad as coordinator and facilitator

SMS OBJECTIVE 3: A mechanism to take advantage of contributions in kind

Although large-scale funding is required for conservation and maintenance, contributions in kind and services should also be considered to broaden the base of contributions that can be made to assist in safeguarding of the World Heritage Site, Lahore. All such contributions should be actively sought and acknowledged in collaboration with the "Friends of Lahore Fort " and "Friends of Shalamar Gardens" who will be responsible for seeking donors according to the identified needs of the World Heritage Site. This group will be formed to carry out fund raising efforts and organize events and publicity for the World Heritage Site.

Contributions can be made in the form of materials and equipment; and, most importantly, the donation of time by individuals with various skills who wish to participate in efforts to safeguard the World Heritage Site.

In addition, programmes can be pursued which do not involve direct transfer of money from donors. Instead, there is scope for contributions of expertise and know- how from other parts of the world. Individuals with specific knowledge and experience in dealing successfully with environmental and conservation problems in historic sites elsewhere could be financed by their government or other agency to come to Shalamar Gardens, analyze the current situation, design remedial action and help see it through to fruition. Useful contributions of this type would include an expert in the conservation of Mughal frescoes; or an expert in dealing with issues of rising damp and seepage in historical buildings, historic garden experts and such others.

SMS OBJECTIVE 4: An informed management team who understand overall conservation objectives and priorities for managing change at an historical garden

There should be an agreed core set of plans and guidelines that drive all cultural resource management work at any World Heritage site. The best examples of management demonstrate clear links between planning and operational activity. These links are clearly presented in the Master Plan. The aim is to provide a concise summary of values and principles which can then be consistently applied, like a litmus test, to the practices of the department. The Master Plan defines the overall theoretical and practical approach to management and conservation at the site.

In the case of Shalamar Gardens, it is also important that the management team understand the specific issues and requirements of an historic garden. These are presented in the Master Plan and need to be clearly presented to those responsible at site level.

It is imperative that all staff be aware of the conservation theory and guidelines which inform the decisions and approaches of the whole administration. The *MGWCHS* states that management must include "ensuring that all site staff understand the cultural values to be preserved in the site." A clearer understanding on the part of all levels of staff at the site will engender commitment and increase motivation.

It is recommended that presentations be designed to target different audiences, from senior management staff through to grounds and security staff. The presentations should summarize the overall intent and methodology of the Plan, the integrated action plans and priorities. Presentations for different groups should then focus on the important role each has to play in reaching the goals of the Plan. These presentations can be given at regular workshops when the issues can be discussed. All those engaged in various levels of conservation work should be provided an opportunity to learn from each other and discuss the problems that they face. These workshops should be conducted by the highest level of officer available along with a consultant and should be conducted at least twice a year.

A request should be made to UNESCO to provide support for conducting these workshops in the form of preparation, presentations and overall planning in coordination with the Site Management Group.

SMS OBJECTIVE 5: Development of training for Mughal buildings and skills

Craft Training carried out through the UNESCO-NORAD-GOP Project for the Lahore Fort has successfully completed the first cycle of about two years. Four crafts i.e. fresco (*naqqashi*); pietura dura (*paiche kari*), Mosaic Tile work (*Kashikari*) and Stucco Tracery (*Manabbat Kari*) were taken up in the first instance. Selection was made on the basis of the availability of master craftsmen in these particular areas and the requirement of conservation of the building fabric in the Lahore Fort. The program was successful and generated interest in the youth, several of whom were engaged in the training ateliers of the master craftsmen. This work needs to be continued and expanded to include the Shalamar Gardens as well. It is recommended that in the first phase training in fresco painting and tile mosaic work will be taken, both of which will be required for the conservation work at the Shalamar Gardens. It is also recommended that a Craft Center be set up to ensure sustainability. The World Heritage Endowment Fund and the project specific Craft Fund can later continue to provide financial support for this. Support is envisaged to be in the form of national and international training sessions, design interventions to contemporize traditional designs; marketing strategies through contracting expert inputs, craft outlets and such others. The goal would be to enable the perpetuation of the Mughal crafts and the training of artisans for conservation work in the Shalamar Gardens.

SMS OBJECTIVE 6: Core Competency training for all levels of staff to upgrade skills and build capacity within the department

It is recommended that the first stage of the conservation training programme should be training in Core Competencies. In discussion with the present management of Shalamar Gardens the following have been identified as the core competencies in heritage management which are at present essential for various levels of staff at the World Heritage site. These include competencies required for jobs ranging from site guarding and maintenance to specialized materials conservation:

- Site Cleaners
- Site Guards
- Gardeners and landscape workers
- Heritage Guides
- "Virsa Volunteers"
- Skilled artisans engaged in preventive conservation
- Skilled artisans engaged in maintenance
- Supervisors
- Technicians
- Utility Inspectors
- Assistant. Curator
- Museum Curator
- Librarian
- Archivists
- Conservation Architects (post-diploma and refresher courses)
- Conservation Engineers (post-diploma and refresher courses)
- Conservation Manager
- Preventive Maintenance Managers
- Community & Youth Outreach Specialists

A UNESCO consultancy is recommended to design training manuals for each of these job groups in consultation with employees themselves; it should identify the ways each employee can support heritage preservation efforts and further the goals and action programmes in the Master Plan. Assistance in identification of core competency areas, designing training modules and providing tuition can be provided by the UNESCO-ICCROM Asian Academy.

SMS OBJECTIVE 7: Implementation of standard operating procedures (SOP) for frequently performed tasks to ensure consistency and maintenance of standards

An SOP, or Standard Operating Procedure, is a step-by-step set of instructions for undertaking a common task in a specialized area. Design and implementation of a system of SOP for essential management and conservation activities at Shalamar Gardens World Heritage site will:

- ∞ Make people think about which tasks are essential;
- ∞ Clarify what these tasks should entail;
- ∞ Illustrate how various tasks depend on and compliment each other;
- ∞ Formalize how essential tasks can be performed in the most efficient and productive way.

SOP clearly define everyone's responsibilities, so that staff know what to do, how and when to do it and what role they play in the overall conservation effort.

These SOP will evolve out of the Core Competency Training exercise. Detailed evaluation of what skills are required for each job will be an opportunity to itemize each job description. The process will highlight the common fundamental tasks for which SOP should be prepared.

Ideally, SOPs should be written as a group exercise by teams that include people who perform the job, people who designed equipment and/or perform maintenance on equipment involved in an SOP and people who have an overall understanding of the management and conservation processes and know how the particular SOP will fit into the whole.

SMS OBJECTIVE 8: The systematic integration of analytical management tools into the short and long term planning carried out by the custodians of the site

a. Logical Framework Analysis

Logical Framework Analysis (LFA) should be made a standard practice as an analytical, presentational and management tool which can help planners and managers:

- ∞ Analyze the existing situation during project preparation;
- ∞ Establish a logical hierarchy of means by which objectives will be reached;
- ∞ Identify the potential risks to achieving objectives and to sustainable outcomes;

- ∞ Establish how outputs and outcomes might best be monitored and evaluated;
- ∞ Present a summery of the project in a standard format;
- ∞ Monitor and review projects during implementation.

By using LFA, management will achieve problem analysis, stakeholder analysis, developing a hierarchy of objectives and selecting a preferred implementation strategy. The product of this analytical approach is the matrix, or Logframe, which summarizes what the project intends to do and how, what the key assumptions are and how outputs and outcomes will be monitored and evaluated.

The use of LFA is required and/or endorsed by many aid agencies. Recent application in the planning of a programme and budget for future actions at Lahore Fort showed how useful LFA can be in guiding thinking and decision making.

b. External UNESCO Heritage Audits

One of the recommended management tools is the implementation of a UNESCO Heritage Audit. The role of this Audit is to ensure that the values for which the site was inscribed on the World Heritage List are being maintained. These values are described in section *4.1.1* of this report.

An independent group of experts appointed by UNESCO will review the entire site, carrying out a quadrangle by quadrangle and building by building assessment and preparing an independent and unbiased report of conditions. The Audit should take place every 3 years. The first Audit should take place immediately to identify baseline conditions of all values for future comparison.

Specifically, the Heritage Audit will look at the following types of issues:

- ∞ Identity Value: Is the site being explained and presented to the public in ways that enhance its position as an iconic national and global site?
- ∞ Relative technical or artistic value: Are the valuable decorative and stylistic elements of the site being protected, preserved and presented to visitors?
- ∞ Rarity value: Are visitors and the wider community aware of the singular value of the site as an important and rare representation of Mughal garden design?
- ∞ Physical and visual value: Is the view of the site unimpaired by modern development and encroachment and does it present an image of a well cared for monument? Are historical links with the city around it intact?
- ∞ Economic value: Is income being generated by well planned economic activity at the site and is it being generated without negative impacts on the site? Are benefits being felt in the stakeholder community?

- ∞ Educational value: Is active research taking place and being disseminated to the community so that more is known now than before ?
- ∞ Recreational and social value: Are appropriate events being held at the site and is the community being drawn into the site and its care in an informed way?

c. Risk Assessment and Management

Cultural heritage is confronted with many kinds of risks ranging from natural hazards such flood and earthquake, to those attributable to remote human activities such as fire and pollution and those due to wear and tear and the unexpected and unintended consequences of public visitation. The *MGWCHS* advises that "special precautions may be needed against vandalism, theft, fire, floods and earthquakes."

A special study of the Risk Assessment and Management at the gardens is needed, as no assessment has ever been carried out. ICCROM has been very active in developing and advocating the needs of risk preparedness for cultural heritage and their manual (Stovel 1998) is a useful guide to defining the scope of this study to deal with risk at Shalamar Gardens.

Figure 7.4 presents a Risk Assessment Model which can be used to monitor and evaluate potential risks at various stages of a project. At the planning stage it can encapsulate risk issues and help in formulating recommendations to address them. At detailed stages of a design more specific statistical input can allow for more focused mitigation to reduce risk to an acceptable degree. This model should be developed for both parts of the World Heritage site, for Shalamar Gardens as a whole and for individual heritage elements and incorporated into the specialist study recommended above.

d. Geographic Information Systems (GIS)

Geographic Information Systems (GIS) provide an invaluable tool for centralizing and adding spatial intelligence to textual based data. GIS creates an efficient tool for responding to queries, enabling confident and rapid analysis of situations and visualizing of patterns, trends and relationships in data. It is particularly relevant in situations where the needs and demands of a number of agencies and interests need to be integrated in order to develop workable solutions.

GIS mapping of the physical planning and infrastructure of the site and its environs will allow quick highlighting of problem areas requiring impact assessment and/or immediate action. It will also provide a graphic visual tool to assist communication of conservation needs to decision makers and planners (Box 2001).

Hazard	Hazard Probabilty (1=low-5=high)	Vulnerability (1=low-5= high)	Risk = HxV (H,M, L N)	Mitigation	Residual Risk (H,M,L,N)	Emergency Plan
High humidity /salt corrosion						
Fire						
Storm Water Flood						
Waste Water Discharge						
Earthquake						
Thermal Stress						
Lightening						
Structural Damage						
Termites						
Birds / Bats						
Bacterial infection						
Air Pollution						
Rubbish						
Traffic vibration						
Bombing						
Vandalism						
Theft						
Inappropriate fabric maintenance						
Cleaning						
Visitor accidents						
Loss of key staff						
Loss of funding						

Fig. 7.4 Risk Assessment Model format (courtesy Richard Hughes)

A UNESCO GIS consultancy is recommended to include the following:

i. Setting up of a purpose-designed GIS Database for the site:
   - ∞ development of a basic user interface to serve as a query tool;
   - ∞ rationalization of existing data;
   - ∞ standardization of existing and future data.

ii. Training of Management Team staff:
   - ∞ to ensure a sustainable programme;
   - ∞ based on elementary computer literacy;
   - ∞ designed to produce competent GIS Database administrators;
   - ∞ involving trainees at all stages of database development to build capacity.

SMS OBJECTIVE 9: UNESCO assistance in creating a support network of international collaboration and interaction

To a large degree, the custodians of Shalamar Gardens have been working in isolation, with little of the valuable support which can be gained from international or regional collaborative involvement. It is only recently as a result of the NORAD UNESCO GOP Project that links have been generated with outside institutions and organizations.

It is pointed out the *MGWCHS* that "an important issue in relation to the management of World Heritage Sites is to establish a process that gives a solid basis for international collaboration between those responsible for the site management and the various international bodies such as the World Heritage Committee, UNESCO, ICCROM and ICOMOS." This should be expanded to encompass collaborative programmes, communication and exchange with academic institutions, research and non-governmental organizations. Assistance is sought from UNESCO Islamabad and the Office of the Regional Advisor for Culture for Asia and the Pacific, Bangkok to expand the range and scope of international involvement of Pakistani heritage professionals. Particular focus should be placed on developing linkages with other Mughal garden sites in the region and historical garden sites in general around the world.

7.3 MONITORING AND MAINTENANCE SYSTEMS

7.3.1 Overall Strategy

The *MGWCHS* states that "The maintenance programme is aimed at keeping the cultural resources in a manner that will prevent the loss of any part of them. It concerns all practical and technical measures that should be taken to maintain the site in proper order. It is a continuous process, not a product." (*MGWCHS* pg. 41)

The objectives of a maintenance programme should be to preserve inherent values of an historical property, to safeguard the authenticity and integrity of the structure and site while at the same time preventing deterioration of the historical fabric. The best form of maintenance is preventive, as stated in the *MGWCHS* "prevention is the highest form of conservation. If causes of decay can be removed, or at least reduced, something worthwhile has been achieved."

The specialist report, *Water Penetration Study and Management Issues*, contains a detailed review of the existing monitoring and maintenance situation at the site and the factors contributing to the deteriorating condition of the site (Annexure 7).

There is no programme at present for regular, systematic monitoring and maintenance of the condition of the gardens to ensure that they do not deteriorate to the point that the integrity and significance of the World Heritage Site is compromised. There is also no system to monitor the implementation of conservation works to ensure that they comply with specifications and set standards of intervention. Procedures exist only for monitoring works carried out within the context of approved Master Plans and Development Schemes.

MM OBJECTIVE 1: Integrated plan for monitoring and maintenance of the World Heritage site

In response to this situation, proposals are put forward for the implementation of a monitoring and preventive maintenance programme. This programme is to be run in conjunction with the Monitoring and Maintenance of Lahore Fort. The aim is to achieve a systematic review of site condition in order to identify emergency and long term maintenance and conservation requirements. Recommendations are also made for the supervision and monitoring of conservation works to ensure that they are done to the highest standards. The following overall principles should be followed:

- Regular maintenance should conserve the setting and historical components of the garden and the integrity of the overall design.
- Monitoring and maintenance need to be structured as a linked system but with separate controls to ensure thoroughness and high standard of performance
- The system should be shared with that set up for monitoring and maintenance at Lahore Fort to better utilize staff and to maintain standards for the World Heritage site as a whole
- It needs to be determined whether there is historical justification for the considerable effort and expense expended on maintaining expanses of grass on all terraces
- Garden maintenance should incorporate recommendations for improved irrigation and watering based on the hydraulics study presented in Annexure 4.

- ∞ To be effective, the maintenance program must have a guiding philosophy, approach or strategy; an understanding of preservation maintenance techniques; and a system for documenting changes in the landscape.
- ∞ Preservation maintenance should be organized in a calendar format. During each season or month, the calendar can be referenced to determine when, where, and how preservation maintenance is needed.
- ∞ Planning for ongoing maintenance and onsite applications should be documented--both routinely and comprehensively. An annual work program or calendar records the frequency of maintenance work on built or natural landscape features.

This collected data will form a baseline against which to monitor and measure change and deterioration in conditions at the site and will inform decisions regarding what maintenance works are needed. Specific recommendations will be made to the Site Management Group; if approved, the work will be implemented by the proposed Maintenance Team and certified on adequate completion by the Monitoring Team. This establishes a system of cross-checking of work and confirmation of standards. Figure 7.5 illustrates the relationship between the two teams and the administration of the World Heritage site. Figure 7.6 illustrates the flow of action involving the setting up and running of the system for monitoring site condition and planning and implementing maintenance action.

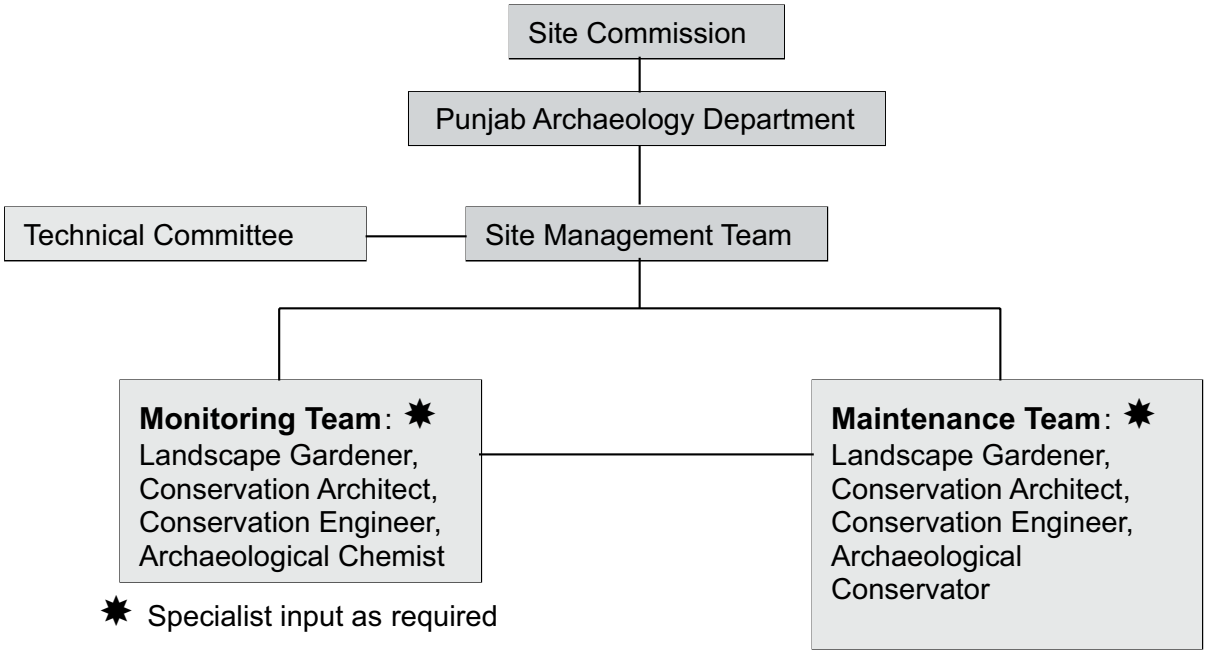


Figure 7.5 Monitoring and Maintenance team structure

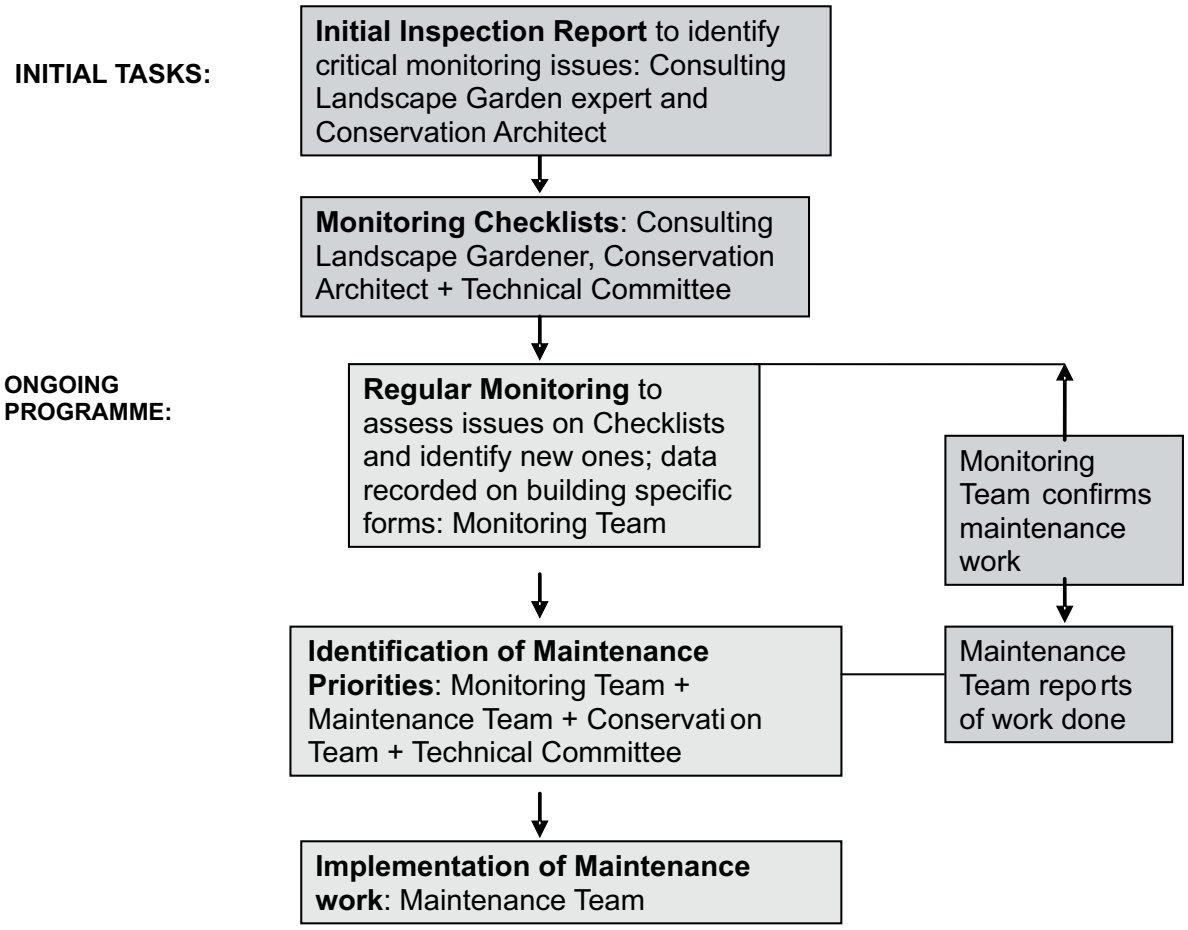


Figure 7.6. Setting up and implementation of the Monitoring and Maintenance programme

MM OBJECTIVE 2: Monitoring and maintenance of the proposed Mughal Planting Scheme

Monitoring the condition of an historical garden is a complex undertaking: Landscape elements change with the seasons but also over the years, so understanding the place can be difficult. This continual change means that maintaining a landscape must be dne cautiously, in conjunction with ongoing assessment. It is important to keep records of the garden as it develops and as new evidence is found. It is equally important not to remove evidence that helps in understanding or interpreting the site.

The Master Plan recommends that a consultant study be commissioned to develop a detailed Mughal Garden Conservation Plan (see COS Objective 2). This study will aim to present a revised planting scheme in keeping with Mughal style and based on sound historical research and documentation. It is therefore important that Shalamar Gardens have monitoring and maintenance programmes in place to manage this new landscape plan.

The term "maintenance" in its usual sense has little relevance in gardens "where almost every operation, however routine and repetitive, has a cumulative as well as an immediate impact." (Sales 2005).

The following guidelines regarding monitoring and maintaining a historical garden should be followed :

- ∞ Focus must be on the particular maintenance needs of the historical planting scheme which is proposed;
- ∞ Improve irrigation and water management in coordination with Hydraulics proposals in Annexure 4
- ∞ Organize monitoring and maintenance in a calendar format. During each season or month, the calendar can be referenced to determine when, where, and how preservation maintenance is needed.
- ∞ Keep detailed records of all horticultural monitoring, maintenance decisions made, interventions and observations.
- ∞ All trees should be numbered systematically either terrace wise or lawn segment wise.
- ∞ Three important aspects require the immediate attention of the authorities.
    - o Firstly, all organic growth has to be monitored against termite attack, as the garden complex has been found to be heavily infested with termite.
    - o Secondly, certain areas of the garden complex should be earmarked where eatables may be allowed to be consumed as most of the litter is produced by left over eatables. No eatables should be allowed to be taken in most areas of the garden.
    - o Thirdly, the garden is misused when, the children engage themselves in various sports within the complex, i.e. cricket, football etc. This activity should be completely stopped or at least restricted in certain areas.

MM OBJECTIVE 3: Monitoring and Maintenance of the water display and working hydraulics system

The specialist hydraulics study (Annexure 4) recommends the following measures in order to monitor and maintain the current water works system in good order:

- ∞ dressing of the cascade tops to precision leveling
- ∞ replacement of broken and damaged fountain heads and all nozzles of uniform size
- ∞ replacement of pipes in the central tanks of the Upper and Lower Terrace from 4" i/d to 6" i/d.
- ∞ maintenance of a proper log of all the components related to the hydraulic installations noting corrective measures adopted, their time and expenditures record

- ∞ proper record of pipe layout kept at an accessible location to be used whenever interventions are required

MM OBJECTIVE 4: Monitoring and Maintenance of irrigation and drainage

The existing system for irrigating the gardens and draining off excess water is considered by the expert report to be basically effective. The following recommendations are given to improve its efficiency:

- ∞ maintaining the functionality of the tube wells with deep turbine pumps
- ∞ routine inspection of pumps so as to correct any problems in the initial stages
- ∞ pipe links from these tube wells to the central tanks in the Upper and Lower Terraces should be made with 9" diam. Metal pipes
- ∞ guard against theft, tampering or damage
- ∞ maintenance of a proper log of all the components related to the hydraulic installations noting corrective measures adopted, their time and expenditures record
- ∞ proper record of pipe layout kept at an accessible location to be used whenever interventions are required

MM OBJECTIVE 5: Systematic monitoring of the fabric of historical buildings and built garden features

As described above, the proposed maintenance programme is linked to the routine monitoring of the site. Decorative and structural problems identified on Monitoring Checklists will be reported to the Maintenance Team which will comprise a conservation architect, conservation engineer and archaeological conservator with respective assistants. This team will work along side the Monitoring Team and under the supervision of the Site Management Group and Technical Committee (Figure 7.5).

Detailed specifications and procedures for carrying out the work will be discussed by both teams with input from the Technical Committee and site Conservation Architect. If specialist input is required, the necessary professionals can be attached to the Committee on a "needs" basis.

When the agreed maintenance work is completed a full report must be submitted to the Site Management Group. The work and report will be reviewed by the Monitoring Team and certified as complete and up to standard. If there are issues or disagreements the Technical Committee will be called in to assist in resolving them.

It is recommended that systematic monitoring should be carried out by a core Monitoring Team comprising a conservation architect, engineer and chemist and working under the Site Management Group.

The team will carry out systematic inspection on a weekly and monthly basis so that all parts of the site and every building will be assessed during the course of each month. In this way, all buildings will receive equal attention and problems will not develop unnoticed.

The monitoring routine will focus on all major built elements of each building or structure, including:

- Roofs;
- Masonry walls and foundations;
- Cracks;
- Storm water drainage;
- Moisture/humidity;
- Floors and staircases;
- Internal finishes;
- Drain systems;
- Ruins.

Figure 7.7 llustrates some of the general elements which should be inspected in all buildings and built landscape elements at Shalamar Gardens.

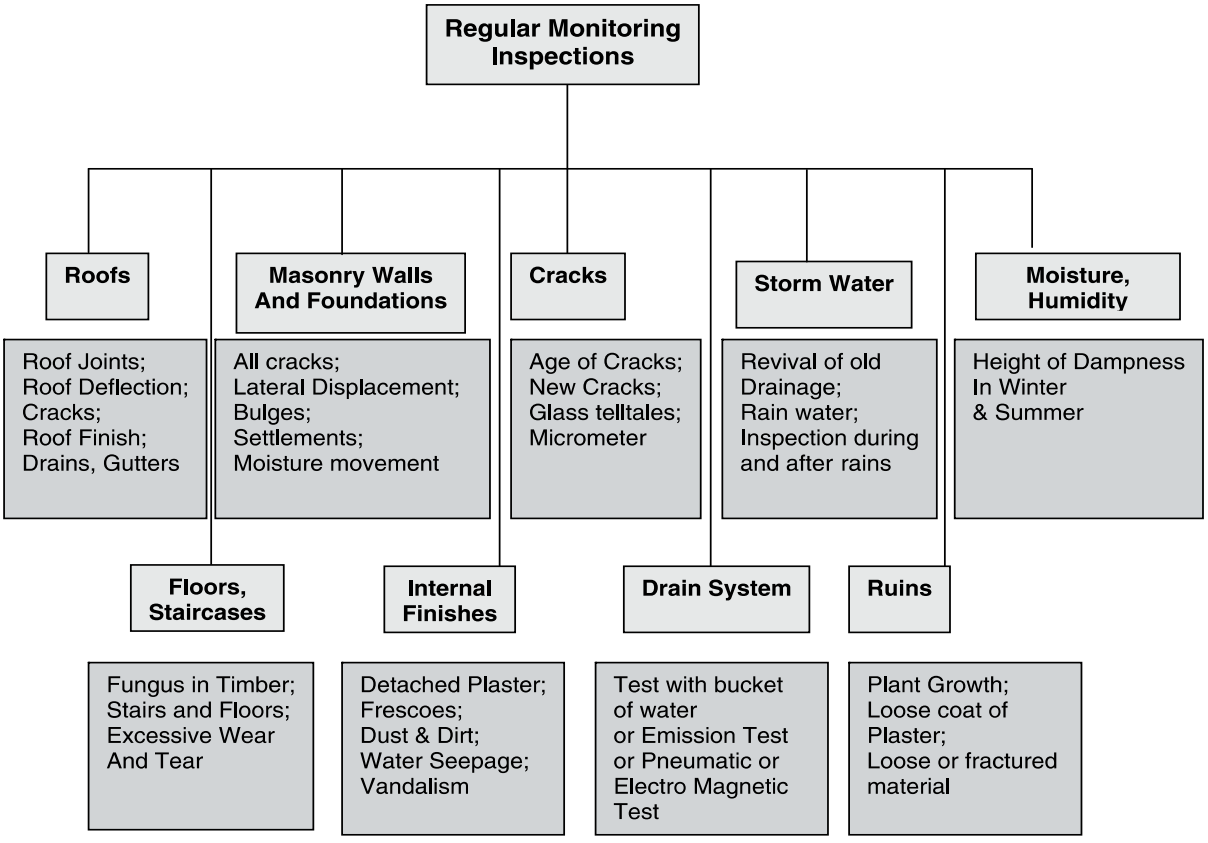


Figure 7.7 Diagram showing monitoring needs of historical buildings and built garden features

Monitoring will systematically assess the condition of all of these elements, following a Monitoring Checklist designed for every building and structure. An architectural consultant should be appointed as soon as possible to design these monitoring checklists. Each Checklist will include critical structural and decorative elements in each part of the building that require special attention in order to maintain the authenticity and soundness of the structure. The checklist should provide measurable indicators to measure change and/or deterioration in the condition of these elements. The condition or status of these indicators will alert the Team to the need for maintenance, emergency action or other conservation works.

Investment should be made in monitoring equipment, including tell-tales, crack monitoring points, thermographs and humidigraphs and vibration meters, to be used systematically as part of the monitoring process.

Special maintenance is needed for roof areas of buildings which have been closed off for long periods. In view of the fact, that the roofs of these structures have remained inaccessible for a very long time (due to the closing down of the access stairs for various reasons) the roof structures would require immediate attention. The monitoring teams are to inspect and record the roofs on two counts: firstly, for the rainwater disposal and secondly for its structural stability. The roofs should be thoroughly cleaned of any rubbish and the wild organic growth removed. Proper slope should be made for the roof surface so that the rainwater can easily be drained out. All drains and gutters must be checked and cleaned because any deposits there may provide an evidence of inadequacy of the maintenance team.

The roof structures must also be checked as to how the loads are distributed and carried down the walls. The roof surfaces, both inside and outside, should be examined carefully to see if any places are deflecting. The inspection of cracks and their monitoring over a period of time is important to assess the structural stability of the roof. If the cracks are of serious nature, these should be monitored continually. Roofing materials should be examined for slopping or broken slates.

The results of the monitoring and maintenance study survey have been mapped in a risk matrix Presented in Table 7.2 The matrix show a general deterioration of various components of the garden complex. The detailed findings are presented in Annexure 7.

MM OBJECTIVE 6: A system of monitoring maintenance work carried out by the department or under their supervision

Among the standard procedures accompanying the implementation of maintenance work should be the monitoring and inspection of the work by the Conservation Team of

UNESCO Shalamar Project 2005
Risk Matrix: Water Penetration and Lateral Thrust

Nos.	Description			Water Penetration/Leakage				Lateral Pressure			
				Severity of Problem				Level of Risk			
	Element	**Location**	**Identification**	**High**	**Mid**	**Low**	**Nil**	**High**	**Mid**	**Low**	**Nil**
1.1	Perimeter Wall	Upper Terrace	South Pavilion (Aramgah)		●				●		
1.2			South Perimeter 1		●				●		
1.3			SW Corner Burj	●					●		
1.4			West Perimeter 1	●					●		
1.5			Khawabgah	●							●
1.6			West Perimeter 2		●					●	
1.7			Western Burj			●				●	
1.8		Middle Terrace	West Perimeter 3	●				●			
1.9		Lower Terrace	West Perimeter 4	●				●			
1.10			Western Gateway	●				●			
1.11			West Perimeter 5	●				●			
1.12			NW Corner Burj	●				●			
1.13			North Perimeter 1	●				●			
1.14			Northern Pavilion	●				●			
1.15			North Perimeter 2	●				●			
1.16			NE Corner Burj	●				●			
1.17			East Perimeter 1	●				●			
1.18			Eastern Gateway	●				●			
1.19			East Perimeter 2	●				●			
1.20		Middle Terrace	East Perimeter 3	●				●			
1.21			Royal Hammam / Burj	●				●			
1.22		Upper Terrace	East Perimeter 4		●					●	
1.23			Eastern Pavilion		●						●
1.24			East Perimeter 5	●						●	
1.25			SE Corner Burj		●					●	
1.26			South Perimeter 2		●				●		
1.27		Naqqar Khana	North Perimeter 3			●					●
1.28			Northern Gateway				●				●
1.29			North Perimeter 4			●					●

1.30			East Perimeter 6		●						●
1.31			South Perimeter 3		●						●
1.32			Southern Gateway		●						●
1.33			South Perimeter 4		●						●
2.1	Channels/Pavements	Upper Terrace	Pavement Segment 10/1	●							
2.2			Pavement Segment 1/2	●							
2.3			Pavement Segment 2/9	●							
2.4			Pavement Segment 9/10	●							
2.5		Middle Terrace	Western Side	●							
2.6			Eastern Side	●							
2.7		Lower Terrace	Pavement Segment 4/5	●							
2.8			Pavement Segment 5/6	●							
2.9			Pavement Segment 6/7	●							
2.10			Pavement Segment 7/4		●						
2.11		Naqqar Khana	All Pavements	●							
3.1	Water Bodies	Upper Terrace	Water Tank		●						
3.2		Middle Terrace	Main Water Tank	●							
3.3			Reservoir and Chini Khana	●							
3.4		Lower Terrace	Water Tank	●							
4.1	Dividing Walls	Upper/Middle Terrace	Eastern Section	●							
4.2			Western Section	●							
4.3		Middle/Lower Terrace	Eastern Section	●							
4.4			Western Section	●							
5.1	Structures	Upper Terrace	Iwan		●						
5.2		Middle Terrace	Sandstone Pavilions				●				
5.3			Hydraulic Works	●							
5.4		Naqqar Khana	Arz Begi	●							

Table 7.2 Risk Matrix: Water Penetration and Lateral Thrust

the site. All maintenance projects should be supervised and checked continuously by the monitoring and maintenance teams jointly. This includes study of specific conservation situations in order to design the best methodology for works, preparation of surfaces and materials in advance of works, writing of detailed specifications and supervision. It is also essential that skilled conservation practitioners or contractors with knowledge of conservation conduct the work and report fully on completion.

MM OBJECTIVE 7: Protection of archaeological resources

(a) Archaeological resources inside the Shalamar Gardens

Test excavations within Shalamar Gardens have revealed that important archaeological information lies sealed below the surface of the site which could be lost as a result of interventions and improvements to the site. A comprehensive approach is needed to safeguard remains and deposits in situ.

The programme for the protection of below-ground archaeological resources should follow the threefold approach presented below in Figure 7.8. During emergency management of exposed areas, research and planning should begin to formulate a long term archaeological research plan. At the same time, monitoring procedures need to be designed and put in place at the site.

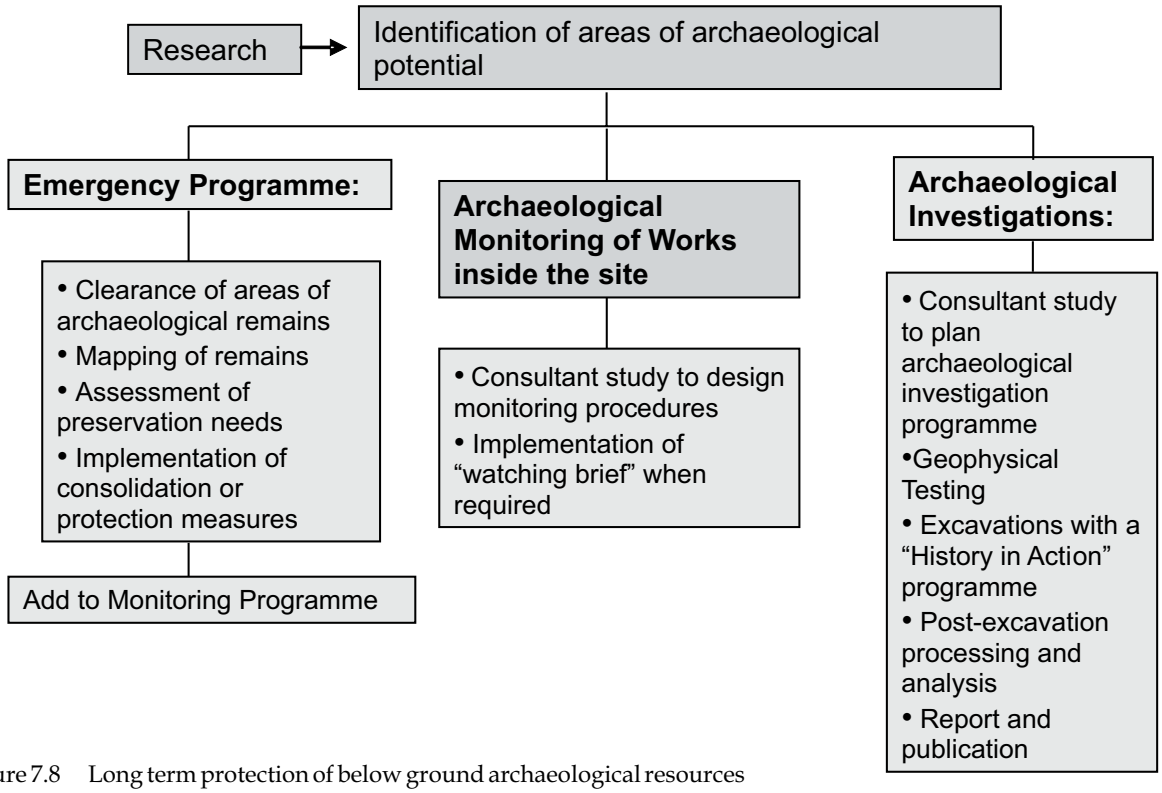


Figure 7.8 Long term protection of below ground archaeological resources

(1) Monitoring of works on site involving excavation

All works which involve excavation within archaeologically sensitive areas of the site should be prohibited unless absolutely necessary. This includes excavations associated with maintenance and conservation of historical buildings, but also any digging for garden improvements, to access drains or cables or other general works.

If works must be carried out which penetrate more than 25 cm below the surface of the site in these areas, there should be an Archaeological Monitoring Programme in place. Archaeological Monitoring, sometimes referred to as a watching brief, will not stop works or substantially delay them; the aim is rather to ensure that any archaeological finds and information revealed are retrieved and recorded.

A consultancy is recommended to design an Archaeological Monitoring Programme which includes a manual or SOP defining methodology, all pro-formas and registers, and a programme for processing material and data recovered during monitoring.

The monitoring, or watching brief, must be supervised by an archaeologist trained in the monitoring system. Training of staff will therefore be a required component of the consultancy.

(2) Archaeological remains of the Mughal hydraulics system

It is recommended that excavations be carried out in select areas to reveal the intricate hydraulic system lying beneath the site. Some if not all of the excavated areas should then be protected, displayed and interpreted to visitors as an example of Mughal technical mastery. Exposed archaeological remains, "because of their lost physical integrity, are subject to particular problems of decay and therefore merit special treatment and care" (*MGWCHS)*

∞ All areas of archaeological remains should be superficially cleared, mapped and their condition assessed; clearance should be carried out by the Maintenance Team with archaeological supervision. Mapping and recording work should be carried out by the Documentation Centre with archaeological supervision; assessment of their condition and action needed should be made by the site Conservation Team and archaeologist. This mapping should provide a useful tool for assessing potential impacts of works on the site.

∞ For remains which are not going to be exhibited, after mapping and recording, they should be recovered with a layer of soil or gravel;

- ∞ For remains which are going to be displayed, consolidation may be needed to ensure the preservation of the historical fabric. Any materials added must be compatible and reversible. Work should be done under the supervision of the site conservation architect and archaeologist;
- ∞ Considerable damage can be caused by unrestricted walking and climbing on ruins and remains; visitor traffic should be routed away from ground level remains and areas with fragile ruins should be closed off to prevent direct access. Sensitive displays are needed to interpret the remains to visitors while ensuring their continued protection.

b. Archaeological remains in the environs of the World Heritage Site

To the south and north of Shalamar Gardens are the remains of the other Mughal gardens possibly built as part of the single garden complex: Mehtab Bagh, Inayat Bagh and Anguri Bagh. These gardens and the spaces between them have been lost to housing and commercial development and roads. However, in addition to the ruins of the filtration tanks which stand next to the GT Road, excavation nearby illustrated the great archaeological potential of the entire area.

It is imperative that controls be put in place to try and retrieve any archaeological information which may still exist about these gardens. To achieve this, an Archaeological Zone is being recommended as part of the overall management of the World Heritage site. This zone and the restrictions recommended for it are discussed in EPI Objective 1 on protective zoning at Shalamar Gardens.

MM OBJECTIVE 8: Initiation of an expanded cleaning maintenance programme for the site

It is recommended that cleaning procedures initiated under the UNESCO-NORAD-GOP Lahore Fort project to clean the marble surfaces be implemented at Shalamar Gardens . This activity was undertaken under the supervision of the Assistant Chemist and his staff. Some experimentation was carried out during 2003 to review and evaluate the correct procedure for cleaning. After discussion of various methodologies and in view of the non-availability of Sepiolite, it was decided to undertake the work with mild detergent and clean water. This has proved effective cleaning has given the desired results without making the marble surface too white, retaining its compatibility with the mellowed colouring of other materials in adjacent areas. The most difficult areas for cleaning have been the intricate fretwork screens consisting of miniscule hexagonal patterns.

In view of the scale of cleaning required at Lahore Fort, and to create a more satisfactory gender balance, a Woman's Cleaning Brigade comprising of low income women residing in the staff colony was appointed. This experiment has proved extremely successful and should be reproduced at Shalamar Gardens. Armed with brushes, masks and caps supplied by UNESCO they are systematically removing decades of grime from the marble and brick of the monuments. This initiative should be expanded to all areas of the site to maintain standards of cleanliness over the long term.

Specialist input is required to advise on the best and safest methods for cleaning the more fragile elements of the monuments. This is highly skilled work and should not be attempted by general cleaning staff or non-specialist laboratory staff. In particular, training will be needed on how to treat waterfall slimes, moulds and algae on the structural water features.

The Technical Committee should contact ICCROM, the Ali Khan Trust for Culture and/or INTACH in order to arrange for assistance in bringing specialists to work at the gardens. These organizations have access to specialists with experience in conservation of Mughal art and can provide necessary funding.

MM OBJECTIVE 9: Technical studies on maintenance issues

The Master Plan makes the following recommendations to address specific technical maintenance issues:

(a) A study should be carried out of the soils and soil drainage at the site. This study would encompass soils as a geomorphological and geotechnical medium but also analyse it from a horticultural perspective. This study should include for an examination of the external water supply and drainage systems servicing the adjacent residential areas. It should also look at what happens to the Garden in a severe monsoon event; planning for a 1:200 year event.

(b) The project must monitor soil moisture above water table and look at potential effects of future gardening and watering on building foundations and walls. This will be particularly relevant if soil analysis reveals that the site has swelling clayey/ silty soils.

(c) The Conservation Team should work closely with senior garden staff to identify areas where the watering of plants is having a negative impact on building elements and to assess the extent of the problem. The impact of watering on original brick on edge pavements and parterre edging has been repeatedly noted in departmental reports.

Where cases are identified, the plants should be removed and relocated further from the buildings. Damage done to historical fabric should be reported to the Monitoring Team which will consult with the Conservation Team and recommend remedial action to be implemented by the Maintenance Team.

(d) A detailed study of the termite problem should be carried out and remedial action taken to control the infestation and prevent further expansion.

7.4. CONSERVATION STRATEGY

The strategy for conservation aims to achieve long term sustainable preservation of all the tangible and intangible aspects which give significance to the World Heritage site. In the shorter term the strategic focus is on emergency measures to assure that endangered heritage is not irretrievably lost to future generations. All aspects of the conservation approach must be embedded in an understanding of recognized international standards and best practice. Interventions must be appropriate to the situation and the decision to conserve must be based on well judged priorities. Particular attention must be paid to the "garden" aspects of the site.

7.4.1 Overall Strategy

The overall conservation strategy is designed to address the following issues of immediate concern at Shalamar Gardens (Figure 7.9):

a. There is an urgent need to identify, document and conserve all original/historical elements" of the site. By this is meant all garden, landscape, structural, decorative and design features which date to the period before Partition. Priority should go to elements which can be dated to the Mughal period because it is this cultural significance of the monument as a Mughal garden which is recognized by World Heritage inscription and must be safeguarded.

b. Conservation must focus on all necessary measures to prevent any further deterioration in the condition of the landscape plan and elements, various historic structures and resulting loss of heritage value through basic stabilization and preservation efforts.

c. All conservation work must be carried out according to the list of priorities presented in this Master Plan to ensure that whenever funding is available it is used as and where it is most urgently needed. Adherence to this policy will streamline preservation efforts, simplify applications to donors and safeguard the value and authenticity of the site.

d. Conservation actions must follow set and approved procedures. No work should begin without full discussion and detailed planning by all concerned. Work must be fully documented and follow international best practice.

7.4.2 Conservation (COS) Objectives

COS Objective 1: Guiding Principles for Garden Conservation

Planning for the conservation of any garden should start with the statement of significance based on thorough research, survey and analysis (Part 3.2). "The statement must, at least, reveal what makes the place unique, what are the reasons for its existence, why it was made in that place over that period, who made it and for whom. It should also comment on the perceived quality of its design and plant collection."

"The next step should be to formulate the principles of conservation governing the property. These arise logically from the statement of significance, stating clearly the fundamental policies and assumptions governing all important decisions." (Sales 2005)

The following Principles of Conservation are proposed to guide overall garden conservation decisions at Shalamar Gardens:

- Conservation Principles and the recommended Plan must adhere to the articles of the Florence Charter.
- Once a garden is sited we have a minimum of control over the environmental elements and forces and we have to make the best of the situation; our
- conservation response in practice can only be to modify and ameliorate (irrigation, manuring, choice of plants) while exploiting any advantages to the full (vista, sun, shade, microclimate)
- The more or less fixed structures of a garden, terracing and buildings and water, can be more tightly controlled. The conservation response should be to preserve, repair and adapt, following the well established principles of architectural conservation.
- Crucial living elements, including plants, birds, animals and people, can be unpredictable and more difficult to control. The conservation response to these components is crucial; they need to be consistently managed, directed, developed and renewed. "Plant growth, development, interaction and decay are what make gardens and gardening so fascinating to do many people." (Sales 2005)
- Periodic total removal and precise replacement of features of a garden are sometimes required, particularly in formal gardens such as the Mughal chahar bagh. (*Florence Charter* Art. 11)
- Where this is an appropriate strategy the work needs to be carefully phased to retain the balance of design and to "avoid as far as possible making an ancient garden too

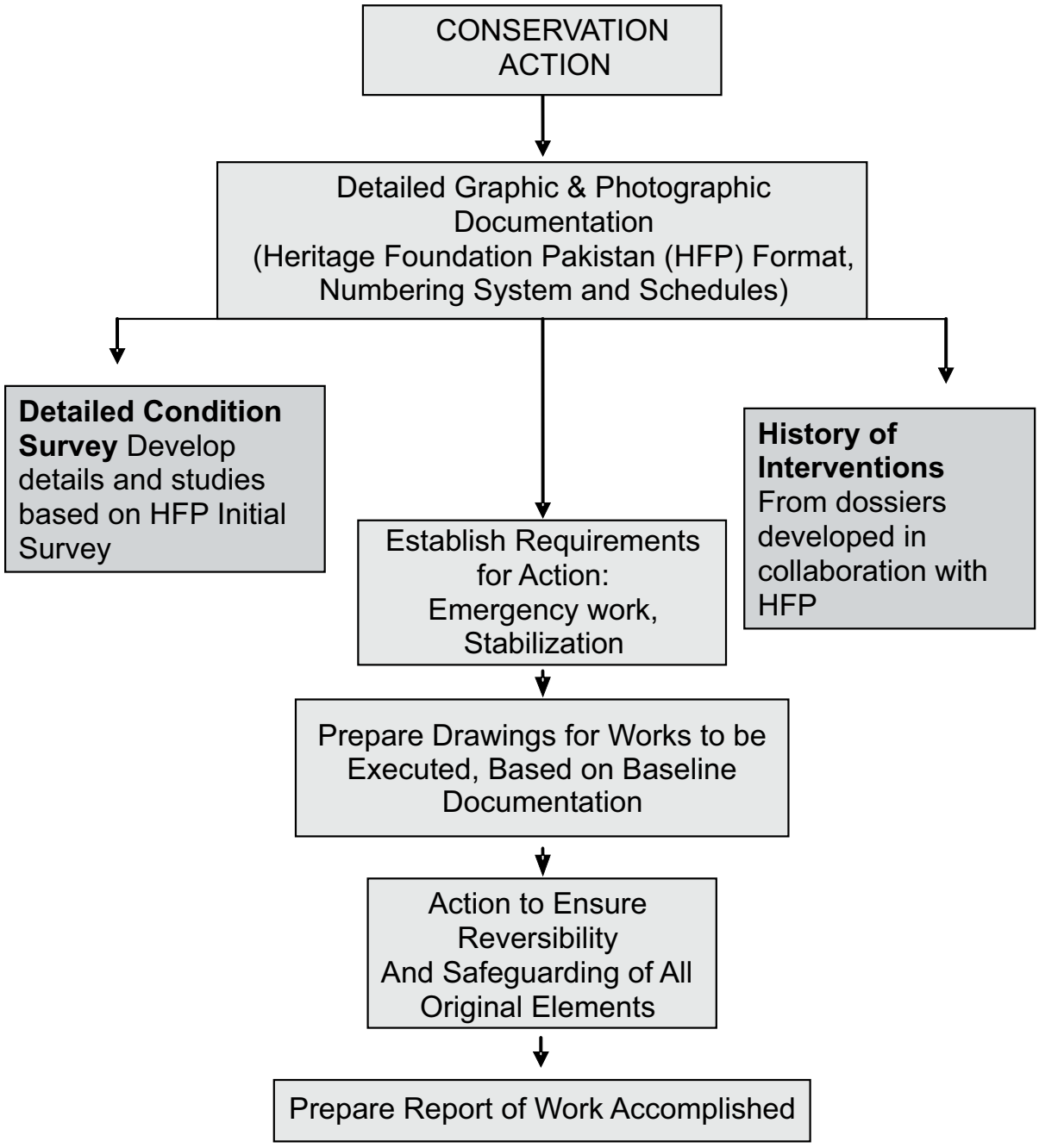


Fig. 7.9 Diagram illustrating proposed flow of conservation actions for all built site elements

much like a recent re-creation" and losing contact with the past.

- "The rate of renewal should be sufficient to anticipate development and decay and maintain the vigour, dynamism and resilience of the garden in the face of storm, pest and disease. On the other hand, it should not be so fast as to make an old garden look new."
- In cases such as Shalamar Gardens, where the continuity of garden planting and pattern has been lost through neglect and historic event, restoration is necessary. Restoration in garden terms means "rebuilding and replanting the structure and then reviving, restarting and sustaining the complex web of systems and processes contained within the garden."
- Restoration is merely the first step in a continuing cycle.
- Policy objective must be primarily for the preservation of the garden for its own sake, not exploitation as a useful resource; income generated can undoubtedly be useful and a means of survival and regeneration, however, historical and aesthetic consideration should always be paramount
- Existence of historic overlays makes the task of conservation more difficult. The various layers of planting must be evaluated and a policy formulated which will go some way to integrating some additions while preserving the original concept. (*Florence Charter* Art. 16)
- *Florence Charter* Art. 17 " Where a garden has completely disappeared or there exists no more than conjectural evidence of its successive stages a reconstruction could not be considered an historic garden."

COS OBJECTIVE 2: All works to be carried out according to Conservation Action Priority List

In the past, various works in the Shalamar Gardens were undertaken without taking into consideration the requirements of all the structures. Thus, many features that could have been saved with small expenditure suffered, while more elaborate works were carried out on buildings which were in a fair state of conservation. It is from this view point that it has been decided to generate a Action Priority List (Table 7.15), to guide the inflow of funds in the first instance to those elements that are the most vulnerable.

Decisions as to what work should be implemented with available funds will be made by the Site Management Group with input from the Technical and for the approval of the Site Commission. Works will be implemented by the site Conservation Team with input from the Technical Committee. It is hoped that the practice in the past of reconstructions will be discontinued, while emphasis will be placed on ensuring the safety of structures along with retaining their authenticity and original features.

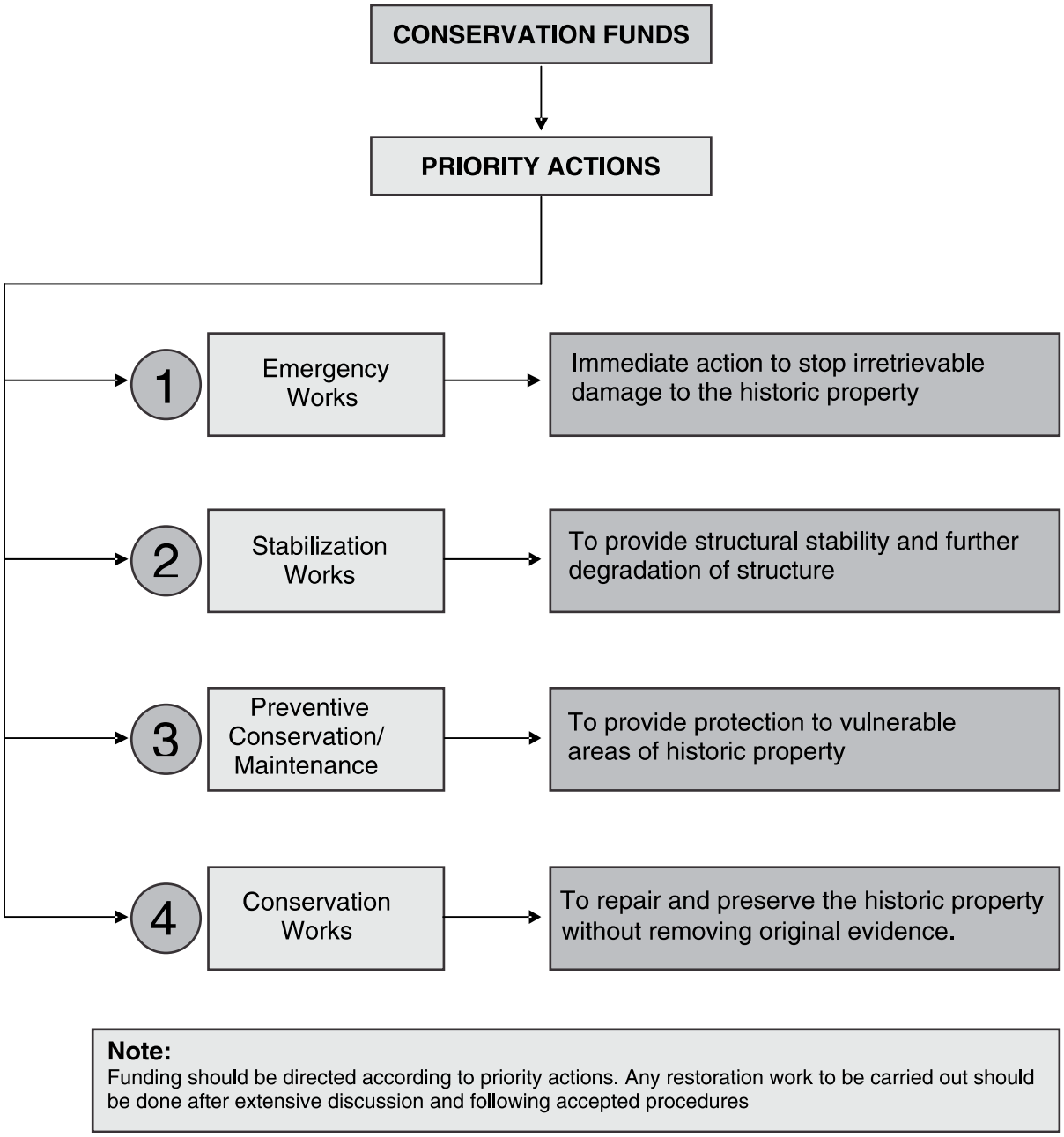


Figure 7.10 Diagram Illustrating Conservation Action Priority

COS Objective 3: Recommendations for Conserving the Mughal Hydraulic System

The present hydraulic system of the gardens comprises three aspects:

(a) the original Mughal water distribution system which is no longer functional
(b) elements of the Mughal water display system, such as fountains, chadar, channels etc., some of which are original while others are modern reproductions
(c) the modern water system laying on top of the original and feeding the Mughal display elements

Investigations into the original Mughal hydraulic system show that it cannot be revitalized in its present state without radical interventions. The overall approach should therefore be to "preserve" it in its present condition, stabilizing all elements and developing a programme for its display and use as an educational feature.

The following programme is recommended:

(1) Documentation of all visible remains
(2) Archaeological excavation of selected portions of the system with a view to exposing the remains for display
(3) Consolidation and stabilization of remains as required
(4) Design of protective barriers and modes of display
(5) Inclusion of the hydraulics remains in the overall interpretive scheme for the site; signage, information boards, pamphlets with maps etc.

COS Objective 4: Recommendations for upgrading and use of the modern Hydraulic System

The intervention approach to the modern system is to take whatever steps are necessary to make it work effectively with the aim of reproducing a water display similar to that which would have been produced by the original system. All interpretative materials will clearly state the approach taken.

To this end, the following improvements to the waterworks system are recommended by the specialist report (Annexure 4):

(1) Tube wells with deep turbine pumps and lifting water from a depth of 600' already installed and planned to be re-installed must remain functional
(2) Pipe links from the tube wells to the central tanks in the Upper and Lower Terraces should be made with 9" diam. Metal pipes
(3) The tops of the cascades need to be dressed to precision leveling in order to ensure

constant flow concentration over the entire width of the cascades

(4) Broken and damaged fountain heads should be replace and all nozzles should be replaced with ones of uniform size
(5) Additional hydrants should be installed for irrigation of the Lower Terrace
(6) Pipes of the central tanks of the Upper and Lower Terraces should be replaced from 4" i/d to 6" i/d.
(7) The water supply pipeline should be extended to the Shahi Hammam
(8) Original drainage to the exterior side of the northern wall needs to be restored and connected to the existing storm water drainage system

Detailed specifications and estimated costs for these and related rehabilitation measures are provided in the expert report in Annexure 4.

COS Objective 5: Garden Conservation Plan

The troubled history of the gardens has serious implications for their conservation and presentation. There have been successful cases of abandoned historical gardens which have been "renewed" with a confident degree of authenticity. For example, the neglected and overgrown Gardens of Heligan in Cornwall, England were restored through a combination of archaeological investigations, massive clearance of soil and debris and reference to quite detailed documentary sources. Similarly, the Mughal Mahtab Bagh of the Taj Mahal was retrieved from under a layer of river sediment. The identification of botanical samples from archaeological contexts was combined with general research into Mughal planting preferences to select species and decide on their patterning at the site (Moynihan 2000).

The gardens of Humayun's Tomb in Delhi were "revitalized" by the removal of massive quantities of overburden and the planting of 2,500 trees and plants based on a pictorial record. It must be pointed out, however, that this record only covered the period from 1849 onwards, including planting plans of the 1880s and early 20th c. and a detailed record of major works done in the garden in the period 1903-11. None of the written or pictorial references were of the Mughal period.

These examples differ fundamentally from Shalamar Gardens. In these cases the garden sites were abandoned and then covered by natural forces of sedimentation and soil accumulation. The gardens were then colonized by local vegetation.

Since abandonment at the end of the Mughal period, the gardens at Shalamar, however, have experienced continuous invasive use, changes to soil and its levels, orchard cultivation and overgrowth and the intentional introduction of many non-Mughal plant species. This means that, unlike these other gardens, it is not possible to simply lift the

overburden of intervening centuries and find undisturbed evidence of the Mughal gardens below. Historical events and past management approaches at Shalamar Gardens have resulted in a complete break in the continuity of planting in the garden. "Restoration" is not possible as the required high level of horticultural integrity has been lost.

The Master Plan recommends a phased approach to restoration of the Mughal garden:

Phase 1: Immediate Action

The first phase of historic garden conservation comprises immediate remedial action to upgrade the appearance and overall well-being of the site.

(a) Re-turfing of the lawns
The grass cover is patchy in the upper terrace and the lower one is almost barren. Uniform re-turfing should be done. This process will not affect the existing plants. In fact, fresh soil will help establishment of the new turf and the existing shrubs and trees. Re-turfing is already on the agenda of the Punjab Department of Archaeology and will be implemented by the Punjab Horticultural Authority.

(b) Removal of dead trees
The number of dead trees are eyesores and reflect the poor management of the area. At the same time they are potential hazard as they are toppled very easily. The dead trees should be removed from both terraces.

(c) Trimming and pruning
The crowns of the trees should be trimmed, especially those which are asymmetrical to make them more symmetrical. The dead branches should be removed from the trees, as they are unsightly and a potential hazard for the visitors. This process would also help straightening of the undergrowth, as most of the shrubs and small trees are showing tilted growth. Systematic pruning is required to give the garden a more organized look. Proper pruners, and chemicals would be required to prevent the incidence of damage.

(d) Development of the nursery
The adjacent nursery should be expanded for growing typical Mughal garden plants. Effort should be made to cultivate correct Mughal species of seasonal plants for use in the pots and borders on site.

(e) Organic gardening measures
A leaf litter ditch should be created in the adjacent area for making organic plant fertilizer and to discouraging burning of leaves.

(g) Irrigation and drainage upgrading
Improvements must be made to the substandard hydraulics system, particularly in the Lower Terrace and in keeping with the recommendations of the expert study (Annexure 5). This will be an important prerequisite for moving on to Phase 2.

Phase 2: Experimental Mughal Garden

The Master Plan recommends that an expert study be undertaken to prepare a comprehensive Historical Garden Conservation Plan to guide every decision and set out ideals and assumptions for the garden. The Conservation Plan must be based on:

- Historic precedent
- Perceived idea; (aesthetic, horticultural, architectural etc.)
- Constraints (planning, resources, skills etc.)
- Opportunities (adaptation, addition, enrichment)
- Proposals)in general and for each character area)

It should indicate a clear basis for action and provide information for successive managers explaining actions. Proposals need to be rated for priority and given an order of precedence to guide management; they should also be phased to take account of staffing, resources and other factors; they should be couched in terms of continuity and on-going care.

The Garden Conservation Plan should provide detailed procedures for the second and final phases of garden restoration. In the second phase of garden restoration an experimental Mughal garden should be created to introduce new species, test gardening methods and approaches and introduce the idea of change to the public. This will be implemented in the lower terrace as it is less frequented by visitors. It is much less densely vegetated and therefore requires no large scale extraction of trees and plants.

An experimental Mughal planting scheme will be created based on the following:

(a) Understanding of existing plantation at the site: inventory and mapping of existing species is available from the preliminary botanical studies carried out as part of the Master Plan. Table 5.2 summarizes existing plantation at the site.

(b) historical research into past garden interventions: preliminary data collation can be found in the Dossiers of Intervention, Annexure 3

(c) textual and pictorial research into original Mughal plant selection and garden patterns: a preliminary list of plants used in Mughal gardens can be found in Table 5.4.

(d) assessment of modern constraints and opportunities affecting garden restoration

Phase 3: Restoration of the Mughal Garden scheme for Shalamar Gardens

Based on experience gained from implementing the experimental Mughal garden, the design will be expanded over time to restore the entire garden. Public consultation and publicity will be an important part of this process

COS OBJECTIVE 6: Procedure for Undertaking Conservation of built heritage

The following methodology is recommended for undertaking any work related to conservation of historic buildings and structures, including built garden features, in order to maintain thorough and detailed documentation of the works. The following steps will ensure that the works are undertaken systematically and after detailed evaluation and discussion:

STEP 1: At the time of writing the document the methodology developed and guided by Heritage Foundation Pakistan for Shish Mahal documentation is now fully in place, along with numbering system and preparation of schedules etc. This methodology has been adapted for Shalamar Gardens

STEP 2: It is hoped that by the time any of the actions are undertaken, detailed documentation will be available. Accordingly, it will be possible to conduct a detailed Condition Survey by recording all issues of concern on drawings. Further studies should be carried out and details should be developed based on the original HFP Condition Survey methodology.

STEP 3: Other studies that will be relevant are accounts of History of Interventions. These are available for almost all areas of Shalamar Gardens in the dossiers developed by the Project Research Cell under the guidance of Heritage Foundation Pakistan.

STEP 4: After a thorough review of the works to be carried out, and after various studies have been undertaken particularly if there is a requirement for structural evaluation etc., the action strategy should be re-established: whether emergency work, stabilization, preventive conservation/preventive maintenance, or conservation.

STEP 5: Drawings should be prepared to show the exact nature of work to be carried out. These drawings should clearly show the present position of various elements as provided in the baseline documentation, the actions to be taken and the methodology by which the original elements will be retained at the same time ensuring that they suffer no harm. These drawings will form the basis for the site supervisor to execute the work.

STEP 6: All works carried out should ensure reversibility and safeguarding of all original elements. If elements have to be removed or changed, this should be carried out only after a full discussion with the Technical Committee. During and after completion of the works

full photographic documentation should be carried out. Further, all interventions should be fully recorded graphically by preparing sections through all areas of work. The 'As built' drawings will become part of the record and should be placed in the Archives as and when they are established.

STEP 7: A full report on the reasons for undertaking the work, on the process adopted and the work accomplished, accompanied by drawings and photographs should be prepared and placed in record in the Archives.

COS OBJECTIVE 7: Full and accessible documentation of all aspects of the site

Systematic and full documentation of all aspects of a site is the basis of all conservation planning and decision making. Full documentation of the components of the cultural landscape includes plantation, water works, the past and present hydraulic systems, garden features and associated structures. Documentation should include mapping of locations, drawings and photographs of features, condition reports, recording of decorative details and all other relevant aspects. This understanding of the status and needs of the site and the identification of authentic elements which must be preserved will inform the design of the overall conservation strategy in a number of ways: in setting priorities for conservation works, in the design of specific conservation works and in planning future documentation and research directions.

Documentation must be full and must meet international standards. The system proposed and now in use at Shalamar Gardens is based on the successful documentation programme already in place at Lahore Fort in the form of the NORAD-UNESCO Project Documentation Centre. It incorporates an on-going process of staff training, the use of standardized recording formats and database creation. The Heritage Foundation Pakistan documentation procedures being used at the Centre have been designed to encompass each and every element of the Qila through a numbering system. Thus each element has its own particular number and has to be documented in detail. The information generated is available as baseline data whenever conservation activities are undertaken. The documentation will be presented both as hard copy folios as well as soft copy resource. It is therefore ensured that even if the present team is no longer in place, the future custodians will have access to detailed information before embarking on conservation works.

COS OBJECTIVE 8: A well-equipped and committed conservation laboratory facility

An adequately equipped laboratory facility designed to meet the needs of monitoring, maintenance and conservation of both parts of the World Heritage site is essential. The

existing facility at Lahore Fort needs to be assessed and reformulated, including staffing, training, equipment and materials. In particular, the exact scope of the lab's work needs to be clearly defined and prioritized.

Recommendations are given in the *Lahore Fort Master Plan* to upgrade the present facility to meet the conservation needs of the World Heritage Site. This would include *inter alia*:

- Support to the Monitoring and Maintenance teams in the form of materials analysis, chemical treatment and analysis;
- Support to the Conservation Team in the form of original materials analysis and testing proposed new materials;
- Support to Museums in the form of artefact conservation and environmental monitoring of exhibits

In order to achieve these objectives, it is recommended that a consultancy study be carried out to assess the present situation, implement basic upgrading and design a phased programme of future improvements. This consultancy should be undertaken by a chemist with experience in running an effective conservation facility. It should address the issues of:

- Equipment: upgrading existing equipment, prioritizing new/ additional purchases, computerization;
- Training: in equipment use, in specific conservation chemistry/ lab needs and in specific skills needed for maintaining the garden
- Design of a long term research and expansion programme to broaden the capacity of the lab
- Re-location of lab: whether the current location is satisfactory in terms of lab needs and from the building preservation point of view.

COS OBJECTIVE 9: Centralized and systematic storage and inventory of all artifacts and building elements retrieved and/or excavated from the site

An approach is needed to the volume of archaeological and architectural material and various samples accumulated in various parts of the site. Original building elements which were removed during past restoration projects form a valuable resource which is not being taken advantage of. This is a problem shared with Lahore Fort where the Master Plan recommended a study to propose the following:

- Systematic search of the site for material in need of curation;
- A computerized inventory system to document all material for easy access;
- Identification of a location for a centralized storage facility.

This study should be carried out by an appointed consultant in cooperation with the Documentation Centre and should combine data storage and retrieval for both parts of the World Heritage Site.

COS OBJECTIVE 10: Development of a Conservation Resource Library

A first class Conservation Resource Library was recommended in the Lahore Fort Master Plan to support professional training and the work of the Documentation Centre and conservation staff. It should contain texts on conservation theory and practice, working manuals, international guidelines and standards, best-practice examples from around the world and relevant journals. First steps can be taken by downloading from the web and printing important documents issued free by the World Heritage Centre, UNESCO, ICCROM, Getty Conservation Institute, English Heritage, Parks Canada and other organizations. Assistance is requested from UNESCO in identifying and assembling the resource material needed at the site.

This facility should serve as a centralized resource for both Lahore Fort and Shalamar Gardens; however, there should also be a smaller library or resource centre at the gardens containing relevant historical documents, maps and photographs, records and reports and books directly relevant to the care and maintenance of historical gardens.

COS OBJECTIVE 11: Support of In-house Conservation

The objective is to encourage the handling of conservation works by the on site workforce rather than outside contractors. This is considered essential to fulfill the goal of careful conservation in order to maintain the authenticity of the World Heritage site.

The Federal Department long held the tradition of employing artisans and workforce who executed works under departmental supervisors. This allowed works to be carried out in a systematic manner along with required documentation. It was for this reason that the practice of engaging Pakistan Works Department (PWD) for sites under the care of the Department was discontinued during 1920s. The Department set up its own engineering department along with workforce and supervisors who were able to get training by working on various sites under the care of the Department. Such a system provided better supervision to works, onsite guidance by supervisors along with a trained workforce conscious of the historical value of the historic premises.

In the last decade or so, however, the Department has increasingly begun to utilize contractors for works that were earlier carried out by themselves. The interest of the contractor is to do as much new work as possible. Thus, in the last decade much of the

work has concentrated on producing new elements rather than conserving the old as much as possible. This strategy has inflicted great harm to the historic premises, where remnants have been pulled out and replaced by replicas.

It is important that the Provincial Department staff as new custodians of the World Heritage site carry out all conservation works. For this purpose supervisory staff including head gardeners, architects, engineers, hydraulics experts and others receive conservation training and that trained artisans and workers should be employed on a regular basis, in order that they may develop the attitude of 'duty of care' when handling historic premises. This tested methodology will ensure that only those who are trained and skilled in various trades of conservation carry out the works. This will also allow continued evaluation as the work progresses and will facilitate protecting and reusing historic remnants rather than replacements. Accordingly, the Department needs to strengthen its in-house capability for conservation work in order to maintain authenticity of the historic gardens.

7.5. RESEARCH FRAMEWORK

The purpose of a research framework is to promote and facilitate a wide range of research and to make the best of every opportunity to extend knowledge and understanding. As a document, a Research Framework synthesizes a wide scope of interests and issues for use by anyone who is interested in research on aspects of Shalamar Gardens.

7.5.1 Overall Strategy

The Research Framework for Shalamar Gardens must achieve the following:

- ∞ Assessment of the state of existing knowledge and clear identification of "gaps" which need filling;
- ∞ Highlighting of those baseline research topics which are essential to the development of further lines of enquiry;
- ∞ Dissemination of the Framework among academic and other research institutions to draw scholars to undertake aspects of the research.

7.5.2 Research Framework (REF) Objectives

REF OBJECTIVE 1: Mechanisms to support a wide ranging research programme at Shalamar Gardens

A Research Cell has been formed at Lahore Fort as an initial element of the revitalized PCI, a basic recommendation of the UNDP-UNESCO study on *Cultural Tourism in Lahore and Peshawar* and of the *Management Guidelines for World Cultural Heritage Sites*. The work

of this cell should be expanded to include research at Shalamar Gardens. This Research Cell will design a Research Framework which will have the following objectives:

- ∞ To understand the historical processes at work at the site as manifested by chronological development in various elements including changes in the garden, water works, decorative features etc.;
- ∞ To understand the use and meaning of space, water and vegetation in creating the garden landscape in the Muslim world;
- ∞ To understand the manipulation of the landscape in the creation and evolution of the site;
- ∞ To understand the changing physical and metaphorical relationship of Shalamar Gardens with other gardens in its immediate environs;
- ∞ To understand the site in the context of wider Mughal garden design, construction and use;
- ∞ To provide information as an aid to effective interpretation, authentic conservation and management of the site.

The broad areas of research focus and examples of specific research topics are presented in Table 7.3.

Site Studies:
- the functions of Structures and different terraces and areas;
- Stylistic analysis of structural and decorative elements
- study of Mughal hydraulic system through archaeological methods
- Historical studies of persons and events
- Study of miniature paintings and other artistic sources
- Compilation of references to Shamalar Bagh in Persian manuscripts and other early works
- Compilation of Royal Asiatic Society references and other learned journals
- The changing relationship of Shalamar Gardens to nearby gardens and the city as a whole
- Cataloguing and study of archaeological and structural fragments in storage around the site

Landscape Studies:
- Study of Ravi River relationship to the site over time
- Flora / botanical studies
- Stratigraphic studies of the site modification
- chemical soil mapping
- geophysical examination of the site

Regional Studies:
- Understanding of the site within the context of Mughal South and central Asia garden development
- Compilation of a Research Bibliography of Mughal garden studies

Technical Studies:
- Botanical and pollen analysis
- Materials analysis
- Study of specific conservation methods
- Scientific dating of structural and excavated materials

Table 7.3Research Framework: Types of Studies Which Would Contribute to the Research Base

- ∞ Manage collection of archival material from accessible sources,
- ∞ Arrange exchanges with libraries in India and elsewhere for acquisition of material relevant to research projects being carried out at the site.
- ∞ Promulgate information about the existence and the agenda of the Research Cell throughout the academic community in Pakistan and abroad in order to draw students, post-graduate scholars and researchers.

The *MGWCHS* also recommend that a Research Coordination Committee be set up to advise, organize long term programmes involving a succession of researchers or short-term programmes for individuals, set goals, establish work plans and schedules and review progress. However, research at present at Shalamar Gardens is almost non-existent and without funding. A committee structure is not recommended for the Research Cell as it is felt to be premature and potentially restrictive. However, the firm recommendation, also given in the *MGWCHS*, that "close liaison should be maintained with universities and other facilities interested in the cultural resources" (pg. 28) is fully supported.

REF OBJECTIVE 2: A publication programme in conjunction with Lahore Fort

The information generated by the proposed research programme needs to be made available to the public and academic world in a variety of formats and levels of presentation. As a priority, the Research Cell, in consultation with UNESCO should draft a Publication Programme detailing the kinds of publications to be produced, such as pamphlets, books, leaflets, guides etc. The programme should include a schedule, cost breakdowns, inputs and responsibilities and serve as a plan for the short and medium term. This Publication Programme can then be used to solicit contributions from national and overseas sources to the Research and Publication Fund.

REF OBJECTIVE 3: Programme of archaeological research and investigations

A programme of archaeological investigation is needed to provide evidence to clarify the original Mughal hydraulics and planting. The techniques used in garden archaeology can also trace the changing plan of the Mughal gardens, planting schemes, built features and patterns of hydraulics. The result would be an integrated picture of change through the centuries.

The specific objectives of the proposed archaeological programme are as follows:

- ∞ To define the pattern and layout of the original gardens and associated structures;
- ∞ To identify the species of plants used in Mughal period garden design with a view to

restoring original schemes;

- ∞ To define Mughal period hydraulics and water features with a view to restoring original designs to working order;
- ∞ To heighten local awareness of the historical depth and richness of Shalamar Gardens and to increase community interest in its conservation.

The programme will involve:

- ∞ Initial research to identify areas of the site with high archaeological potential and areas at particular risk;
- ∞ Creation of a GIS database to manage information generated by archaeological research;
- ∞ Non-intrusive geophysical survey to identify sub-surface features and areas of high potential, particularly evidence of the hydraulics system;
- ∞ Soil sampling and chemical mapping;
- ∞ Excavation at selected areas of high archaeological interest;
- ∞ Post-excavation processing and analysis of data and finds.

On-going archaeological excavation also provides an educational opportunity for student and community involvement in the field, providing interpretation to the public and inspiring an interest in "history in action".

A Proposal for Archaeological Research and Investigation at Shalamar Gardens should be prepared by a consultant archaeologist in conjunction with archaeologists of the Punjab government, with details of aims, areas to be investigated, field and post excavation methodology, staffing, schedule and costs. This is an important part of the overall strategy for preserving below ground archaeological resources discussed in MM Objective 4b.

REF OBJECTIVE 4: Development of an archive of historical materials

All of the historic and recent maps, photographs, unpublished papers and reports and other documents concerning Shalamar Gardens should be collected into a single archive. The material should be fully inventoried and assessed for special storage and conservation needs. A room in the World Heritage site should then be adapted for safe and modern storage of the material; this could be in association with proposed development of museum facilities on site.

7.6 VISITATION POLICY

A *Shalamar Gardens Tourism Strategy* has been prepared to propose approaches to maintaining, protecting and enhancing the historicity and cultural authenticity of the World Heritage site. The full report is presented in Annexure 8. The overall aim of the visitation plan is to enhance visitor understanding and appreciation of the site and its heritage values, while at the same time safeguarding it from inappropriate exploitation.

As is accepted widely, cultural tourism can provide benefits to the economy by propagating a 'soft' cultural image of Pakistan. Each visitor to Shalamar Gardens, if properly briefed can act as a 'cultural ambassador'. However, in order to convert the ordinary visitor into a cultural emissary, a great deal of effort is required to provide them with authentic and interesting information presented in many media. The aim of the Visitation Policy is to bring Shalamar Gardens to life and by explaining its past, give it new meaning in the present.

7.6.1 Overall Strategy

Sustainable visitor management aims to achieve "sound, continuous and sustainable economic growth geared to satisfying the equitable needs and aspirations of present and future generation." [1.1] The key to "controlling" cultural tourism therefore lies in a sustainable approach to management of sites of cultural heritage value.

A sustainable approach to cultural tourism at Shalamar Gardens will involve:

- Controlling the way that visitors use the site to ensure that negative impacts do not result; as stated in the Florence Charter *Art. 18.* "While any historic garden is designed to be seen and walked about in, access to it must be restricted to the extent demanded by its size and vulnerability, so that its physical fabric and cultural message may be preserved."

- Interpreting the site in a way that will expand visitor expectations and will inspire visitors to feel a sense of responsibility for care of the site

- Providing a storyline that is based on authentic information and enhances the values of the site improved management, a planned conservation programme and resulting increased publicity and educational programmes will lead to increases in tourist numbers. While current visitor impacts may be manageable, planning is needed to ensure that it remains the case.

VIP OBJECTIVE 1: Adopting a comprehensive approach to sustainable visitation

One successful approach to this task is a methodology known as "Visitor Experience and Resource Protection" or VERP. This technique was developed by the US National Parks Service as "a planning and managerial framework that focuses on visitor use impacts, on the visitor experience and the park resources. These impacts are primarily attributable to visitor behaviour, use levels, types of use, timing of use and location of use." Although designed for application to large, complex natural and cultural heritage park resources, it has been adapted for use in a variety of situations. It is more useful than the traditional carrying capacity approach which asks "how many people should be allowed to visit the site at a given time in order to ensure a quality visitor experience without damage to the site?" VERP addresses the question of long term sustainability: "How can visitor management and site use planning assure a quality visitor experience while at the same time safeguarding heritage resources?"

The basic elements of VERP should be applied to issues of tourism management at Shalamar. The steps followed are discussed in greater detail in Annexure 8 and summarized here.

VIP OBJECTIVE 2: Ensuring visitation which maintains and clearly presents the values for which the site was inscribed as a World Heritage site

The values of the site, as discussed in Part 3.13 , reflect the classic Mughal tradition of garden design and symbolism which must be preserved by all conservation actions and which must be effectively transmitted to visitors, without loss or compromise. The significance of this tradition can be expressed in terms of the values inherent in the property.

The first phase of the Visitor Experience and Resource Protection process identifies the values of the site that must be retained and transmitted. The preliminary discussion above can serve as a starting point for this exercise. It will also define the "stories" or valuable narratives which can be derived from Shalamar Gardens and used to explain its significance to visitors. These narratives will define the approach to visitor experience, including how people should approach and move through the site, what information should be displayed and how etc.

The overall visitor service objectives of any cultural tourism plan are to impart the values and significance of Shalamar Gardens to visitors by telling accurate and authentic stories about the site in an entertaining and educational way, while providing essential facilities and services, all within a context of preserving and safeguarding the World Heritage Site.

Planning must acknowledge that there are many different kinds of tourists and that each group has different expectations. The goal is to offer a range of authentic experiences from casual enjoyment of the Mughal-style gardens, pursuit of a greater historical understanding of the site to more in depth study of the genius of Mughal hydraulic technology.

Four themes or storylines which could be developed for the Shalamar Gardens World Heritage site are proposed here to stimulate discussion. Each storyline needs to be refined and expanded in text form. This will serve as a basis for interpretation decisions.

1. *Shalamar Gardens as a reflection of the character and development of the classic Mughal Paradise Charbagh Garden*

2. *Shalamar Gardens as a reflection of the scientific and technological skills of the Mughal period as reflected in the sophisticated hydraulics system*

3. *Shalamar Gardens as a royal campground on the route to Kashmir*

4. *Shalamar Gardens as a part of the larger garden landscape of Mughal period Lahore*

Collection and analysis of baseline data regarding heritage resources, their authenticity and ability to withstand levels of visitation is essential. These data will define the allocation of different uses for different parts of the site.

The aspect of Shalamar Gardens which is essential to presenting and interpreting its significance is the interplay between the symmetrical char bagh plan, vegetation, water movement and display and the structures located for enjoyment of this interplay.

Table 7.4 gives a preliminary presentation of each element of the gardens in terms of how much they have been compromised by past interventions and, as a result, how fully they reflect the values of the site. Original Mughal, Sikh and British elements have been highlighted for their importance as cultural heritage and for their potential to tell stories about the development of the site.

VIP OBJECTIVE 3: Tourism use based on the ability of resources to withstand visitation pressures within a protective framework

The potential of built elements of the gardens to be exploited for tourism purposes is limited by their current condition. Table 7.5 is a matrix displaying the relative fragility and robustness of all features of the gardens and their component parts and an indication of their display potential.

TABLE 7.4: CONSERVATION MATRIX: SHALAMAR GARDENS-FIRST TERRACE (contd)

2	3	4		5					7			8												5					8				
N	Sub-Areas/Element	Period		Special Features					Degree of Interventions			General Condition				Water Penetration/Leakage Severity				Lateral Pressure/Level of Risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	◘ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	● good	● fair	● poor	● v poor	● High	● Medium	● Low	● Nil	● High	● Medium	● Low	● Nil	● V.Fragile	●	●	●	● Robust	■ Immediate	■ Short Term	■ Medium Term	■ Long Term	■ On going
Perimeter Wall																																	
1S.11	south perimeter wall	◆	Sikh/Brit							☑			●				●											●			■		
1S.12	west perimeter wall-south section	◆	Sikh/Pak						☑				●			●												●			■		
1S.13	west perimeter wall-north section	◆	Sikh/Pak						☑				●			●				●						●				■			
1S.14	north edge retaining wall-west sec	◆	Sikh/Pak						☑				●				●				●						●			■			
1S.15	north edge retaining wall-east sec	◆	Sikh/Pak						☑				●			●					●							●			■			
1S.16	east perimeter wall-north section	◆	Sikh/Pak						☑				●			●				●								●			■			
1S.17	east perimeter wall- south section	◆	Sikh/Pak						☑							●							●					●				■		
1S.18	south perimeter wall	◆	Sikh/Brit							☑			●				●						●					●			■		
Burj		◆																															
1S.21	SW Burj	◆	Brit			◘	❖		☑				●	●				●				●				●				■			
1S.22	NW Burj	◆	Brit	✶		◘	❖		☑				●	●				●				●				●				■			
1S.23	NE Burj	◆	Brit			◘	❖	balcony	☑				●	●				●				●				●				■			
1S.24	SE Burj	◆	Brit			◘	❖		☑				●	●				●				●					●			■			
Buildings																																	
1S.31	South Khwabgah	◆	Sikh/Brit/Pa	✶	⊙●	◘	❖	8 doors		☑		●						●					●			●				■			
1S.32	Mughal Chambers 1	◆	Sikh	✶					☑				●				●					●			●				■			
1S.33	Begum Ki Khwabgah	◆	Sikh/Brit								☑				●			●					●				●			■			
1S.34	Mughal Chamber 2	◆	Sikh	✶					☑						●		●					●			●				■			
1S.35	North Baradari (Aiwan)	◆	Sikh/Brit	sikh floor	⊙●	◘	❖			☑			●					●						●				●			■			
1S.36	East Gateway	◆		✶					☑						●		●						●				●			■			
1S.37	East Baradari	◆	Sikh/Pak								☑		●					●					●				●			■			
1S.38	Moorcroft Building	◆	British			◘			☑						●		●						●				●			■			
Gardens																																	
1G.1	Southwestern Lawn	◆	Sikh/Brit/Pak		⊙●						☑		●															●			■		
1G.2	Northwestern Lawn	◆	Sikh/Brit/Pak		⊙●						☑		●															●			■		
1G.3	Northeastern Lawn	◆	Sikh/Brit/Pak		⊙●						☑		●															●			■		
1G.4	Southeastern Lawn	◆	Sikh/Brit/Pak		⊙●						☑		●															●			■		

CONSERVATION MATRIX: SHALAMAR GARDENS-Farrah Bukhsh 1st Terrace (contd)

2	3	4		5					7			8												5					8				
N	Sub-Areas/Element	Period		Special Features					Degree of Interventions			General Condition				Water Penetration/Leakage Severity				Lateral Pressure/Level of Risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	□ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	● good	● fair	● poor	● v poor	● High	● Medium	● Low	● Nil	● High	● Medium	● Low	● Nil	● V.Fragile				Robust	■ Immediate	■ Short Term	■ Medium Term	■ Long Term	■ On going
Pavements																																	
SW Bagh																																	
1P.1.1	Southern pathway of 1G.1	◆								☑		●						●													■		
1P.1.2	Western pathway of 1G.1	◆								☑			●				●										●				■		
1P.1.3	Northern pathway od 1G.1	◆							☑			●	●				●										●				■		
1P.1.4	Eastern pathway of 1G.1	◆								☑		●	●				●										●				■		
NW Bagh																																	
1P.2.1	Southern pathway of 1G.2	◆							☑			●	●				●											●			■		
1P.2.2	Western pathway of 1G.2	◆								☑			●				●											●			■		
1P.2.3	Northern pathway od 1G.2	◆								☑			●				●											●			■		
1P.2.4	Eastern pathway of 1G.2	◆								☑		●						●													■		
NE Bagh																																	
1P.3.1	Southern pathway of 1G.3	◆							☑			●	●				●											●			■		
1P.3.2	Western pathway of 1G.3	◆								☑		●	●				●											●			■		
1P.3.3	Northern pathway od 1G.3	◆								☑			●				●											●			■		
1P.3.4	Eastern pathway of 1G.3	◆								☑		●						●										●			■		
SE Bagh																																	
1P.4.1	Southern pathway of 1G.4	◆								☑		●						●										●			■		
1P.4.2	Western pathway of 1G.4	◆								☑		●						●										●			■		
1P.4.3	Northern pathway od 1G.4	◆								☑		●	●				●											●			■		
1P.4.4	Eastern pathway of 1G.4	◆								☑		●						●										●			■		
Water Channels																																	
1C.1	South water channel	◆			⊙●					☑		●						●										●				■	
1C.2	West water channel	◆			⊙●					☑		●						●										●				■	
1C.3	North water channel	◆			⊙●					☑		●						●										●				■	
1C.4	East water channel	◆			⊙●					☑		●						●										●				■	
1C.5	Central water channel	◆			⊙●					☑		●						●										●				■	

TABLE 7.4: CONSERVATION MATRIX: SHALAMAR GARDENS-SECOND TERRACE (contd)

1	2	3		4					7			8										5					8				
N	Sub-Areas/Element	Period		Special Features					Degree of Interventions			General Condition				Water Penetration/Leakage Severity				Lateral Pressure/Level of Risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	◘ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	good	fair	poor	v poor	High	Medium	Low	Nil	High	Medium	Low	Nil	V.Fragile				Robust	Immediate	Short Term	Medium Term	Long Term	On going
Perimeter Wall																																
2S.11	West Perimeter Wall	◆														✸				✸						✸			■				
2S.12	East Perimeter Wall															✸				✸						✸			■				
Buildings																																
2S.31	West Baradari	◆	Sikh/Pak							☑			✸					✸				✸				✸					■		
2S.32	North Pavilion 1	◆	Sikh/Pak							☑			✸					✸				✸				✸					■		
2S.33	North Pavilion 2	◆	Sikh/Pak							☑			✸					✸				✸				✸					■		
2S.34	East Baradari	◆	Sikh/Pak							☑			✸					✸				✸				✸					■		
2S.35	Shahi Hammam	◆	Sikh/Pak	✶	⊙●	◘	❖		☑					✸			✸				✸	✸			✸	✸				■			
Gardens																																
2G.1	Western Lawn																													■		
	2G.11	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.12	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.13	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.14	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.15	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.16	◆	Sikh/Brit/P								☑		✸														✸			■		
2G.2	Eastern Lawn																															
	2G.21	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.22	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.23	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.24	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.25	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.26	◆	Sikh/Brit/P								☑		✸														✸			■		
2G.3	Middle Lawn																															
	2G.31	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.32	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.33	◆	Sikh/Brit/P								☑		✸														✸			■		
	2G.34	◆	Sikh/Brit/P								☑		✸														✸			■		

CONSERVATION MATRIX: SHALAMAR GARDENS-2nd Terrace (contd)

1	2	3		4					7			8										5					8				
N	Sub-Areas/Element	Period		Special Features					Degree of Interventions			General Condition				Water Penetration/Leakage Severity				Lateral Pressure/Level of Risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	□ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	● good	● fair	● poor	● v poor	● High	● Medium	● Low	● Nil	● High	● Medium	● Low	● Nil	● V.Fragile	●	●	●	● Robust	■ Immediate	■ Short Term	■ Medium Term	■ Long Term	■ On going
Pavements																															
2P.1.1	Southern pathway of 2G.1	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.1.2	Western pathway of 2G.1	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.1.3	Northern pathway of 2G.1	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.1.4	Eastern pathway of 2G.1	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.2.1	Southern pathway of 2G.2	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.2.2	Western pathway of 2G.2	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.2.3	Northern pathway of 2G.2	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.2.4	Eastern pathway of 2G.2	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.1	Southern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.1a	Southern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.2	Southwestern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.2a	Southwestern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.3	Northwestern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.3a	Northwestern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.4	Northwestern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.4a	Northwestern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.5	Northeastern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.5a	Northeastern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.6	Northeastern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.6a	Northeastern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.7	Southeastern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.7a	Southeastern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.8	Southeastern inner pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
2P.3.8a	Southeastern outer pathway of 2G.3	◆	Sikh/Brit/P							☑			●				●									●			■			
Water Channels etc																															
2C.1	Large Middle Water Tank	◆	Brit/Pak		⊙●						☑		●					●						●				■	■		
2C.2	Southern small water tank	◆	Brit/Pak		⊙●						☑		●					●						●				■	■		

CONSERVATION MATRIX: SHALAMAR GARDENS-3rd Terrace (contd)

TABLE 7.4: CONSERVATION MATRIX: SHALAMAR GARDENS-THIRD TERRACE (contd)

1	2	3		4					5			6				7				8				9					10				
N	Sub-Areas/Element	Period		Special Features					Degree of Interventions			General Condition				Water Penetration/Leakage Severity				Lateral Pressure/Level of Risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	◘ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	good	fair	poor	v poor	High	Medium	Low	Nil	High	Medium	Low	Nil	V.Fragile				Robust	Immediate	Short Term	Medium Term	Long Term	On going
Perimeter Wall																																	
3S.11	South Wall	◆	Brit/Pak							☑			●					●				●					●			■				
3S.12	West Perimeter Wall	◆	Brit/Pak							☑				●		●					●						●			■				
3S.13	West Perimeter Wall	◆	Brit/Pak							☑				●		●					●						●			■				
3S.14	North Perimeter Wall	◆	Brit/Pak	✶						☑				●		●					●						●		■	■				
3S.15	North Perimeter Wall	◆	Brit/Pak	✶						☑				●		●					●						●		■	■				
3S.16	East Perimeter Wall	◆	Brit/Pak							☑				●		●					●						●			■				
3S.17	East Perimeter Wall	◆	Brit/Pak							☑				●		●					●						●			■				
3S.18	South Wall	◆	Brit/Pak							☑			●					●				●						●			■				
Burj																																	
3S.21	NW Turret (Burj)	◆	Brit/Pak						☑					●			●				●					●				■				
3S.22	NE Turret (Burj)	◆	Brit/Pak						☑					●			●				●					●				■				
Buildings																																	
3S.31	Chini Khana	◆			⊙●				☑				●						●						●					■				
3S.32	Western Gateway	◆		✶					☑					●			●				●						●		■	■				
3S.33	North Baradari	◆	Sikh/B/Pak		⊙●						☑		●					●				●						●			■				
3S.34	Eastern Gateway	◆		✶					☑					●			●				●						●		■	■				
Gardens																																	
3G.1	NE Bagh	◆	Sikh/B/Pak								☑				●													●			■				
3G.2	SE Bagh	◆	Sikh/B/Pak								☑				●													●			■				
3G.3	SW Bagh	◆	Sikh/B/Pak								☑				●													●			■				
3G.4	NW Bagh	◆	Sikh/B/Pak								☑				●													●			■				
Pavements																																	
E Bagh																																	
3P.1.1	north path	◆	Sikh/B/Pak							☑				●			●											●			■				
3P.1.2	east path	◆	Sikh/B/Pak							☑				●			●											●			■				
3P.1.3	south path	◆	Sikh/B/Pak							☑				●			●											●			■				
3P.1.4	west path	◆	Sikh/B/Pak							☑				●			●											●			■				
SE Bagh		◆																															
3P.2.1	north path	◆	Sikh/B/Pak							☑				●			●											●			■				
3P.2.2	east path	◆	Sikh/B/Pak							☑				●			●											●			■				
3P.2.3	south path	◆	Sikh/B/Pak							☑				●			●											●			■				

CONSERVATION MATRIX: SHALAMAR GARDENS-3rd Terrace (contd)

1	2	3		4					5			6				7				8				9					10				
N	Sub-Areas/Element	Period		Special Features					Degree of Interventions			General Condition				Water Penetration/Leakage Severity				Lateral Pressure/Level of Risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	□ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	good	fair	poor	v poor	High	Medium	Low	Nil	High	Medium	Low	Nil	V.Fragile				Robust	Immediate	Short Term	Medium Term	Long Term	On going
3P.2.4 west path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
W Bagh																																	
3P.3.1 north path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
3P.3.2 east path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
3P.3.3 south path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
3P.3.4 west path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
W Bagh																																	
3P.4.1 north path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
3P.4.2 east path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
3P.4.3 south path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
3P.4.4 west path		◆	Sikh/B/Pak							☑				✹			✹										✹			■			
Water Channels																																	
3C.1.1 south water channel		◆	Sikh/B/Pak		⊙●						☑				✹	delapidated								delapidated					■				
3C.1.2 west water channel		◆	Sikh/B/Pak		⊙●						☑				✹	delapidated								delapidated					■				
3C.1.3 north water channel		◆	Sikh/B/Pak		⊙●						☑				✹	delapidated								delapidated					■				
3C.1.4 east water channel		◆	Sikh/B/Pak		⊙●						☑				✹	delapidated								delapidated					■				
3C.1.5 middle reservoir		◆	Sikh/B/Pak		⊙●						☑				✹	delapidated								delapidated					■				

TABLE 7.4: CONSERVATION MATRIX: SHALAMAR GARDENS-NAQQAR KHANA (contd)

1	2	3		4					5			6				7				8				9					10				
N	Sub-Areas/Element	Period		Special Features					Degree of Interventions			General Condition				Water Penetration/Leakage Severity				Lateral Pressure/Level of Risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	□ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	good	fair	poor	v poor	High	Medium	Low	Nil	High	Medium	Low	Nil	V.Fragile				Robust	Immediate	Short Term	Medium Term	Long Term	On going
Perimeter Wall																																	
4S.11	South Perimeter Wall	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
4S.12	North Perimeter Wall	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
4S.13	North Perimeter Wall	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
4S.14	East Perimeter Wall	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
4S.15	East Perimeter Wall	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
4S.16	South Perimeter Wall	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
Building																																	
4S.31	West Chambers	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
4S.32	North Gate	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
4S.33	Bangladar Pavilion	◆	Brit/Pak								☑		✹		✹								✹					✹		■			
4S.34	South Gate	◆	Brit/Pak								☑	in repair	✹					✹					✹					✹		■			
Water Channels																																	
4C.1.1		◆	Brit/Pak								☑				✹																■	■	
4C.1.2		◆	Brit/Pak								☑				✹																■	■	
4C.1.3		◆	Brit/Pak								☑				✹																■	■	
4C.1.4		◆	Brit/Pak								☑				✹																■	■	
4C.1.5		◆	Brit/Pak								☑				✹																■	■	

TABLE 7.4: CONSERVATION MATRIX: SHALAMAR GARDENS-EXTERNAL ELEMENTS

1	2	3		4					5			6				7				8				9					10				
N	Sub-Areas/Element	Period		Special Features					Intervention level			General Condition				Water Issue Severity				Lateral Pressure risk				Level of Fragility					Priority for Conservation Action				
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	□ Floor	❖ Ceiling	others	☑ low	☑ medium	☑ high	good	fair	poor	v poor	High	Medium	Low	Nil	High	Medium	Low	Nil	V.Fragile				Robust	Immediate	Short Term	Medium Term	Long Term	On going
	Wells & reservoirs																																
	BaraHatta	◆	Brit/Pak																														
	Mughal well	◆	Brit/Pak																														
	East Well	◆	Brit/Pak																														
	South Water Tanks	◆	Pak																														
	Well outside S. Wall	◆	Pak																														
	Well under tree S. Wal	◆	Pak																														
	Others																																
	Burj-Inayat Bagh- NW	◆	Pak	✶			❖				☑				✹	✹											✹			Secure & Safeguard			■	
	Burj-Inayat Bagh-NE	◆	Pak								☑				✹	✹											✹			Secure & Safeguard			■	
	Burj-Inayat Bagh-W	◆	Pak								☑				✹	✹											✹			Secure & Safeguard			■	
	Fountain- outside South	◆	Pak		⊙●																						✹			Secure & Safeguard			■	

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-FIRST TERRACE (contd)

1	2	3		4					5				6			7					8					9				10
N	Sub-Areas/Element	Period		Special Features					Existing Usage				Present Accessibility to Visitors			Level of Fragility					Potential Interest for General Visitors					Feasible Level of Visitation				Proposed Activity/ Usage
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	◘ Floor	❖ Ceiling	others	☽ Offices	❁ Stores	♏ Museum	others	☑ open to public	☑ closed to Public	☑ Limited Access	✹ V.Fragile	✹	✹	✹	✹ Robust	■ V.High	■	■	■	■ Low	✹ All visitors	✹ Controlled Access	✹ Limited Access	✹ Restricted Access	
Perimeter Wall																														
1S.11/1	south perimeter wall	◆	Sikh/Brit																	✹					■	✹				
1S.12/1	west perimeter wall	◆	Sikh/Brit																	✹					■	✹				
1S.14/1	north edge retaining wall	◆	Sikh/Brit																✹						■	✹				
1S.16/1	east perimeter wall	◆	Sikh/Brit																	✹					■	✹				
Burj		◆																												
1S.21	SW Burj	◆	Brit			◘	❖ (Ghalibkari,)	floral frieze		❁				☑					✹				■				✹			
1S.22	NW Burj	◆	Brit	✶		◘	❖ (Ghalibkari,)	floral frieze						☑					✹				■				✹			
1S.23	NE Burj	◆	Brit			◘	❖ (Ghalibkari,)	floral frieze			public toilet		☑						✹				■				✹			
1S.24	SE Burj	◆	Brit			◘	❖ (Ghalibkari,)	floral frieze					☑					✹					■				✹			
Buildings																														
1S.31	South Khwabgah	◆	Sikh/Brit	✶	⊙●	◘	❖Ghalibkari-few rms	8 doors, frieze	☽		office toilet		☑	☑	front part open			✹			■					✹	✹			
1S.32	Mughal Chambers 1	◆	Sikh	✶													✹						■			✹				
1S.33	Begum Ki Khwabgah	◆	Sikh/Brit											☑						✹				■	✹					Museum
1S.34	Mughal Chamber 2	◆	Sikh	✶							informal toilet		☑				✹							■		✹				
1S.35	North Baradari (Aiwan)	◆	Sikh/Brit	sikh floor	⊙●	◘	❖						☑						✹		■				✹					
1S.36	East Gateway	◆		✶									☑						✹					■	✹					
1S.37	East Baradari	◆	Sikh/Pak								Canteen store		☑							✹				■	✹					
1S.38	Moorcroft Building	◆	British			◘								☑					✹				■		✹				Museum
Gardens																														
1G.1	Southwestern Lawn	◆	Sikh/Brit/P		⊙●								☑							✹	■					✹				
1G.2	Northwestern Lawn	◆	Sikh/Brit/P		⊙●								☑							✹	■					✹				
1G.3	Northeastern Lawn	◆	Sikh/Brit/P		⊙●								☑							✹	■					✹				
1G.4	Southeastern Lawn	◆	Sikh/Brit/P		⊙●								☑							✹	■					✹				
Pavements																														
SW Bagh																														
1P.1.1	Southern pathway of 1G.1	◆	Sikh/Brit/P																✹						✹					
1P.1.2	Western pathway of 1G.1	◆	Sikh/Brit/P																✹						✹					
1P.1.3	Northern pathway od 1G.1	◆	Sikh/Brit/P																✹						✹					
1P.1.4	Eastern pathway of 1G.1	◆	Sikh/Brit/P																✹						✹					
NW Bagh																									✹					
1P.2.1	Southern pathway of 1G.2	◆	Sikh/Brit/P															✹								✹				
1P.2.2	Western pathway of 1G.2	◆	Sikh/Brit/P															✹								✹				
1P.2.3	Northern pathway od 1G.2	◆	Sikh/Brit/P															✹								✹				
1P.2.4	Eastern pathway of 1G.2	◆	Sikh/Brit/P																						✹					

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-FIRST TERRACE (contd)

1	2	3		4					5				6			7					8					9				10
N	Sub-Areas/Element	Period		Special Features					Existing Usage				Present Accessibility to Visitors			Level of Fragility					Potential Interest for General Visitors					Feasible Level of Visitation				Proposed
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	◘ Floor	❖ Ceiling	others	☽ Offices	☸ Stores	♏ Museum	others	☑ open to public	☑ closed to Public	☑ Limited Access	✹ V.Fragile	✹	✹	✹	● Robust	■ V.High	■	■	■	■ Low	✹ All visitors	✹ Controlled Access	✹ Limited Access	✹ Restricted Access	Activity/ Usage
NE Bagh																														
1P.3.1	Southern pathway of 1G.3	◆	Sikh/Brit/P															✹									✹			
1P.3.2	Western pathway of 1G.3	◆	Sikh/Brit/P															✹									✹			
1P.3.3	Northern pathway od 1G.3	◆	Sikh/Brit/P															✹									✹			
1P.3.4	Eastern pathway of 1G.3	◆	Sikh/Brit/P																✹						✹					
NW Bagh																														
1P.4.1	Southern pathway of 1G.4	◆	Sikh/Brit/P																✹						✹					
1P.4.2	Western pathway of 1G.4	◆	Sikh/Brit/P																✹						✹					
1P.4.3	Northern pathway od 1G.4	◆	Sikh/Brit/P																✹						✹					
1P.4.4	Eastern pathway of 1G.4	◆	Sikh/Brit/P																✹						✹					
Water Channels																														
1C.1	South water channel	◆	Sikh/Brit/P		⊙●													✹								✹				
1C.2	West water channel	◆	Sikh/Brit/P		⊙●													✹								✹				
1C.3	North water channel	◆	Sikh/Brit/P		⊙●													✹								✹				
1C.4	East water channel	◆	Sikh/Brit/P		⊙●													✹								✹				
1C.5	Central water channel	◆	Sikh/Brit/P		⊙●													✹								✹				

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-SECOND TERRACE (contd)

1	2	3		4					5				6			7					8					9				10
N	Sub-Areas/Element	Period		Special Features					Existing Usage				Present Accessibility to Visitors			Level of Fragility					Potential Interest for General Visitors					Feasible Level of Visitation				Proposed Activity/ Usage
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	◘ Floor	❖ Ceiling	others	☽ Offices	☸ Stores	♏ Museum	others	☑ open to public	☑ closed to Public	☑ Limited Access	✹ V.Fragile	✹	✹	✹	✹ Robust	■ V.High	■	■	■	■ Low	✹ All visitors	✹ Controlled Access	✹ Limited Access	✹ Restricted Access	
Perimeter Wall																														
2S.11	West Perimeter Wall	◆	Brit/Pak										☑					✹							■	✹				
2S.12	East Perimeter Wall	◆	Brit/Pak										☑					✹							■	✹				
Buildings																														
2S.31	West Baradari	◆	Sikh/Pak										☑					✹				■					✹			
2S.32	North Pavilion 1	◆	Sikh/Pak										☑					✹				■					✹			
2S.33	North Pavilion 2	◆	Sikh/Pak										☑					✹				■					✹			
2S.34	East Baradari	◆	Sikh/Pak										☑					✹				■					✹			
2S.35	Shahi Hammam	◆	Sikh/Pak	✶	⊙●	◘	❖					toilets	☑			✹	✹				■							✹		
Gardens																														
2G.1	Western Lawn																		✹											
	2G.11	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.12	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.13	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.14	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.15	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.16	◆	Sikh/Brit/P										☑						✹		■					✹				
2G.2	Eastern Lawn																													
	2G.21	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.22	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.23	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.24	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.25	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.26	◆	Sikh/Brit/P										☑						✹		■					✹				
2G.3	Middle Lawn																													
	2G.31	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.32	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.33	◆	Sikh/Brit/P										☑						✹		■					✹				
	2G.34	◆	Sikh/Brit/P										☑						✹		■					✹				

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-SECOND TERRACE (contd)

1	2	3		4					5				6			7					8					9				10
N	Sub-Areas/Element	Period		Special Features					Existing Usage				Present Accessibility to Visitors			Level of Fragility					Potential Interest for General Visitors					Feasible Level of Visitation				Proposed
		Original ♦ ♦ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	☐ Floor	❖ Ceiling	others	☽ Offices	☸ Stores	♏ Museum	others	☑ open to public	☑ closed to Public	☑ Limited Access	✹ V.Fragile	✹	✹	✹	✹ Robust	■ V.High	■	■	■	■ Low	✹ All visitors	✹ Controlled Access	✹ Limited Access	✹ Restricted Access	Activity/ Usage
Pavements																														
2P.1.1	Southern pathway of 2G.1	♦	Sikh/Brit/P																	✹				■	✹				
2P.1.2	Western pathway of 2G.1	♦	Sikh/Brit/P																	✹				■	✹				
2P.1.3	Northern pathway of 2G.1	♦	Sikh/Brit/P																	✹				■	✹				
2P.1.4	Eastern pathway of 2G.1	♦	Sikh/Brit/P																	✹				■	✹				
2P.2.1	Southern pathway of 2G.2	♦	Sikh/Brit/P																	✹				■	✹				
2P.2.2	Western pathway of 2G.2	♦	Sikh/Brit/P																	✹				■	✹				
2P.2.3	Northern pathway of 2G.2	♦	Sikh/Brit/P																	✹				■	✹				
2P.2.4	Eastern pathway of 2G.2	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.1	Southern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.1a	Southern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.2	Southwestern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.2a	Southwestern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.3	Northwestern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.3a	Northwestern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.4	Northwestern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.4a	Northwestern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.5	Northeastern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.5a	Northeastern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.6	Northeastern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.6a	Northeastern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.7	Southeastern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.7a	Southeastern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.8	Southeastern inner pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
2P.3.8a	Southeastern outer pathway of 2G.3	♦	Sikh/Brit/P																	✹				■	✹				
Water Channels etc																														
2C.1	Large Middle Water Tank	♦	Brit/Pak		⊙●												✹				■						✹			
2C.2	Southern small water tank	♦	Brit/Pak		⊙●												✹				■						✹			

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-THIRD TERRACE (contd)

1	2	3		4					5				6			7					8					9				10
N	Sub-Areas/ Element	Period		Special Features					Existing Usage				Present Accessibility to Visitors			Level of Fragility					Potential Interest for General Visitors					Feasible Level of Visitation				Proposed
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	◘ Floor	❖ Ceiling	others	☽ Offices	☸ Stores	♏ Museum	others	☑ open to public	☑ closed to Public	☑ Limited Access	✹ V.Fragile	✹	✹	✹	✹ Robust	■ V.High	■	■	■	■ Low	✹ All visitors	✹ Controlled Access	✹ Limited Access	✹ Restricted Access	Activity/ Usage
Perimeter Wall																														
3S.11	South Wall	◆	Brit/Pak										☑						✹					■	✹				
3S.12	West Perimeter Wall	◆	Brit/Pak										☑						✹					■	✹				
3S.13	West Perimeter Wall	◆	Brit/Pak										☑						✹					■	✹				
3S.14	North Perimeter Wall	◆	Brit/Pak	✶									☑						✹					■	✹				
3S.15	North Perimeter Wall	◆	Brit/Pak	✶									☑						✹					■	✹				
3S.16	East Perimeter Wall	◆	Brit/Pak										☑						✹					■	✹				
3S.17	East Perimeter Wall	◆	Brit/Pak										☑						✹					■	✹				
3S.18	South Wall	◆	Brit/Pak										☑						✹					■	✹				
Burj																														
3S.21	NW Turret (Burj)	◆	Brit/Pak															✹						■		✹			
3S.22	NE Turret (Burj)	◆	Brit/Pak															✹						■		✹			
Buildings																														
3S.31	Chini Khana	◆			⊙●								☑			✹					■						✹			
3S.32	Western Gateway	◆		✶									☑						✹			■			✹				
3S.33	North Baradari	◆	Sikh/B/Pak		⊙●								☑						✹				■		✹				
3S.34	Eastern Gateway	◆		✶									☑						✹			■			✹				Public Ent
Gardens																														
3G.1	NE Bagh	◆	Sikh/B/Pak										☑							✹	■					✹				
3G.2	SE Bagh	◆	Sikh/B/Pak										☑							✹	■					✹				
3G.3	SW Bagh	◆	Sikh/B/Pak										☑							✹	■					✹				
3G.4	NW Bagh	◆	Sikh/B/Pak										☑							✹	■					✹				
Pavements																														
E	Bagh												☑											■	✹				
3P.1.1	north path	◆	Sikh/B/Pak										☑						✹					■	✹				
3P.1.2	east path	◆	Sikh/B/Pak										☑						✹					■	✹				
3P.1.3	south path	◆	Sikh/B/Pak										☑						✹					■	✹				
3P.1.4	west path	◆	Sikh/B/Pak										☑						✹					■	✹				
E	Bagh	◆											☑											■	✹				
3P.2.1	north path	◆	Sikh/B/Pak										☑						✹					■	✹				
3P.2.2	east path	◆	Sikh/B/Pak										☑						✹					■	✹				
3P.2.3	south path	◆	Sikh/B/Pak										☑						✹					■	✹				

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-THIRD TERRACE (contd)

1	2	3		4					5				6			7					8					9				10
N	Sub-Areas/Element	Period		Special Features					Existing Usage				Present Accessibility to Visitors			Level of Fragility					Potential Interest for General Visitors					Feasible Level of Visitation				Proposed
		Original	Intervent-	✶	⊙●	◘	❖		☽	❁	ℳ		☑	☑	☑	✹	✹	✹	✹	✹	■	■	■	■	■	✹	✹	✹	✹	Activity/
		◆ ◆	ations	Frescoes	Fountain	Floor	Ceiling	others	Offices	Stores	Museum	others	open to	closed to	Limited	V.Fragile				Robust	V.High				Low	All	Controlled	Limited	Restricted	Usage
		SJ/ Sikh		/Mosaic	/pool								public	Public	Access											visitors	Access	Access	Access	
3P.2.4	west path	◆	Sikh/B/Pak										☑						✹						■	✹				
SW Bagh													☑												■	✹				
3P.3.1	north path	◆	Sikh/B/Pak										☑						✹						■	✹				
3P.3.2	east path	◆	Sikh/B/Pak										☑						✹						■	✹				
3P.3.3	south path	◆	Sikh/B/Pak										☑						✹						■	✹				
3P.3.4	west path	◆	Sikh/B/Pak										☑						✹						■	✹				
NW Bagh																									■	✹				
3P.4.1	north path	◆	Sikh/B/Pak										☑						✹						■	✹				
3P.4.2	east path	◆	Sikh/B/Pak										☑						✹						■	✹				
3P.4.3	south path	◆	Sikh/B/Pak										☑						✹						■	✹				
3P.4.4	west path	◆	Sikh/B/Pak										☑						✹						■	✹				
Water Channels																														
3C.1.1	south water channel	◆	Sikh/B/Pak		⊙●								☑			delapidated					■						✹			
3C.1.2	west water channel	◆	Sikh/B/Pak		⊙●								☑			delapidated					■						✹			
3C.1.3	north water channel	◆	Sikh/B/Pak		⊙●								☑			delapidated					■						✹			
3C.1.4	east water channel	◆	Sikh/B/Pak		⊙●								☑			delapidated					■						✹			
3C.1.5	middle reservoir	◆	Sikh/B/Pak		⊙●								☑			delapidated					■						✹			

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-NAQQAE KHANA (contd)

1	2	3		4					5				6			7					8					9				10
N	Sub-Areas/Element	Period		Special Features					Existing Usage				Present Accessibility to Visitors			Level of Fragility					Potential Interest for General Visitors					Feasible Level of Visitation				Proposed
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	□ Floor	❖ Ceiling	others	☽ Offices	☸ Stores	♏ Museum	others	☑ open to public	☑ closed to Public	☑ Limited Access	✹ V.Fragile	✹	✹	✹	✹ Robust	■ V.High	■	■	■	■ Low	✹ All visitors	✹ Controlled Access	✹ Limited Access	✹ Restricted Access	Activity/ Usage
Perimeter Wall																														
4S.11	South Perimeter Wall	◆	Brit/Pak										☑							✹				■	✹				Area to be
4S.12	North Perimeter Wall	◆	Brit/Pak										☑							✹				■	✹				used as
4S.13	North Perimeter Wall	◆	Brit/Pak										☑							✹				■	✹				Visitor's
4S.14	East Perimeter Wall	◆	Brit/Pak										☑							✹				■	✹				Reception
4S.15	East Perimeter Wall	◆	Brit/Pak										☑							✹				■	✹				Interpetrive
4S.16	South Perimeter Wall	◆	Brit/Pak										☑							✹				■	✹				Gallery;
Building																														Craft Shops
4S.31	West Chambers	◆	Brit/Pak								Canteen			☑						✹				■	✹				Etc
4S.32	North Gate	◆	Brit/Pak										☑							✹				■	✹				
4S.33	Bangladar Pavilion	◆	Brit/Pak										☑							✹			■		✹				
4S.34	South Gate	◆	Brit/Pak										☑							✹				■	✹				
Water Channels																														
4C.1.1		◆	Brit/Pak										☑											■	✹				
4C.1.2		◆	Brit/Pak										☑											■	✹				
4C.1.3		◆	Brit/Pak										☑											■	✹				
4C.1.4		◆	Brit/Pak										☑											■	✹				
4C.1.5		◆	Brit/Pak										☑											■	✹				

TABLE 7.5: VISITATION MATRIX: SHALAMAR GARDENS-EXTERNAL ELEMENTS

1	2	3		4				5				6			7					8					9				10
N	Sub-Areas/Element	Period		Special Features				Existing Usage				Present visitor access			Level of Fragility					Interest Level					Feasible Level of Visitation				Proposed
		Original ◆ ◆ SJ/ Sikh	Intervent-ations	✶ Frescoes /Mosaic	⊙● Fountain /pool	□ Floor	❖ Ceiling	Offices	Stores	Museum	others	☑ open to public	☑ closed to Public	☑ Limited Access	V.Fragile				Robust	V.High				Low	All visitors	Controlled Access	Limited Access	Restricted Access	Activity/ Usage
	Wells & Water Reservoirs																												
	BaraHatta	◆	Brit/Pak										☑								■								
	Mughal well	◆	Brit/Pak										☑									■							
	East Well	◆	Brit/Pak										☑									■							
	South Water Tanks	◆	Pak										☑									■							
	Well outside South p. wall	◆	Pak										☑									■							
	Well under tree outside South p wall	◆	Pak										☑									■							
	Others																												
	Burj-Inayat Bagh- NW	◆	Pak	✶			❖						☑									■							
	Burj-Inayat Bagh-NE	◆	Pak										☑									■							
	Burj-Inayat Bagh-W	◆	Pak										☑									■							
	Fountain- outside South	◆	Pak		⊙●								☑									■							

There are some structures and areas which are strong enough to withstand frequent visitation, and others which are too fragile for public access. A detailed review needs to be made of the level of fragility of each structure within each of the zones, factoring in special features, general condition and the potential interest for the general visitor. On the basis of this review, an index of robustness will be developed which proposes that individual buildings and areas be divided into five degrees of fragility ranging from very fragile resources which can be open to researchers and special interest groups only to robust which can be open to all visitors. This index of robustness will then be used to formulate recommendations for the types of uses acceptable for individual buildings, structures and open spaces.

Protection measures are related to the fragility of resources and overall visitation numbers. The target planning figure for tourist visits per year should be realistic, manageable and sustainable. It must not exceed the carrying capacity of the site and the capacity of the infrastructure and staff to cope. If too high a target figure is achieved the result will be serious overcrowding, degradation of the historic environment, environmental pollution and, in time, collapse of the tourism value of the site.

As a first step, immediate action should be taken to confirm very fragile areas of the site which are being damaged by visitor misuse and the pressure of numbers. As stated in the *International Cultural Tourism Charter* 3.2 " Visitors should be able to experience the heritage place at their own pace, if they so choose. Specific circulation routes may be necessary to minimise impacts on the integrity and physical fabric of a place, its natural and cultural characteristics." Measures should then be designed and implemented to immediately prevent access to these areas using direct and indirect methods for controlling visitor movement:

Direct means include:

- Immediate closure of areas identified as being at extreme risk ensuring that public access is impossible;
- A system of soft and /or hard barriers to divert visitors away from sensitive areas and off of delicate paving, making them viewable from a distance only;
- Redirection of visitor traffic into other areas by placement of signage and paths to guide visitors to other less frequented areas which can be viewed safely from a distance.

Indirect means include:

- Increasing the numbers of guards and redeploying guards to the areas identified as most endangered by visitor misuse;

- ∞ Augmenting the guard numbers by implementing volunteer programmes involving students and local residents
- ∞ Arrangement of special activities during public holidays to encourage dispersal of crowds to other less frequented areas of the site,

An important aspect of protection is integrated conservation decision- making. Conservation decisions should never be made on the basis of perceived tourism needs and benefits; however, predicted pressures and impacts from tourism should be factored into conservation planning. One of the main functions of the Master Plan will be to identify the various conservation works needed for each element of the garden and to lay out a detailed conservation strategy, giving priorities for works. The impacts of visitors and their use and expectations of the site will play a part in this process.

VIP OBJECTIVE 4: Development of Tourism Zones

The VERP Handbook recommends that "Potential tourism zones will be described by different desired visitor experience opportunities and resource conditions that could be provided at the site, consistent with its significance and purpose. Zone descriptions will prescribe appropriate levels and kinds of activity, development and management. The identified zones are allocated to different parts of the site; each zone defines clearly what will be allowed in that zone in the future in terms of use, access, presentation etc."

Shalamar Gardens is a single design and functional unit and lacks the spatial complexity of a site such as Lahore Fort. This makes it more difficult to "divide" the site into zones devoted to different types of visitor experience. On the other hand, it is undeniably true that Shalamar is under-experienced by visitors and that the potential range of experiences is much larger than that offered by just a casual walk and picnic on the lawns.

Visitor Planning requires a series of steps:

(a) Identification of parts of the site which can sustain visitation on the basis of the fragility matrix

(b) Highlighting those robust elements which best reflect the values of the site

(c) Fitting these into the various narrative themes which have been identified

(d) Creating a range of potential visitor zones, with guidelines re: appropriate levels and types of activities that can take place in them and ways in which they should be managed

(e) Mapping these zones on to the site.

(f) Linking them by the storylines that have been proposed for the site.

The Visitor Plan should propose a Visitor Service zone located in the Naqqar Khan. It lends itself to this type of adaptive reuse because, although its plan is original, the walls and internal arrangements have been heavily damaged, altered and rebuilt. A detailed conservation plan should be prepared to develop the area for sympathetic tourism uses.

Parking and toilets should be even further away from the site as far as possible without causing too much inconvenience to visitors.

Figure 7.11 presents proposed zones for management and visitor use of Shalamar Gardens. There is a performance area in a robust portion of the site with good visibility and seating potential; a royal zone in the upper terrace with a display of mobile Mughal court life; an area of the lower terrace devoted to a display of the hydraulic system including open but protected excavations of pipes and conduits and an educational display; a portion of the site devoted to the botany of Mughal gardens and the garden diversity of Lahore. There should also be a "Conservation Zone": at the entrance to the Royal Hammam a display should describe the critical condition of the baths and other parts of the site, planned and on-going conservation actions and the need for community awareness of heritage and its preservation.

- ∞ High Cultural Resource Areas (HCRA) comprising the main Mughal quadrangles, structures and garden areas. Display and educational facilities are focused here with rest areas but no food or service facilities provided (Maximum restrictions on permitted usage);
- ∞ Middle Cultural Resource Areas (MCRA) comprising primarily the British period interventions outside the HCRA, the lawns around the Akbari Gate and the north eastern area of the site. Visitor facilities, offices, the proposed Craft Center and picnic areas are grouped in this zone (Defined but more relaxed restriction);
- ∞ Recreational Zones (RZ) consisting of the Maidan, the lawn between the Northern Fortification Walls and the British period Steps. It is proposed that these zones be developed for visitor facilities, recreation and performances (Widest usage within defined limits).

VIP OBJECTIVE 5: Development of an interpretive plan and policy

Interpretation is the act of linking all parts and aspects of the site by means of the various storylines or themes that have been developed to impart the site's significance and value to the visitor. Interpretation should be guided by five main principles:

1. it is not teaching or instruction in an academic sense, although it does involve the transfer of information

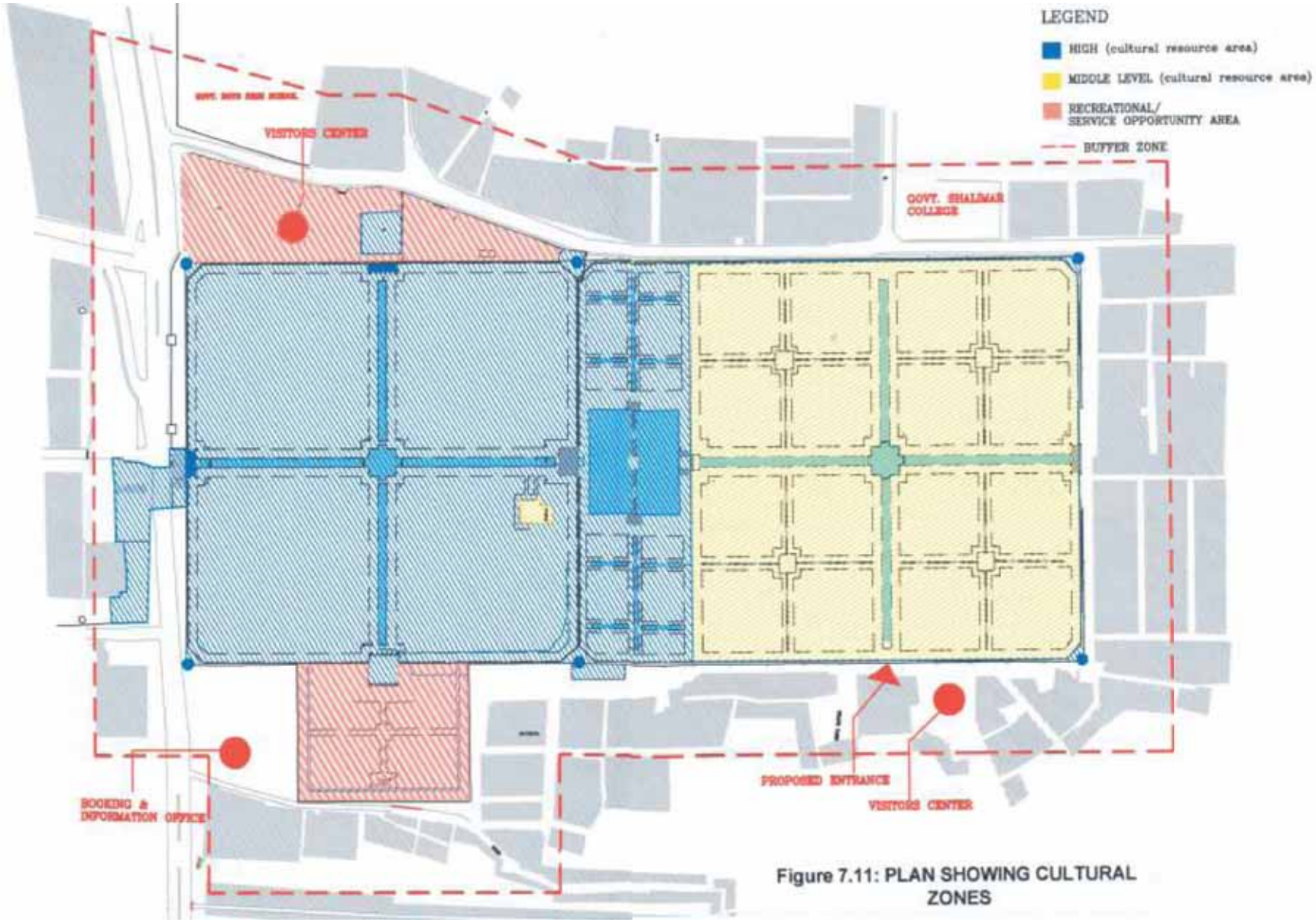


Figure 7.11: PLAN SHOWING CULTURAL ZONES

2. it must be enjoyable for visitors, for if it is made to be fun and enjoyable, non-captive visitors are likely to pay attention longer
3. it must be relevant for visitors, and visitors must be able to relate it to their own frame of reference
4. it must be well organized so that visitors can follow it easily
5. it should be focused around a few discrete themes, rather than simply presenting information in a disconnected manned.

The tools of interpretation include:

(a) Routing of visitors around the site
- ∞ to address the issue of an historically authentic entrance and approach to the site
- ∞ a visitor route which will allow self-guided tours of the site in conjunction with a map and on-site signage
- ∞ to move people beyond the current limited area and to better understand the gardens
- ∞ the use of specific tours [Royal, hydraulics, botanical etc.] to different parts of the site

(b) On-site Information
- ∞ Signage and information boards placed at strategic points around the site
- ∞ Signage and boards should be stylistically in keeping with designs proposed for Lahore Fort
- ∞ An attractive souvenir ticket brochure as part of the entrance fee, which includes maps, accurate historical information and an explanation of the conservation work on-going and still needed
- ∞ Well trained guides for school groups, parties and individuals
- ∞ An Interpretive Centre located outside the site itself
- ∞ On-site display, for example: a detailed explanation of the on-going conservation process and explanations of the challenges and how they will be met; exposure of an archaeological excavation of the Mughal hydraulics system; an experimental garden of Mughal flowers and shrubs etc.

(c) Activities and events
- ∞ Possible night opening at full moon of part of all or part of the gardens
- ∞ The use of Mughal style soft furnishings such as carpets, tents, awnings, bolsters etc. to recreate an historical ambience
- ∞ Appropriate performances of Mughal music and dance
- ∞ Enactment of historical events by theatrical groups on a limited scale and with clear guidelines regarding maintenance of authenticity

(d) Linkages with other heritage sites in the area, particularly gardens and shrines

- ∞ Maps, brochures and signage to identify the location of remains of other gardens and associated shrines
- ∞ Specialized tours of the garden heritage of Mughal and Sikh Lahore
- ∞ Tours of the Sufi sites associated with this part of Lahore
- ∞ Use of audio-visual tools to present a reconstruction of the multiple gardens and their functions.

A consultancy Site Interpretation Study is therefore recommended to develop this integrated interpretation policy for presenting Shalamar Gardens to visitors. The information needed for interpreting the World Heritage Site will be generated by the Documentation Centre in conjunction with the proposed Research Cell under the guidance of the Site Commission.

Interpretation of the Shalamar Gardens World Heritage Site for the public must:

a. Be based on factual and reliable information.
b. Generate "themes" or stories that explain the significance of the site to the community, particularly to students and young people;
c. Be transformed into a wide array of media, including: signage, web sites, booklets, brochures, audio-visual material and guide packs;
d. Be consistent and follow well-thought-out themes or topics which provide an interesting and multi-faceted picture of the site;
e. Be planned, designed and located with regard to international standards for site interpretation.

The consultancy should produce:

- ∞ An overall detailed policy for interpreting Shalamar Gardens to visitors employing a wide range of media and approaches;
- ∞ Details of "Themes " which will tell rich and varied stories about the site, its history and significance and its meaning to Lahore, Pakistan and the world community;
- ∞ Plans for implementation of the policy, including *inter alia*:
- range and types of signage
- location of signage
- brief for design competition
- content / text of a range of printed material, CDs
- setting up of Interpretative Gallery

The design of signage, printed material and other media can be developed either through a consultancy or, preferably, by conducting a competition to be organized amongst

tertiary art colleges and other institutions to design a basic scheme of colours, motifs and logos to be applied to all forms of interpretative material generated by the Centre.

In the shorter term, stopgap measures should be implemented to improve the display of the site. These could include temporary general information and map boards, pamphlets explaining the historical background and significance of the site and display boards.

VIP OBJECTIVE 6: System for monitoring the ongoing impacts of visitation on the site

There are a number of tourist activities and site uses which currently result in various levels of impact on the World Heritage Site:

- Food consumption on lawns; picnics and sales from the canteen
- Dropping of refuse on the site
- Wear and tear on fragile paving and parterre brickwork
- climbing on monuments
- unauthorized entry via closed off roofs and terraces
- playing in channels
- Graffiti on the monument s
- Impacts of excessive numbers of visitors at one time: on public holidays and rare special events

In order to reduce the level of subjectivity in assessment of impacts arising from these activities, the following defined terms are used to categorize impacts:

1. The impact is *beneficial* if the project will complement the setting of a heritage resource, stabilize or enhance its function and environment or improve its maintenance and management.
2. The impact is *acceptable* if the assessment indicates that there will be no significant effects on the fabric, setting or values of a heritage place or on the function or performance of intangible heritage.
3. The impact is *acceptable with mitigation measures* if there will be some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific mitigation measures
4. The impact is *unacceptable* if the adverse effects are considered too excessive and are unable to mitigate practically
5. The impact is *undetermined* if significant adverse effects are likely, but the extent to which they may occur or may be mitigated cannot be determined from the study. Further detailed study will be required.

Source of Impact	Tourism Impact and Assessment
Food consumption	Unacceptable; not in keeping with standards for a World Heritage Site; food should be restricted to defined areas outside or peripheral to the main site
Refuse	Acceptable with mitigation; adequate collection system
Climbing on monuments and in gardens	Unacceptable; not in keeping with standards for a World Heritage Site; even climbing on heavily restored "new" features sets a bad precedent for behaviour
Playing in water channels	Unacceptable; not in keeping with standards for a World Heritage Site; sets a bad precedent for behaviour
Walking on fragile original pavements	Unacceptable; not in keeping with standards for a World Heritage Site; fragile original elements should be closed to visitor access
Games on lawns	Acceptable with mitigation measures; limits on activities and monitoring by staff
Graffiti	Unacceptable; not in keeping with standards for a World Heritage Site
Excessive numbers	Unacceptable; not in keeping with standards for a World Heritage site
Toilets	Unacceptable; not in keeping with standards for a World Heritage Site; an indirect impact of tourism; relocation is required.
Limited site use	Acceptable with mitigation measures; ways to safely expand the visitation pattern and increase maintenance of "under-visited" areas
Cars and Parking	Unacceptable; not in keeping with the purpose of a Buffer Zone at a World Heritage Site

Table 7.6 Preliminary review of tourism impacts at Shalamar Gardens

Most of the serious negative impacts inside the garden are indirectly the result of tourism and have been perpetrated by the managers and custodians of the site. For example, the development of toilets inside the Royal Hamam. The fact that tourists only visit a small portion of the site, and are not "channeled" into parts of the site also has indirect negative impacts. Areas which are not visited by the public are ignored by the custodians and suffer resulting neglect.

The *Granada Recommendations* (1973) "HOPES that, within the general framework of the growth of tourism , it will be considered how the physical damage to monuments, and in particular to gardens, inevitably caused by excessive numbers of visitors can be kept to a minimum". A Tourism Impact Monitoring Plan is required in order to ensure that current and increased levels of tourism do not cause irreparable damage to the site. This is achieved by creating a set of indicators to measure the impacts and defining a set of standards, or minimum conditions below which impact is unacceptable and signals the need for remedial action. An example of this approach is shown in Table 7.9

Tourism Impact	Assessment	Indicators	Standards
Food consumption; cooking; attracting vermin	Unacceptable	Number of occurrences recorded	Food in Naqqar Khana
Refuse generation	Acceptable with mitigation	Volume recorded	Can be collected and removed by existing staff
Damage caused by climbing on monuments	Unacceptable	Number of occurrences recorded	No occurrences
Playing in channels	Unacceptable	Number of occurrences	No occurrences
Damage caused by walking on fragile pavements	Unacceptable	Number of occurrences	No occurrences
Inappropriate playing of games on lawns	Unacceptable	Number of occurrences	Can be controlled by existing staff
Damage from graffiti	Unacceptable	Number of occurrences	No occurrences
Pressures of excessive numbers	Acceptable with mitigation	Exceed agreed visitation limits / numerical count	A number to be agreed
Damage and pollution from toilets	Unacceptable	Toilets still on site	Complete removal
Limited site use resulting in neglect	Acceptable with mitigation	Areas not included in proposed monitoring and maintenance system	An agreed frequency for monitoring of all areas
Potential damage, fumes and inappropriate parking against the monument	Unacceptable	Number of occurrences	No occurrences

Table 7.7 Matrix of indicators and standards for monitoring tourism impacts

Staff will regularly implement the Tourism Impact Monitoring Plan as developed in the Master Plan, checking the defined indicators and recording the findings on standardized recording sheets. When monitoring indicates that social or resource conditions are out of standard or are deteriorating toward a standard, management action will be taken. Action could involve temporary closure of areas of the garden, increased surveillance, recommendations for conservation work, improved signage etc. Action options and the need for decision-making and documentation mechanisms will be outlined in the Master Plan.

Regular review of the Tourism Impact Monitoring Plan will be needed to add any new impacts and/or remove those no longer applicable. Systems of counting, timing and monitoring visitor flow at the site should be undertaken with the aim of determining the maximum visitor carrying capacity of the site as a whole and of its components. Once determined, ways should be found to ensure that these limits are enforced.

Cultural Heritage Impact Assessment is a useful tool for evaluating the short term impacts of specific tourism related proposals; in particular, for tourism development inside the gardens and proposed activities or events. The methodology and application of CHIA will be discussed in the Master Plan as a means of deciding whether proposed actions are acceptable in heritage preservation terms or whether they will compromise the values of the World Heritage site.

In order to facilitate effective management action, training in conservation and heritage tourism basics will be needed for staff and custodians of the site. As stated in Principle 5.6 of the *International Charter on Cultural Tourism* **"**Conservation management and tourism programmes should include education and training opportunities for policy makers, planners, researchers, designers, architects, interpreters, conservators and tourism operators. Participants should be encouraged to understand and help resolve the at times conflicting issues, opportunities and problems encountered by their colleagues."

VIP OBJECTIVE 7: Upgrading and relocation of visitor services and amenities

Visitor facilities at Shalamar Gardens are limited and of poor quality; Figure 7.12 presents proposals for improving services and amenities..

(a) Parking facilities

The Master Plan recommends that visitor parking should be located away from the World Heritage site, and yet within reasonable walking distance. Suggestions to locate bus and car parking in the open area south of the Naqqar Khana should be discouraged. It would bring congestion, visual intrusions and inappropriate usage too close to the walls of the site and is not in keeping with World Heritage site presentation.

(b) Catering

On site catering should be limited to outlets in the Naqqar Khana Visitor Reception area.

(c) Waste disposal

The specialist report, Annexure 8, recommends the following:

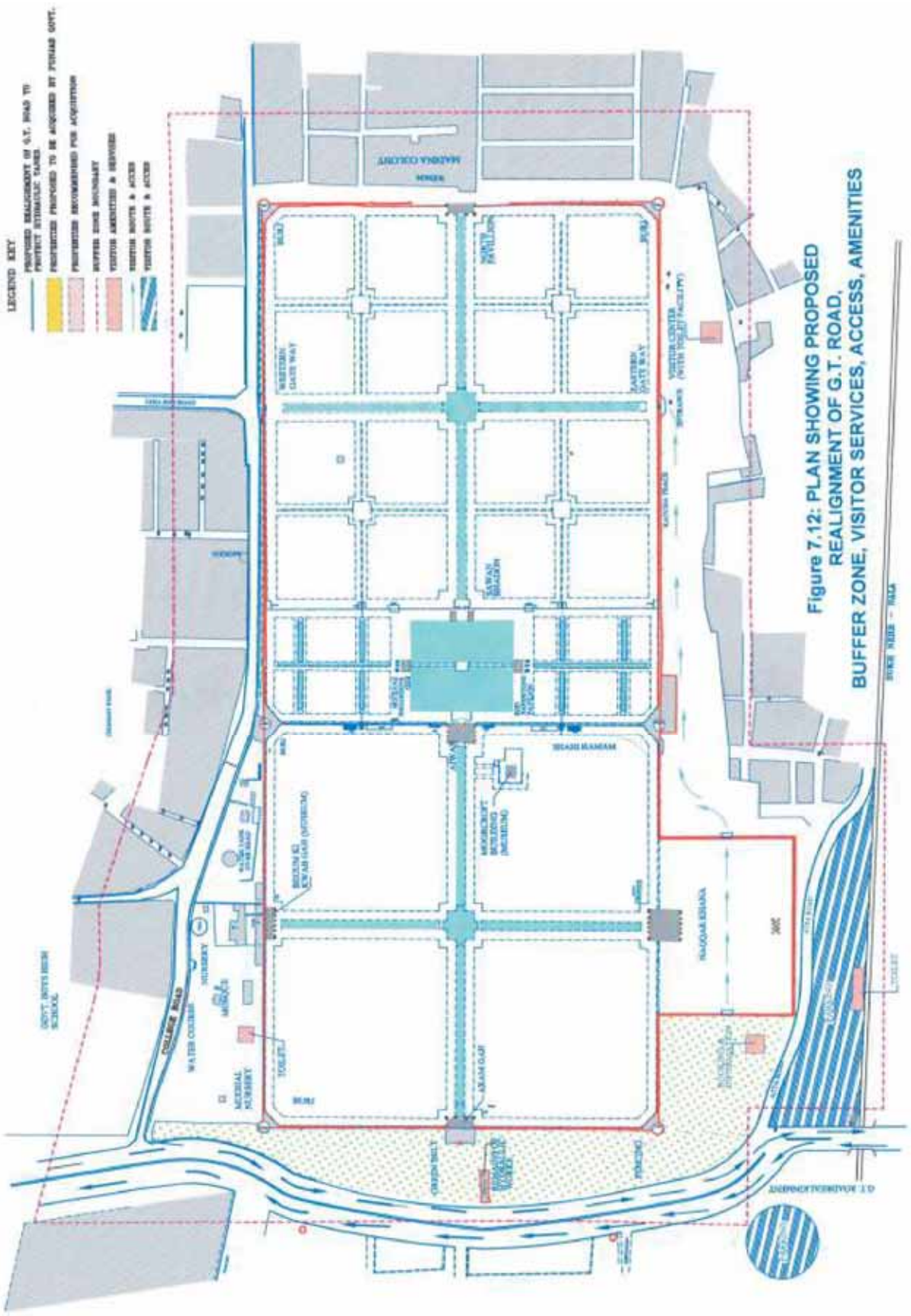


Figure 7.12: PLAN SHOWING PROPOSED REALIGNMENT OF G.T. ROAD, BUFFER ZONE, VISITOR SERVICES, ACCESS, AMENITIES

- ∞ The tourists visiting should not be allowed to bring in the food items in the Shalamar Gardens. This will curtail the amount of solid waste in the gardens. Scattering of waste and plastics should be disallowed. Additional security staff and signage should be employed for this purpose of check-up.
- ∞ Additional number of well designed storage containers for solid wastes should be provided.
- ∞ Work of the sweepers should be facilitated by providing them with long handled brooms and hand trolleys.
- ∞ The locations of the MCL skips adjacent to the walls of Shalamar Gardens need to be moved. A system of door to door collection from the adjacent houses may help eliminate the presence of the skips

(d) Toilets

The number of toilet facilities should be increased in number. At present, the number of washrooms is inadequate to meet the requirements of the visitors. It is recommended that:

- ∞ Additional facilities should be located away from the historic structures of the Shalamar Gardens; possible locations are presented in Fig. 7.12
- ∞ The facilities in the public washrooms should be at par with the international standards to facilitate the visitors.
- ∞ a plan must be made to safely remove the existing toilets in the Shahi Hammam under the supervision of a conservation architect
- ∞ The Septic Tank should be a properly sealed from the sides and a cover should be provided to minimize the leakages.

(e) Shops

Shops selling crafts, tourist information and souvenirs should be located within the Naqqar Khana Visitor reception area. It is recommended that a nursery outlet selling plants, flowers, cuttings and related items be located in the eastern area outside the site which has been designated for tourist use.

VIP OBJECTIVE 8: Management of events held at Shalamar Gardens

Monuments and sites benefit in many ways from being used; they take on meaning for visitors, they provide aesthetic and historical experiences and justification for conservation time and expense. A balance must be found between preserving the significance of each component of the site and yet giving the site a meaningful modern context. In every instance, a compatible use should be sought that requires minimal alteration to the fabric of the place and its setting.

The use of Shalamar Gardens as an event venue has to be handled carefully. Use of Lahore Fort for live theatre presentations and dinners posed threats to the heritage assets and put fragile historical fabric and context at risk. However, staging of Karavan Heritage Fest events in the robust Maidan-e-Diwan-e-Aam had no negative impacts. From this the following points can be made regarding events inside Shalamar Gardens:

- Events may not include animals on site
- use of fireworks should be limited to hand held and self contained devices which have no direct contact with historical resources and fabric
- vehicular traffic must keep a strict distance from the peripheral wall of the site
- electrical fixtures cannot be directly attached to historical fabric
- no food should be prepared inside the site

It is extremely important that safeguards are clearly spelt out and the areas for various kinds of activities clearly identified. This is particularly important as regards plans to stage regular Sound and Light performances at the World Heritage site. A UNESCO consultant should work with the Site Management Group and Technical Committee to put together a set of *Historical Site Use Guidelines* to be issued to prospective users of the site. The guidelines should be endorsed by UNESCO, as overall caretakers of all World Heritage Sites, and by the Site Commission and the Punjab Department of Archaeology. They should be issued to all prospective event producers and strictly enforced.

As a policy, no events should be allowed in Shalamar Gardens which result in the closure of the monument to visitors. A World Heritage Site must be open to all and not restricted to use by any special sections of society. Similarly, as a public owned and funded heritage site, it is unacceptable that public money which could be spent on conservation should be spent on entertaining elite guests.

VIP OBJECTIVE 9: Adaptive re-use of historical buildings for visitor use

The objectives of re-use of historical buildings for visitor use should be:

- to ensure the long term care and preservation of historic places;
- to ensure that the negative effects of any change of use are minimized;.
- to enrich the ability of historic places to tell meaningful stories to visitors to the site.

As a basis for decision making regarding proposed reuse of elements of Shalamar Gardens it is proposed that potential uses be divided into the following categories:

a. Use of historical spaces and buildings for display only.

b. Fragile and/or valuable areas where no public access and no re-use are allowed.

c. Use of historical spaces with buildings as backdrops for events**:**

Areas where open spaces are designated for use as event and/or performance venues; care must be taken regarding lighting and equipment installation, contact with original fabric, vibration and pedestrian impacts etc. Use must follow the principle that existing spaces and access patterns must be conserved without modification.

d. Use of historical buildings with no modifications for events:
Buildings considered to be robust and of only moderate significance; to be used as "shells" for events, activities, venues which will not require any modifications or additions to the building fabric and which will be in line with *Historical Site Use Guidelines* regarding lighting, equipment, contact with original fabric, vibration and pedestrian impacts etc.

e. Adaptive modification of historical buildings for use as visitor facilities:
A number of buildings have potential for adaptive re-use as visitor facilities and display areas, including the Naqar Khana, Moorecroft Building, Begum ke Khawgah. They will require rehabilitation and considerable modification to meet use requirements and building code standards. This approach is applicable only to buildings where the cultural/historical significance is low and/or condition is very poor and major adaptive modification is allowed in order to rehabilitate the structure and make it a meaningful component of the site. Again, allowed works must be clearly specified in a Building Modification Brief prepared by the Conservation team and endorsed by the Technical Committee. If changes in use require physical changes that adversely affect a heritage place, the Building Modification Brief must include full justification and assurance that the feasibility of uses with less impact have been fully investigated. Above all, proposed modifications should not destroy the ability to interpret the significance of the place.

VIP OBJECTIVE 10: Provision of museums and interpretive gallery

It is recommended that the Beghum Ki Kwabgah be adapted for use as a Mughal Garden Museum following guidelines for modification of historical buildings for adaptive re-use. In the area adjacent currently used as the nursery, Mughal plants could be grown for exhibition and sale.

An interpretive gallery should be developed at the entrance to the World Heritage site, inside the Naqqar Khana, to present the gardens to visitors.

The Sikh period Moorcroft Building also lends itself to adaptive re-use as an exhibition or display centre. A consultant study is needed to assess the potential for safe re-use, to plan and design the content and presentation of facilities.

VIP OBJECTIVE 11: Ensuring stakeholder involvement in tourism at Shalamar Gardens

Custodians of the World Heritage Site

Site custodians, guards and other persons employed at the site should be trained in the basics of site presentation and conservation, as well as concepts of "hospitality". Training modules for staff should be a priority when the proposed Pakistan Conservation Institute (PCI) becomes functional. This planned institute, solely devoted to conservation related training, was recommended by the study on *Cultural Tourism in Lahore and Peshawar.*

Tourism Sector

Guidelines for cooperation between conservation professionals and the tourism industry are clearly presented in the UNESCO document "*Cultural Heritage Management and Tourism: Models for Co-operation among Stakeholders*". These models include detailed guidance on tourism's role in fiscal management of heritage sites, involvement and investment by the tourism industry in sustainability of the cultural heritage resource base and supporting infrastructure and for overall consensus building of all stakeholders.

The lack of trained guides at Shalamar Gardens needs to be addressed. Training of tourist guides should be offered by the Pakistan Conservation Institute; other focused training options should include short certificate courses and on-the-job and pre-service training of those employed in the tourism industry. Preparation of an authoritative resource document on Shalamar Gardens for use by tour guides will also be discussed.

The Local Community

The local community of Lahore has had no role in caring and planning for the site. This situation is shared with Lahore Fort. However, this has changed for the better as a result of a number of Karavan-style initiatives designed to draw young people and women into active service at the fort. At present, the NORAD-UNESCO- GOPunjab Documentation Centre is acting as a proxy Karavan-style office in the citadel. Because of the success of recent heritage awareness events, staged in conjunction with Karavan Pakistan, and a vocal and visible expression of interest from the local community, it has been decided to assign a dedicated officer to run a Community and Youth Outreach Cell at Lahore Fort.

The Karavan mechanism with its dedicated voluntary component can enthuse youth and the general public to become engaged in activities which will be beneficial for the site.

Initiatives such as heritage cleaning, awareness raising and sensitizing to develop a greater understanding of the historic site need to be supported on a recurring basis. Regular events held in designated area of Shalamar Gardens would help in bringing the site to life for a large number of people.

There is a need to encourage residents in the communities around Shalamar Gardens to make cultural products using the designs found in various structures in the monument. First steps towards this are planned, through encouraging the women of the area to make handicrafts items for sale, using motifs which are based on the Mughal features. An outlet for such products is needed which will allow for direct sales of local crafts. In collaboration with the documentation centre, the CYOC can also provide facsimiles of designs and other information which can help in production of craft products.

Other Approaches

Other approaches to bringing the community into the site in terms of appreciation and benefit will be discussed in the Master Plan, including:

- *UNESCO LEAP*
  Local Effort and Preservation (*LEAP*) is a regional initiative that fosters local community stewardship over the vast and varied heritage resources of Asia and the Pacific. The *LEAP* programme aims to encourage local community action for heritage conservation, within existing legal frameworks and under the supervision of conservation professionals. *LEAP* project activities assist people living within or near heritage sites to take a leading role in site management and preventive conservation, as well as site interpretation for visitors, thus providing local communities the opportunity to benefit both economically and socially from conservation of their community's heritage.

- *Student Virsa Volunteer Programme*
  The enthusiasm of young people and students should be harnessed by creation of a Virsa Volunteer Programme for young volunteers. Volunteers can begin immediately by supplementing the numbers of guards in areas of the site at particular risk from visitor misuse. They can also be trained as guides. A brief training module would be required to provide the volunteers with authentic and relevant information and basic guide training.

- *Schools Programme*
  A Schools Programme can be designed to cement existing linkages with schools which regularly visit the gardens and to create new links with schools not yet involved. This could be achieved in a variety of ways, including:

i. Design and implementation of a youth / student "Virsa Volunteers" programme;
ii. Staging an event of some kind every month involving children youth and / or women;
iii. Extending the Karavan World Heritage Mural exercise;
iv. Keeping counts of school and student attendance;
v. Planning ways and formats to disseminate authentic information about Shalamar Gardens and UNESCO World Heritage sites targeted at children, young people and women
vi. Promotion of the UNESCO *Heritage in Young Hands* programme.

VIP OBJECTIVE 12: Restoration of the historical relationship between Shalamar Gardens and adjacent Mughal garden sites

A study is recommended to investigate the potential for developing tourism links between Shalamar Gardens and the remains of adjacent Mughal Period gardens: Mahtab Bagh, Inayat Bagh and Anguri Bagh. This will require:

(a) historical research and background studies into the identification, uses and design of these gardens
(b) field survey and archaeological testing to identify all existing evidence and physical remains
(c) design of an interpretive programme to present these gardens to visitors in an educational and entertaining way

7.7. ENVIRONMENTAL AND PHYSICAL INFRASTRUCTURE PLAN

The expert report *Environmental Issues and their Impact on Shalamar Garden* has been prepared to identify existing conditions of the environment and infrastructure of the Shalamar Gardens and its immediate environs and to propose a framework for the improvement and protection of the monument and its environment. The full text of the report can be found in Annexure 9; the following section presents a summary of the major recommendations.

7.7.1 Overall Strategy

The overall aim is an integrated and phased approach to the critical environmental and infrastructure issues facing the site. The Master Plan has attempted to make realistic proposals for change, while acknowledging the complexity of many of the environmental problems, and the political and administrative realities facing the custodians of the World Heritage site.

The core issues which must be addressed first are those environmental impacts both in and around the site which are directly affecting the built heritage, spaces and overall integrity of the site. These are discussed in the full report and are highlighted here. A policy is proposed to guide short and longer-term action to address these critical environmental problems.

Policy objectives are divided into those affecting the environs of Shalamar Gardens, under Environmental Objectives, and those impacting the site itself as Physical Infrastructure Objectives.

7.7.2 Environmental Plan (EPI) Objectives: Environment of the World Heritage Site

EPI OBJECTIVE 1: Revitalization and protection of the environs of Shalamar Gardens

Figure 2.1 in Part 2 of the Master Plan shows the recommended extension of the World Heritage site boundary. This recommendation is made to give direct protection to important areas relevant to the original functioning and appearance of the site. The area to the southwest of the garden contains important hydraulic and nursery features from all periods and test excavation to the south has shown that the space between Shalamar and Inayat Bagh played an important role in the hydraulics, design and aesthetics of the site.

In order to protect the World Heritage site it is recommended that restrictive planning zones be created to define areas and apply restrictions on various activities; the size of the zones and the types of restrictions depend on the purpose of the zone. The Master Plan recommends a set of 3 protective zones or planning areas around the site boundary:

a. Buffer Zone
   A zone around Shalamar Gardens in which strict environmental restrictions are enforced. The extent of the zone will have to be negotiated, given the density of urban development already existing around the site, however, it should be as large an area as achievable.

b. Archaeological Restriction Zone
   A zone around Shalamar Gardens where restrictions on excavation/ ground breaking are enforced. All excavation works must be either archaeologically monitored or pre-tested. The extent of the zone will include the adjacent Mughal garden sites and associated historical areas with archaeological potential.

c. Special Design Zone
   A zone around Shalamar Gardens where restrictions are placed on the appearance of development: colour, style, height, usage etc. The extent of this zone will be large as it aims to avoid visual intrusions on the site.

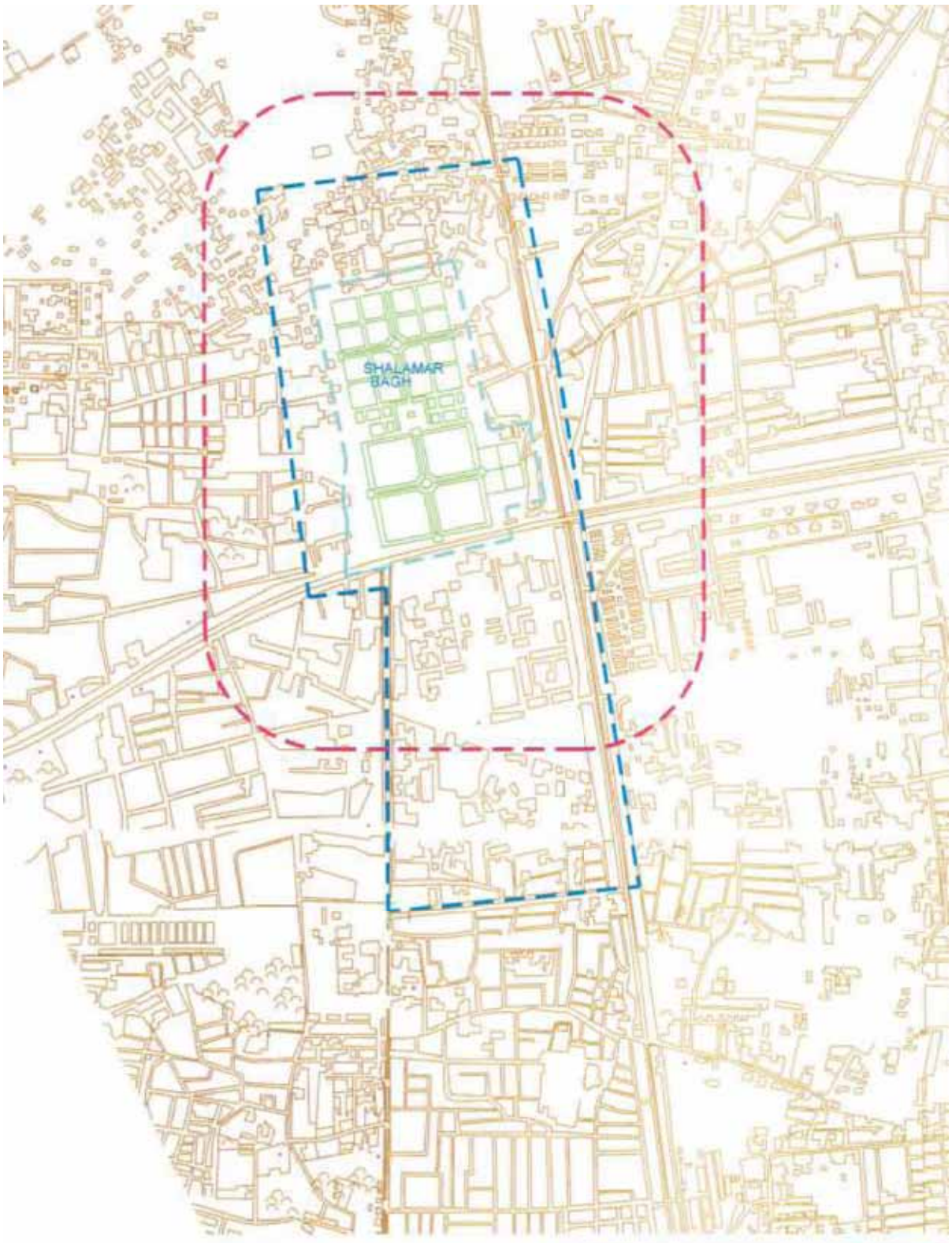


FIG-7.13:PROTECTIVE ZONING

BUFFER ZONE ARCHAEOLOGICAL RESTRICTION ZONE, SPECIAL DESIGN ZONE

LEGEND	SYMBOL
BUFFER ZONE BOUNDARY	
ARCHAEOLOGICAL RESTRICTION ZONE BOUNDARY	
SPECIAL DESIGN ZONE BOUNDARY	

Figure 7.13 presents indicative zones to illustrate these recommendations. The Master Plan recommends that a consultancy study be commissioned to look into the design of protective zoning, restrictions and implementation modes.

Solutions to environmental problems in the environs of the site can only be found through the joint efforts of concerned relevant agencies and local government departments. This cooperation must extend to identification of the issues, agreement regarding solutions and commitment to implementation.

Eroding decorative brickwork of the Perimeter Wall in need of conservation

Table 7.8 below itemizes some of the issues which can be addressed by protective zoning, recommends action and identifies the relevant implementation agents. All the proposed efforts should involve the site custodians and should be overseen by the Site Commission, which is responsible for maintaining linkages and coordinating action with town, city and provincial levels of government.

EPI OBJECTIVE 2: Entrance location and corresponding parking areas

The current entrance to Shalamar Gardens, at the southern end of the site, is historically inaccurate. One opening was made through the Aramgah during the British period to provide direct access from the GT Road. The other entrance immediately to the east is a modern intervention for public access.

The original Mughal entrance was through the decorative gateways on either side of the Lower Terrace. It is proposed in the visitor management section that the eastern gateway be reinstated as the main entrance to the site in order to restore historical authenticity. It is therefore advisable that parking should be provided on the eastern side of the World Heritage site, at an appropriate distance from the site. An area is shown on Fig. 7.12 which is recommended for parking use.

Issue:	**Responsible Agent:**
Legal definition of the protective zones	GoPunjab and GOP
Garbage Collection within the Buffer Zone	Town & City Governments
Resumption of encroaching structures within the Buffer Zone	Punjab Government
Re-routing of G.T. Road and access roads within the Buffer Zone	City Government

Lowering level of roads on north and east of the site within the Buffer Zone	City Government
Locating and creating nearby parking areas outside the Buffer Zone	City Government
Creation of pedestrianized Areas in the Buffer Zone	Town & City Governments
Locating and constructing toilet facilities in the Buffer Zone	City Government
Monitoring of proposed development in the Archaeological Zone and the Special Design Zone	City Government and G of Punjab
Enforcement of restrictions within the Archaeological Zone	G of Punjab
Enforcement of restrictions within the Special Design Zone	City Government and G of Punjab

Table 7.8. Issues Related to protective zoning and responsible agents

EPI OBJECTIVE 3: A phased approach to the issues of traffic and pedestrianization in the site environs

A phased approach to the issues of traffic and pedestrianization is recommended which begins with remedial action that can be easily and quickly implemented. Recommendations which involve study and/or coordination between a number of departments and agencies must be framed in the longer term. In brief:

Phase 1:

- ∞ Pedestrianization of the eastern side of the site and redirection of parking to the area shown in Figure 7.13;
- ∞ The use of planting, water features and other protective elements should be investigated to ameliorate environmental conditions due to traffic which cannot be radically improved;
- ∞ Restrictions on stopping and parking to be enforced to reduce congestion and idling of heavily polluting vehicles, particularly along the southern periphery.
- ∞ Detailed planning of the realignment of the Grand Trunk Road to the south of the hydraulics complex

Phase 2:

- ∞ A Traffic Planning and Management Study should be initiated to investigate ways to curtail heavy traffic on the realigned Grand Trunk Road by means of diversion into other routes;

∞ Traffic using a route further east at a distance from the site as a mitigation while the overall traffic situation is assessed and a permanent rerouting solution is found (Fig 7.13).

Phase 3:

∞ Closure of the Grand Trunk Road to all but non-polluting traffic and rerouting of all other traffic away from the site;

∞ Opening alternate car parking areas to the sides of the site as required by future demand.

EPI OBJECTIVE 4: Implementation of Cultural Heritage Impact Assessments

Cultural Heritage Impact Assessment (CHIA) is a legally endorsed system by which all proposed works, development and construction are assessed for direct and indirect impacts which might result on cultural resources. Impacts are identified and, if negative, mitigation measures are designed and enforced to minimize them. CHIA is a very useful tool for evaluating the acceptability of various proposed works and development both inside and near the site.

In the environs of the World Heritage Site:

At present, development is taking place within the immediate environs of the site without any vetting or consideration of what effects it may have on the preservation and integrity of the site. Any proposed development within a designated distance from Shalamar Gardens should require a CHIA. Responsibility for identifying cases needing assessment will lie with the Site Commission.

Within the World Heritage Site:

All proposed actions in or uses of the site that, if taken, would be likely to have a significant impact on the outstanding universal values of a site should be subject to the impact assessment process. Responsibility for identifying cases needing assessment will lie with the Site Management Team.

A consultancy study is needed to define how CHIA can be implemented in both these situations. A different methodology will be required for assessment of works outside the site; it will involve liaison with Town and City authorities and government departments and, in some cases, with private developers and property owners. CHIA will need to be integrated into local planning processes. CHIA of proposed works within the site has a narrower scope and, being "in house", is a more straight forward process.

The study should set out the basic procedures for carrying out CHIA and define the qualifications of those who can implement them.

EPI OBJECTIVE 5: Partnerships with the Lahore City Government and the tourism industry to achieve preservation goals

In addition to addressing the preservation needs within the World Heritage site, effective safeguarding will also depend on successfully addressing the issues of the external environment and setting of the site. Its future is integrally linked to issues of population growth, housing, traffic control and routing in adjacent city areas. Many of the problems facing the site are the result of a lack of commitment and coordination between various levels of government and different departments. At present, Shalamar Gardens is a lacuna in urban land use and zoning plans with no recognition of the need to use planning tools to protect it and to maximize its potential to generate cultural tourism related income.

Effective and sustainable preservation and management of the site environs can only be achieved by committed involvement of all levels of government, relevant agencies and the public.

Responsibility for bringing together all these stakeholders will lie with the Site Commission. Membership of this body will include representation from Lahore City, the Walled City and both Federal and Provincial governments. Together with the site custodians and Technical Committee, they must monitor plans and developments which may impact on the World Heritage site. As a body they should aggressively pursue environmental goals identified in the Master plan and also respond promptly to new developments and conditions.

The proposed upgrading and controlling of the surrounds of Shalamar Gardens will create a zone with higher land values and development potential. Development of this area for cultural tourism associated with the World Heritage site will inevitably result in opportunities for income generation within the local community. It will be necessary to lay down clear guidelines regarding what types of tourism and culture related development will be acceptable within the area around the site to ensure its protection and maintenance of a suitable buffer zone and setting.

Planning should begin now, while initiatives to upgrade the sites surroundings are at an early stage, regarding how the upgraded buffer zone area will be developed for tourism and preservation. An Integrated Urban Conservation Planning and Land Use Study is needed, a comprehensive strategic planning study of land use in areas adjacent to Shalamar Gardens to create cultural tourism and conservation zones. It will be the responsibility of the Site Commission to liaise with relevant government departments and policy makers to achieve these aims.

7.7.3 Physical Infrastructure (EPI) Objectives

EPI OBJECTIVE 6: Surface water drainage on the site and the damage to historic buildings

Storm water drainage is causing damage to historic fabric in a number of places around the site. This is due to inefficient drainage, leaking pipes and drains and rising damp resulting from water not draining away from structures.

A study is needed to identify remedial action to stop water damage to these problem areas and to design a more effective system of storm water collection and removal from the site. In particular, a study is needed on how to protect the Peripheral Wall from water seepage. The consultancy should also review the provision and storage of water on the site. The *Environmental Issues and their Impact on Shalamar Garden* study found that detailed as-built drawings of the water supply and distribution system are needed. The review should monitor leakage, assess the efficiency of the tube wells and the overhead tank and recommend ways to upgrade the overall system.

In the interim, it is recommended that stop gap measures be put in place to prevent the situation from deteriorating further and to mitigate damage being done to historic fabric. These measures are discussed and illustrated in Annexure 9.

EPI OBJECTIVE 7: Relocation and improvement of toilet facilities

Toilets are currently located in the nursery area, Aramgah and in the Shahi Hammam. All were found to be in poor condition. The specialist study recommends that as a priority the toilets should be removed from the historical buildings where they are doing severe damage. New facilities should be located at strategic locations shown in Fig. 7.12, in line with the proposals in the *Visitor Management Plan*:

(a) Upgraded facilties in the nursery area to the west of the site
(b) A new toilet block to the east of the site in the vicinity of the eastern gateway

New facilities could be augmented by the use of mobile serviced toilets. The numbers needed can then be adapted to visitation rates throughout the year. As a first step, there is an urgent need to check all the leaking pipes and replace them wherever necessary. However, in the long term it is important to block all toilets and water sources within the Shalamar Gardens and its historic structures.

EPI OBJECTIVE 8: Management of garbage and solid waste

A system of solid waste management is needed which efficiently and regularly removes material from the site and delivers it to storage and transfer facilities outside the site and its buffer zone. Annexure 9, *Environmental Issues and their Impact on Shalamar Garden,* proposes the following measures in some detail:

- ∞ No food should be allowed to be consumed inside the World Heritage site, with the exception of inside the Naqqar Khana Visitor Reception area
- ∞ More waste containers should be provided
- ∞ Sweepers should be provided with better equipment
- ∞ The skips should be relocated from the walls of the site and moved away from the immediate area

EPI OBJECTIVE 9: Upgrading of the electrical provisions at the site

The report makes recommendations to upgrade electrical facilities and distribution in various parts of the site. As a first stage priority, it is imperative that the Site Commission negotiate for all electrical units attached to historic fabric to be removed by the city authorities. Work should be carried out under the supervision of the site Conservation Architect and Technical Committee. Any reconstruction work on the walls after removal of the fixtures should be carried out by the Shalamar Gardens Maintenance Team and not by any other agency.

EPI OBJECTIVE 10: Enhancement of the site for evening use

A study is needed to design limited evening use of the gardens. It is recommended that sections of the site which are sufficiently robust be open to limited numbers of visitors during periods of full moon. Advance purchase of tickets can be used to control numbers. The study should look in particular at the issues of electrification and visitor safety. The study should take into consideration lessons learnt from night opening of the Taj Mahal Access at the Taj was limited to viewing the site from a distance from various platforms and viewing points; visitors felt that the rich potential for a Mughal experience was wasted. Night opening at the Taj Mahal has shown that such visitation at historical sites will not be successful unless an authentic and rich experience can be provided.

EPI OBJECTIVE 11: Improved standards of security at the site

In order to improve the overall situation at Shalamar Gardens it is recommended that the existing security system be revamped with an increased number of guards on site provided with communication and other upgraded equipment. As a first stage priority, a Core Capacity Training module should be written to educate security staff regarding which areas of the site are particularly fragile and must be kept strictly off limits to visitors, what forms of visitor behaviour can and cannot be tolerated and the general need to safeguard the historical elements of the site.

Safeguarding of the site can also be assisted by involving the young Virsa Volunteers. These students can be briefed, given caps and badges; they can provide information and guidance to visitors while monitoring unacceptable behaviour. They will have a rapport with young visitors that will allow them to convey information about heritage conservation in a way that regular guards cannot.

7.8 THE SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006 2012

The priority level, target date for completion and agents responsible for each objective have been identified in the tables below (Tables 7.9 -7.14). An assessment of what types of resources will be needed to achieve implementation is also included.

7.8.1 Key to the Action Plan Table:

Priority:

High	A key priority which underpins the overall Plan, in need of Immediate action
Medium	Critical recommendations which should be initiated/ implemented to prevent further erosion of the site's value
Lower	Implementation of proposals which will substantially reinforce safeguarding initiatives
Desirable	A long term plan for the safeguarding of the site

Target Date:

Ongoing	Started/starting and will continue
Immediate	To start and be completed as soon as possible
Short term	Within 1 year
Medium term	Within 3 years
Long term	Within 6 years

Key Agents:

C	Consultant
COC	Community and Youth Outreach Cell
DC	Documentation Centre
FOSB	Friends of Shalamar Gardens
MT	Project Management Team
MnT	Maintenance Team
MonT	Monitoring Team
PCI	Pakistan Conservation Institute
RC	Research Cell
SC	Site Commission
VV	Virsa Volunteers

Resources Needed:

T	Time input
S	Additional Devoted Staff

TABLE 7.9: SHALAMAR GARDENS OBJECTIVE - ACTION PLAN 2006-2011 SITE MANAGEMENT STRATEGY (SMS)																	
	Objective	**Priority**				**Period**				**Resources Needed**			**Key Agents**				
		High	Medium	Low	Desirable	Short Term	Medium Term	Long Term	On-going	Services	Funds (US$)	Funds (US$)/ year	City/Town Govt	Punjab Govt.	Federal Govt.	Unesco	Others
SMS 1	**Site Management**																
	Site Commission I/c all Stakeholders	⊗										10,000		⊗	⊗	⊗	
	Management Team Formation	⊗										35,000		⊗		⊗	
	Technical Committee Appointment	⊗										35,000		⊗		⊗	
	Cost Site Management											**80,000**					
SMS 2	**Diversified Funding Base**																
	Governement Sources (Enhanced)	⊗								T				⊗			SC
	World Heritage Site Fund (SB)			⊗						T	100,000						SC
	Environment Fund			⊗								20,000					
	Crafts Fund		⊗							T		40,000					SC
	Rsearch and Publication Fund		⊗							T		20,000					SC
	Cost Diversified Funding Base										**100,000**	**80,000**					
SMS 3	**Contributions in Kind**																
	Contributions in Kind		⊗							T							FOSQ
	Contributions in Kind																
SMS 4	**Master Plan Dissemination**																
	Distribution to All Concerned	⊗								T						⊗	
	Master Plan Dissemination																
SMS 5	**Training Building Crafts**																
	Setting up of Craft Center	⊗									40,000			⊗	⊗	⊗	
	Design & Implement Training Courses		⊗									30,000		⊗	⊗	⊗	PCI
	Cost Craft Center & Training										**40,000**	**30,000**					
SMS 6	**Core Competency Training**																
	Consultancy		⊗								20,000						C
	Implementation		⊗									40,000					C
	Cost Core Competency Training										**20,000**	**40,000**					
SMS 7	**SOP**																
	Design		⊗								20,000						C
	Implementation		⊗								30,000						C
	Cost SOP										**50,000**						

TABLE 7.9: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2005-2010 SITE MANAGEMENT STRATEGY																	
	Objective	**Priority**				**Period**				**Resources Needed**			**Key Agents**				
		High	Medium	Low	Desirable	Short Term	Medium Term	Long Term	On-going	Services	Funds (US$)	Funds (US$)/ year	City/Town Govt	Punjab Govt.	Federal Govt.	Unesco	Others
SMS 8	**Management Tools**																
	LFA		⊗							S		10,000				⊗	C
	Heritage Audit		⊗							S	30,000					⊗	C
	Risk Management			⊗							15,000					⊗	C
	GIS			⊗						S	20,000					⊗	C
	Cost Management Tools										**65,000**	**10,000**					
SMS 9	**International Collaboration**																
	International Collaboration															⊗	
	International Collaboration																
	Total										**275,000**	**240,000**					

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	TABLE 7.10: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011 MONITORING & MAINTENANCE SYSTEM																
	Objective	**Priority**				**Period**				**Resources Needed**			**Key Agents**				
		High	Medium	Low	Desirable	Short Term	Medium Term	Long Term	On-going	Services	Funds (US$)	Yearly (US$)	City/ Town Govt	Punj. Govt.	Fed. Govt.	Unesco	Others
MM1	**Monitoring System Implementation**																
	Monitoring System Implementation	⊗								S							MG, MonT
	Monitoring System Implementation																
MMI 2	**M&M of Mughal Planting Scheme**																
	Consultancy										15,000						
	M&M System Implementation	⊗								S							MG, MonT
	M&M Mughal Planting Scheme										**15,000**						
MMI 3	**M&M Water Display & Hydraulic System**																
	M&M Implementation Water Display & Hydraulic System	⊗								S							MG, MonT
	M&M Water Display & Hydraulic System																
MMI 4	**M&M Irrigation & Drainage**																
	Consultancy		⊗								15,000						C
	Implementation			⊗						S		30,000					MG, MonT
	M&M Irrigation & Drainage										**15,000**	**30,000**					
MMI 5	**Monitoring of Historic Buildings**	⊗															
	Implementation									S							
	Monitoring Historic Buildings																
MMI 6	**Monitoring Conservation Work**																
	Monitoring Conservation Work	⊗								S							
	Monitoring Conservation Work																
MMI 7	**Protection of Archeological Resources**																
	Consultancy	⊗									15,000						C
	Implementation	⊗									20,000						
	Protection of Archeological Resources										**35,000**						
MMI 8	**Cleaning Programme**																
	Women's Brigade		⊗							S	3,000	1,000				⊗	MG
	Experts Cleaning		⊗							S	6,000	3,000				⊗	MG
	Cost of Cleaning Programme										**9,000**	**4,000**					
MMI 9	**Technical Studies**																
	Technical Studies		⊗							S	10,000						C
	Cost of Technical Studies										**10,000**						
	Total										**84,000**	**34,000**					

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	TABLE 7.11: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011 CONSERVATION STRATEGY																
	Objective	**Priority**				**Period**				**Resources Needed**			**Key Agents**				
		High	Medium	Low	Desirable	Short Term	Medium Term	Long Term	On-going	Services	Funds (US$)	Yearly (US$)	City/ Town Govt	Punj. Govt.	Fed. Govt.	Unesco	Others
COS 1	**Guiding Principles of Garden Conservation**						*	*		S, T,C						⊗	
COS 2	**Conservation Priority Action**																
to	Emergency Works	⊗					*		*		103,000					⊗	SC, MG
COS 5	Stabilization Works	⊗					*		*		130,000					⊗	SC, MG
	Preventive Conservation/Maintenance		⊗				*		*		208,500						SC, MG
	Conservation		⊗				*	*	*		931,000						SC, MG
	Studies	⊗									124,000						SC, MG
	Cost Conservation Priority Action										**1,496,500**						
COS 6	**Procedure for Conservation Works**																
	Procedure for Conservation Works	⊗								S, T							DC, RC, MG
	Procedure for Conservation Works																
COS 7	**Detailed Documentation**																
	Documentation	⊗								S		10,000					
	Detailed Documentation											**10,000**					
COS 8	**Upgrading Conservation Laboratory-SB Component**																
	Consultancy		⊗								15,000					⊗	C
	Upgrading Programme		⊗							S	60,000						
	Conservation Laboratory										**75,000**						
COS 9	**Archaeological Repository Implement.**																
	Archaeological Repository Implement.			⊗						S	10,000						MG
	Cost Archaeol. Reposit. Implemnt.										**10,000**						
COS 10	**Conservation Library**																
	Conservation Library		⊗							S	30,000	20,000				⊗	
	Conservation Library										**30,000**	**20,000**					
COS 11	**Limits on use of Contractors**																
	Limits on use of Contractors				⊗					S, T							MG
	Limits on use of Contractors																
	Total										**1,611,500**	**30,000**					

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	TABLE 7.12: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011 RESEARCH FRAMEWORK																
	Objective	**Priority**				**Period**				**Resources Needed**			**Key Agents**				
		High	Medium	Low	Desirable	Short Term	Medium	Long Term	On-going	Services	Funds (US$)	Yearly (US$)	City/ Town Govt	Punj. Govt.	Fed. Govt.	Unesco	Others
REF 1	**Research Cell**																
	Setting up	⊗								S, T		10,000				⊗	
	Framework Finalized and Promulgated		⊗							S							RC
	Cost of Research Cell											**10,000**					
REF 2	**Publication Programme with Shahi Qila**																
	Programme Plan		⊗							S							RC
	First Publications			⊗						S		25,000					RC
	Cost of Publication Programme											**25,000**					
REF 3	**Archaeological Investigations**																
	Detailed Proposal		⊗							S	10,000						C
	Impementation and Reports		⊗							S	15,000						
	Cost of Archaeological Investigations										**25,000**						
REF 4	**Archival Acquisitions**																
	Archival Acquisitions			⊗						S	20,000	15,000				⊗	
	Cost of Archival Acquisitions										**20,000**	**15,000**					
REF 5	**Archival Storage and Inventory**																
	Archival storage and inventory		⊗							S	10,000	5000					DC, RC
	Cost of Archival Storage & Inventory										**10,000**	**5000**					
	Total										**55,000**	**55,000**					

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TABLE 7.13: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2016 VISITATION POLICY (contd)																	
	Objective	**Priority**				**Period**				**Resources Needed**			**Key Agents**				
		High	Med	Low	Desirable	Short Term	Med. Term	Long Term	On-going	Services	Funds (US$)	(US$)/ year	City/Town Govt	Punjab Govt.	Federal Govt.	Unesco	Others
VIP 1	**Sustainable Tourism**	⊗								S		10,000					
VIP 2	**Values and Visitation**															⊗	
	Consultancy		⊗								10,000						C
	Implementation		⊗								35,000						C,MG
	Values & Visitation										**45,000**	**10,000**					
VIP 3	**Protection of Site from negative Impact**															⊗	
	Implementation	⊗								S	20,000						
	Cost of Site Protection										**20,000**						
VIP 4	**Tourism Zoning**																
	Consultancy		⊗								5000						
	Implementation		⊗								20,000						
	Cost of Tourism Zoning										**25,000**						
VIP 5	**Site Interpretation**															⊗	
	Consultancy	⊗			HIgh						10,000						C
	Interim Signage	⊗			HIgh					S, T	15,000						MG
	Design Competition		⊗		Medium					T	6,000						
	Implementation		⊗		Medium					S, T	25,000						MG
	Interpretative Gallery			⊗	Low					S	60,000						C, MG
	Cost of Site Interpretation										**116,000**						
VIP 6	**Visitor Access/Restricted Access**																
	Consultancy	⊗			High						6,000					⊗	
	Closure of fragile areas	⊗			High					S	5,000			⊗			MG
	Measuring Tourism Impact	⊗			High						10,000						
	Cost of Archival Storage & Inventory										**21,000**						
VIP 7	**Visitor Facilities**																
	Development of Visitor Centers	⊗			High					S	100000			⊗			SC, MG
	Consultancy				High						10,000						C
	Cafeteria, Souvenir, Crafts etc.				Medium						30,000						C
	Cost of Visitor Facilties										**140,000**						

TABLE 7.13: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2016 VISITATION POLICY																	
	Objective	**Priority**				**Period**				**Resources Needed**			**Key Agents**				
VIP 8	**Events Management**																
	Policy Formulation				High					S	10,000						MG, C
	Policy Implementation				Medium					S, T				⊗			MG
	Events Management										**10,000**						
VIP 9	**Adaptive Reuse Guidelines**																
	Adaptive Reuse				Medium					S	10,000						MG, CT, C
	Adaptive Reuse Guidelines										**10,000**						
VIP 10	**Museums**																
	Museums Action Group Formation		⊗		Medium					S	10,000						C, MG
	Implementation			⊗	Low					S	50,000	10,000					MG
	Cost of Museum										**50,000**	10,000					
VIP 11	**Community/ Stakeholder Involvement**																
	Community & Youth Outreach				High					S		10,000					COC, VV
	Cost of Community/ Stakeholder Involvement											**10,000**					
VIP 12	**Integration with Adjacent Gardens**			⊗													
	Consultancy		⊗		Medium						10,000		⊗	⊗			SC
	Implementation/ Interpertive Program			⊗	Medium					S, T	20,000		⊗	⊗			
	Cost of Integration with Adjacent Gardens										**30,000**	**20,000**					
	Total										**467,000**	**50,000**					

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TABLE 7.14: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011 ENVIRONMENT AND PHYSICAL INFRASTRUCTURE																	
	Objective	**Priority**				**Period**			**Resources Needed**				**Key Agents**				
		High	Med	Low	Desirable	Short Term	Med. Term	Long Term	On-going	Services	Funds (US$)	Funds (US$)/ year	City/Town Govt	Punjab Govt.	Federal Govt.	Unesco	Others
EPI 1	**Revitilazation & Protection of the Environs**																
	Plantation		⊗							S			⊗				SC
	Removal of Encroachments	⊗								S, T			⊗	⊗			MG
	Regular Cleaning	⊗								S		10,000	⊗				MG
	Removal of Electric Lines	⊗											⊗				
	Consultancy	⊗														⊗	
	Revitilazation & Protection of the Environs											**10,000**					
EPI 2	**Entrance Location and Car Parking**																
	Entrance and Car Parking		⊗							S, T				⊗			SC
	Entrance and Car Parking																
EPI 3	**Traffic and Pedestrianization**																
	Phase 1	⊗								S, T				⊗			
	Phase 2		⊗							S, T				⊗			
	Phase 3				⊗					S, T				⊗			C
	Consultancy	⊗								S, T	30,000			⊗			C
	Traffic and Pedestrianization										**30,000**						
EPI 4	**CHIA**																
	Consultancy			⊗							30,000						C
	Legal Enforcement Structure				⊗									⊗			
	Cultural Heritage Impact Assessment										**30,000**						
EPI 5	**Partnership with City and Town Govt.**																
	Partnership with City and Town Govt.		⊗							T							SC
	Partnership with City and Town Govt.																
EPI 6	**Drainage**																
	Interim Plan Implementation		⊗							S	30,000						MG, MonT
	Consultancy		⊗								20,000						C
	Implementation		⊗							S, T	100,000						MG, MonT
	Cost of Drainage										**150,000**						
EPI 7	**Toilet Facilities**																
	Removal of toilets from within Site		⊗							S	1,000						MG
	Installation of new toilets		⊗							S	30,000						MG
	Cost of Toilet Facilities										**31,000**						

TABLE 7.14: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011 ENVIRONMENT AND PHYSICAL INFRASTRUCTURE																	
	Objective	**Priority**				**Period**			**Resources Needed**				**Key Agents**				
		High	Med	Low	Desirable	Short Term	Med. Term	Long Term	On-going	Services	Funds (US$)	Funds (US$)/ year	City/Town Govt	Punjab Govt.	Federal Govt.	Unesco	Others
EPI 8	**Garbage and Solid Waste**																
	Public Education Initiative	⊗								S		5,000					COC, VV
	implementation Proposals		⊗							S	20,000		⊗	⊗			
	Cost of Garbage & Solid Waste										**20,000**						
EPI 9	**Electrical Services**																
	Removal of offending installations		⊗							S	5,000			⊗			MG
	General upgrading			⊗						S	100,000			⊗			MG
	Cost of Electric Services										**105,000**						
EPI 10	**Night Illumination**																
	Consultancy for Illumination Plan		⊗							S	20,000						C
	Installation of illumination equipment		⊗							S	100,000						MG, C
	Open for evening		⊗							S				⊗			
	Cost of Illumination										**120,000**						
EPI 11	**Security**																
	Training modules for guards/volunteers	⊗										S					MG
	Specialist proposal			⊗			*				20,000	S					C
	Implementation			⊗				*			75,000	S					C, MG
	Cost of Security										**95,000**						
	Total										**581,000**	**15,000**					

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7.9 ACTION PRIORITY LIST

The priorities for implementation of the recommended action objectives at Shalamar Gardens are set out in the Action Priority List, in Table 7.15 The Action Priority List has been prepared after careful evaluation of garden plantation, built elements including hydraulics, buildings and structures, including the Condition Surveys. It has identified some elements that are at risk of failure unless immediate action is taken, while others are basically stable and only in need of long term conservation.

The list divides work into three levels of priority:

- Priority 1 actions including all emergency and stabilization works;
- Priority 2 including preventative conservation action;
- Priority 3 including ongoing conservation needs.

All decisions regarding preservation and conservation at the World Heritage site should be made on the basis of this Priority List. This will ensure that when funding is available it will be spent effectively and will contribute to the overall and long term safeguarding of the site.

TABLE 7.15: SHALAMAR GARDENS CONSERVATION PRIORITY LIST & RELATED COSTS (contd)

	Name of Structrure/Element	Period		Emerg-ency		Stabilizat-ion		Preventive Conservat-ion		Conservat-ion		Studies		TOTAL	TOTAL
		Orig.	Interv-entions	Cost US$		Cost US$		Cost US$		Cost US$		Cost US$		Cost US$	Cost PRps
1	**FIRST TERRACE**														
Perimeter Wall															
S.11/18	south perimeter wall	SJ	S/B	*	2500			*	5,500	*	7,000			15,000	885,000
S.12/13	west perimeter wall			*	5000	*	25,000		9,000		18,000	*	6000	63,000	3,717,000
S.14/15	northedge retaining wall			*	4000	*	7,000		11,000		13,000			35,000	2,065,000
S.16/17	east perimeter wall				2000		3,000		5,000		5,000	*	5000	20,000	1,180,000
Burj															
1S.21	SW Burj	SJ		*	2000			*	4,000	*	5,000			11,000	649,000
1S.22	NW Burj	SJ		*	3000	*	3,000	*	4,000	*	6,000	*	4000	20,000	1,180,000
1S.23	NE Burj	SJ		*	4000	*	4,000	*	5,000	*	7,000			20,000	1,180,000
1S.24	SE Burj	SJ		*	2000	*	2,000	*	3,000	*	3,000			10,000	590,000
Buildings															
1S.31	South Khwabgah	SJ	B/P						2,000	*	5,000			7,000	413,000
1S.32	Mughal Chambers 1	SJ		*	2000	*	3,000	*	3,000	*	7,000	*	1500	16,500	973,500
1S.33	Begum Ki Khwabgah	SJ	Pak							*	6,000			6,000	354,000
1S.34	Mughal Chamber 2	SJ		*	2000	*	3,000	*	3,000	*	9,000	*	1500	18,500	1,091,500
1S.35	North Baradari (Aiwan)	SJ	S/B/P					*	4,000	*	8,000			12,000	708,000
1S.36	East Gateway	SJ	S/B/P	*	2500		2,000	*	2,000	*	3,000			9,500	560,500
1S.37	East Baradari	SJ	S/B/P					*	3,000	*	5,000			8,000	472,000
1S.38	Moorcroft Building	Sikh	S/B/P	*	5000	*	7,000	*	8,000	*	28,000	*	3000	51,000	3,009,000
	SUB-TOTAL-FIRST TERRACE			*	**36000**	*	**59,000**		**71,500**	*	**135,000**	*	**21000**	**322,500**	**19,027,500**

TABLE 7.15: SHALAMAR GARDENS CONSERVATION PRIORITY LIST & RELATED COSTS

	Name of Structrure/Element	Period		Emerg-ency		Stabilizat-ion		Preventive Conservat-ion		Conservat-ion		Studies		TOTAL	TOTAL
		Orig.	Interv-entions		Cost US$		Cost US$		Cost US$		Cost US$		Cost US$	Cost US$	Cost PRps
2	**SECOND TERRACE**														
Perimeter Wall															
2S.11	West Perimeter Wall	SJ		*	10000	*	14,000	*	8,000	*	10,000			42,000	2,478,000
2S.12	East Perimeter Wall	SJ		*	12000	*	6,000	*	6,000	*	8,000			32,000	1,888,000
2S.13	South Wall	SJ		*	6000	*	8,000	*	6,000	*	12,000	*	6000	38,000	2,242,000
Buildings															
2S.31	West Baradari	SJ		*	1000	*	1,000	*	1,000	*	1,000			4,000	236,000
2S.32	North Pavilion 1	SJ		*	2000	*	2,000	*	5,000	*	6,000			15,000	885,000
2S.33	North Pavilion 2	SJ		*	2000	*	3,000	*	6,000	*	6,000	*	2000	19,000	1,121,000
2S.34	East Baradari	SJ													
2S.35	Shahi Hammam	SJ			5000	*	5,000	*	8,000	*	16,000	*	10,000	44,000	2,596,000
	SUB-TOTAL-SECOND TERRACE				**38000**	*	**39,000**	*	**40,000**	*	**59,000**	*	**18,000**	**194,000**	**11,446,000**
3	**THIRD TERRACE**														
Perimeter Wall															
3S.11/18	South Wall	SJ						*	6,000		11,000	*	5000	22,000	1,298,000
3S.12/13	West Perimeter Wall	SJ						*	10,000		18,000			28,000	1,652,000
3S.14/15	North Perimeter Wall	SJ	k	*	6000	*	6,000	*	12,000		16,000	*	6000	46,000	2,714,000
3S.16/17	East Perimeter Wall	SJ	k	*	11000	*	12,000	*	16,000		22,000	*	4000	65,000	3,835,000
Burj															
3S.21	NW Turret (Burj)	SJ	k	*	3000	*	3,000	*	4,000		5,000	*		15,000	885,000
3S.22	NE Turret (Burj)	SJ	k	*	3000	*	3,000	*	4,000		5,000	*		15,000	885,000

TABLE 7.15: SHALAMAR GARDENS CONSERVATION PRIORITY LIST & RELATED COSTS (contd)

	Name of Structrure/Element	Period		Emerg-ency		Stabilizat-ion		Preventive Conservat-ion		Conservat-ion		Studies		TOTAL	TOTAL
		Orig.	Interv-entions		Cost US$		Cost US$		Cost US$		Cost US$		Cost US$	Cost US$	Cost PRps
Buildings															
3S.31	Chini Khana	SJ		*	3000		3,000	*	6,000		8,000			20,000	1,180,000
3S.32	Western Gateway	SJ		*	3000		2,000	*	9,000	*	16,000	*	5000	35,000	2,065,000
3S.33	North Baradari	SJ									5,000			5,000	295,000
3S.34	Eastern Gateway	SJ		*			3,000	*	10,000	*	15,000	*	5000	33,000	1,947,000
	Cost of Third Terrace				**29,000**	*	**32,000**	*	**77,000**	*	**121,000**	*	**25,000**	**284,000**	**16,756,000**
Gardens												*	35,000	35,000	2,065,000
	First Terrace				ongoing						160,000			160,000	9,440,000
	Second Terrace				ongoing						66,000			66,000	3,894,000
	Third Terrace				ongoing						160,000			160,000	9,440,000
	Cost of Gardens & Horticulture										**386,000**		**35,000**	**421,000**	**24,839,000**
Hydraulic Works												*	15,000	15,000	885,000
											158,000			158,000	9,322,000
	Cost of Hydraulic Works										**158,000**		**15,000**	**173,000**	**10,207,000**
Naqqarkhana															
4S.11	South Perimeter Wall										12,000			12,000	708,000
4S.12	North Perimeter Wall										ongoing				
4S.13	North Perimeter Wall										ongoing				
4S.14	East Perimeter Wall										ongoing				
4S.15	East Perimeter Wall										ongoing				
4S.16	South Perimeter Wall										10,000			10,000	590,000
4S.31	West Chambers										Ongoing				
4S.32	North Gate										Ongoing				

TABLE 7.15: SHALAMAR GARDENS CONSERVATION PRIORITY LIST & RELATED COSTS

	Name of Structrure/Element	Period		Emerg-ency	Stabilizat-ion	Preventive Conservat-ion	Conservat-ion	Studies	TOTAL	TOTAL
		Orig.	Interv-entions	Cost US$	Cost US$	Cost US$	Cost US$	Cost US$	Cost US$	Cost PRps
4S.33	Bangladar Pavilion					* 4,000	10,000		14,000	826,000
4S.34	South Gate					* 4,000	8,000		12,000	708,000
	Cost of Naqqarkhana					* **8,000**	**40,000**	*	**48,000**	**2,832,000**
External Elements						12,000	32,000	* 10000	54,000	3,186,000
5S.31	BaraHatta	SJ	Brit/Pak							
5S.32	Mughal well	SJ	Brit/Pak							
5S.33	East Well	SJ	Brit/Pak							
5S.34	South Water Tanks	SJ	Pak							
5S.35	Well outside South perimeter wall	SJ	Pak							
5S.36	Well under tree South perimeter wal	SJ ?	Pak							
5S.21	Burj-Inayat Bagh- NW	SJ ?	Pak							
5S.22	Burj-Inayat Bagh-NE	SJ ?	Pak							
5S.23	Burj-Inayat Bagh-W	SJ ?	Pak							
5C.1	Fountain- outside South Perimeter V	SJ	Pak							
	Cost of External Elements			*	*	* **12,000**	**32,000**	* **10,000**	**54,000**	**3,186,000**
	Cost of Termite Eradication for Complete Site								**45,000**	**2,655,000**
	TOTAL COST OF CONSERVATION			* **103,000**	* **130,000**	* **208,500**	**931,000**	* **124,000**	**1,541,500**	**86,324,000**

* This is indicative cost, based on approximate calculations assuming that the work is undertaken in-house to include cost of material and workforce.

TABLE 7.16: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011 SITE MANAGEMENT STRATEGY (SMS) YEAR WISE TARGETS (US $)

	Objective	2006			2007			2008			2009			2010			2011		
		High	Medium	Low	High	Med	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
SMS 1	**Site Management**																		
	Site Commission I/c all Stakeholders	10,000			10,000			10,000			10,000			10,000			10,000		
	Management Team Formation	35,000			35,000			35,000			35,000			35,000			35,000		
	Technical Committee Appointment	35,000			35,000			35,000			35,000			35,000			35,000		
	Cost Site Management																		
SMS 2	**Diversified Funding Base**																		
	Governement Sources (Enhanced)																		
	World Heritage Site Fund (SB)						100,000						T						
	Environment Fund						20,000												
	Crafts Fund		40,000					40,000											
	Rsearch and Publication Fund					20,000													
	Cost Diversified Funding Base																		
SMS 3	**Contributions in Kind**																		
	Contributions in Kind					T													
	Contributions in Kind																		
SMS 4	**Master Plan Dissemination**																		
	Distribution to All Concerned	T																	
	Master Plan Dissemination																		
SMS 5	**Training Building Crafts**																		
	Setting up of Craft Center		40,000	5,000			5000												
	Design & Implement Training Courses			30,000			30,000			30,000						30,000			30,000
	Cost Craft Center & Training																		
SMS 6	**Core Competency Training**																		
	Consultancy		20,000																
	Implementation		40,000			40,000			40,000			40,000			40,000			40,000	
	Cost Core Competency Training																		
SMS 7	**SOP**																		
	Design		20,000																
	Implementation					30,000													
	Cost SOP																		
SMS 8	**Management Tools**																		
	LFA			10,000			10,000			10,000			10,000			10,000			10,000
	Heritage Audit					30,000									30,000				
	Risk Management		15,000																
	GIS		20,000																
	Cost Management Tools																		
SMS 9	**International Collaboration**																		
	International Collaboration	T																	
	International Collaboration																		
TOTAL	**2006**		**320000**																
	2007					**365000**													
	2008								**200,000**										
	2009											**130000**							
	2010														**190000**				
	2011																	**160000**	

TABLE 7.17 : SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011 MONITORING & MAINTENANCE SYSTEM-YEAR WISE TARGETS (US $)																				
	Objective	2006			2007			2008			2009			2010			2011		
		High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
MM1 1	**Monitoring System Implementation**																		
	Monitoring System Implementation																		
MMI 2	**M&M of Mughal Planting Scheme**																		
	Consultancy		15,000																
	M&M System Implementation																		
MMI 3	**M&M Water Display & Hydraulic System**																		
	M&M Implementation Water Display & Hydraulic System																		
MMI 4	**M&M Irrigation & Drainage**																		
	Consultancy		15,000																
	Implementation				30,000			30,000			30,000			30,000			30,000		
MMI 5	**Monitoring of Historic Buildings**																		
	Implementation																		
MMI 6	**Monitoring Conservation Work**																		
	Monitoring Conservation Work																		
MMI 7	**Protection of Archeological Resources**																		
	Consultancy					15,000													
	Implementation								20,000										
MMI 8	**Cleaning Programme**																		
	Women's Brigade	3,000			1,000			1,000			1,000			1,000			1,000		
	Experts Cleaning	6,000			3,000			3,000			3,000			3,000			3,000		
MMI 9	**Technical Studies**																		
	Technical Studies									10,000									
TOTAL	**2006**			**39,000**															
	2007						**49,000**												
	2008									**64,000**									
	2009												**34,000**						
	2010															**34,000**			
	2011																		**34,000**

TABLE 7.18: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011-CONSERVATION STRATEGY -YEAR WISE TARGETS (US $)																				
	Objective	2006			2007			2008			2009			2010			2011		
		High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
COS 1	**Guiding Principles of Garden Conservation**																		
COS 2	**Conservation Priority Action**																		
to	Emergency Works	32,000			71,000														
COS 5	Stabilization Works	40,000			41,000			20,000			15,000			15,000					
	Preventive Conservation/Maintenance		43,000		65,000			45,000			35000			20000					
	Conservation		76,000			165000			175000			170000			175000				170000
	Studies	88,000			33000			3000											
COS 6	**Procedure for Conservation Works**																		
	Procedure for Conservation Works																		
COS 7	**Detailed Documentation**																		
	Documentation		10,000			10,000			10,000			10,000			10,000			10,000	
COS 8	**Upgrading Conservation Laboratory-SB Component**																		
	Consultancy					15,000													
	Upgrading Programme								30,000			30,000							
COS 9	**Archaeological Repository Implement.**																		
	Archaeological Repository Implement.								10,000										
COS 10	**Conservation Library**																		
	Conservation Library		10,000	20000		20000	20000			20000			20000			20000			20000
COS 11	**Limits on use of Contractors**																		
	Limits on use of Contractors																		
TOTAL	**2006**		**319000**																
	2007						**440,000**												
	2008									**313,000**									
	2009												**280,000**						
	2010														**240000**				
	2011																	**200000**	

TABLE 7.19 : SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011-RESEARCH FRAMEWORK -YEAR WISE TARGETS (US $)

	Objective	2006			2007			2008			2009			2010			2011		
		High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
REF 1	**Research Cell**																		
	Setting up		10,000			10,000			10,000			10,000			10,000			10,000	
	Framework Finalized and Promulgated																		
REF 2	**Publication Programme**																		
	Programme Plan																		
	First Publications		25,000						25,000			25,000			25,000			25,000	
REF 3	**Archaeological Investigations**																		
	Detailed Proposal					10,000													
	Impementation and Reports								15,000										
REF 4	**Archival Acquisitions**																		
	Archival Acquisitions		20,000			15,000			15,000			15,000			15,000			15,000	
REF 5	**Archival Storage and Inventory**																		
	Archival storage and inventory					10,000			5000			5000			5000			5000	
TOTAL	**2006**			**55,000**															
	2007						**45,000**												
	2008									**70,000**									
	2009												**55,000**						
	2010															**55,000**			
	2011																		**55,000**

TABLE 7.20: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011-VISITATION POLICY YEAR WISE TARGETS (US $) (contd)

	Objective	2006			2007			2008			2009			2010			2011		
		High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
VIP 1	**Sustainable Tourism**		10,000			10,000			10,000			10,000			10,000			10,000	
VIP 2	**Values and Visitation**																		
	Consultancy					10,000													
	Implementation								35,000										
VIP 3	**Protection of Site from negative Impact**																		
	Implementation								20,000										
VIP 4	**Tourism Zoning**																		
	Consultancy					5000													
	Implementation								20,000										
VIP 5	**Site Interpretation**																		
	Consultancy		10,000																
	Interim Signage					15,000													
	Design Competition					6,000													
	Implementation								25,000										
	Interpretative Gallery											60,000							
VIP 6	**Visitor Access/Restricted Access**																		
	Consultancy	6,000																	
	Closure of fragile areas				5,000														
	Measuring Tourism Impact							10,000											
VIP 7	**Visitor Facilities**																		
	Development Visitor Centers					100000													
	Consultancy	10,000																	
	Cafeteria, Souvenir, Crafts etc.								30,000										
VIP 8	**Events Management**																		
	Policy Formulation	10,000																	
	Policy Implementation																		

TABLE 7.20: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011-VISITATION POLICY YEAR WISE TARGETS (US $)																				
Objective		2006			2007			2008			2009			2010			2011			
		High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	
VIP 9	**Adaptive Reuse Guidelines**																			
	Adaptive Reuse		10,000																	
VIP 10	**Museums**																			
	Museums Action Group Formation					10,000														
	Implementation									50,000			10000			10,000				10,000
VIP 11	**Community/ Stakeholder Involvement**																			
	Community & Youth Outreach	10,000			10,000			10,000			10,000			10,000			10,000			
VIP 12	**Integration with Adjacent Gardens**																			
	Consultancy								10,000											
	Implementation/ Interpertive Program								20,000											
TOTAL	**2006**			**66,000**																
	2007						**171,000**													
	2008									**240,000**										
	2009												**90,000**							
	2010															**30,000**				
	2011																			**30,000**

TABLE 7·21: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011-ENVIRONMENT AND PHYSICAL INFRASTRUCTURE YEAR WISE TARGETS (US $) (contd)																				
	Objective	2006			2007			2008			2009			2010			2011		
		High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
EPI 1	**Revitilazation & Protection of the Environs**																		
	Plantation																		
	Removal of Encroachments																		
	Regular Cleaning	10000			10000			10000			10000			10000			10000		
	Removal of Electric Lines																		
	Consultancy																		
EPI 2	**Entrance Location and Car Parking**																		
	Entrance and Car Parking																		
EPI 3	**Traffic and Pedestrianization**																		
	Phase 1																		
	Phase 2																		
	Phase 3												S.T.						
	Consultancy	30,000																	
EPI 4	**CHIA**																		
	Consultancy									30,000									
	Legal Enforcement Structure																		
EPI 5	**Partnership with City and Town Govt.**																		
	Partnership with City and Town Govt.																		
EPI 6	**Drainage**																		
	Interim Plan Implementation				30,000														
	Consultancy	20,000																	
	Implementation							100,000											
EPI 7	**Toilet Facilities**																		
	Removal of toilets from within Site					1,000													
	Installation of new toilets					30,000													
EPI 8	**Garbage and Solid Waste**																		
	Public Education Initiative	5,000			5,000			5,000			5,000			5,000			5,000		
	implementation Proposals					20,000													

TABLE 7·21: SHALAMAR GARDENS OBJECTIVES - ACTION PLAN 2006-2011-ENVIRONMENT AND PHYSICAL INFRASTRUCTURE YEAR WISE TARGETS (US $)																				
	Objective	**2006**			**2007**			**2008**			**2009**			**2010**			**2011**		
		High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
EPI 9	**Electrical Services**																		
	Removal of offending installations				5,000														
	General upgrading					50,000			50,000										
EPI 10	**Night Illumination**																		
	Consultancy for Illumination Plan					20,000													
	Installation of illumination equipment					50,000			50,000										
	Open for evening																		
EPI 11	**Security**																		
	Training modules for guards & volunteers																		
	Specialist proposal								20,000										
	Implementation											75,000							
TOTAL	**2006**			**65,000**															
	2007						**221,000**												
	2008									**265,000**									
	2009												**90,000**						
	2010															**15,000**			
	2011																		**15,000**

Table 7.22 Yearwise Targets and Costs for All Components (US $)

S.N	Action	Year 2006	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Sub-Total	Ref Table
1	Site Management Strategy	320000	365000	200000	130000	190000	160000	1365000	7.16
2	M& Monitoring Objectives	39000	49000	64000	34000	34000	34000	254000	7.17
3	Conservation Strategy	319000	440000	313000	280000	240000	200000	1792000	7.18
4	Research Framework	55000	45000	70000	55000	55000	55000	335000	7.19
5	Visitation Policy	66000	171000	240000	90000	30000	30000	627000	7.20
6	Environment & Physical Infrastructure	65000	221000	265000	90000	15000	15000	671000	7.21
7	***Total***							***5044000***	
8	*Add Contingencies @ 15%*							*756600*	
9	***Grand Total***							***5800600***	

7.10 RECOMMENDATIONS FOR FURTHER SPECIALIST STUDIES

The following is a list of all the specialist studies and projects which are recommended above for effective implementation of the Master Plan. Some are studies which can be undertaken internally as part of the on-going preservation programme by the management and staff of Shalamar Gardens and/or appointed consultants:

- ∞ Risk Assessment and Management Plan: to identify potential risks to the World Heritage Site and design a programme of detailed preventative and mitigative action [with Consultant];
- ∞ Core Competency Training Plan: to work with site management and staff to define all tasks and design basic training needs [with Consultant];
- ∞ GIS Study: to identify the technical needs of the site and design a methodology and training for use at Shalamar Gardens and its environs [with Consultant]
- ∞ Repository Plan: to undertake a systematic search of the site for material in need of curation; design a computerized inventory system to document all material for easy access; and to identify a location for a centralized storage facility;
- ∞ Monitoring Checklists: to design building specific checklists for the monitoring and assessment of condition and maintenance and conservation needs [with Consultant];
- ∞ Archaeological Monitoring Programme: to design a methodology for monitoring all excavation works on site to ensure retrieval of archaeological finds and data while protecting monuments and deposits [with Consultant];
- ∞ Soil and Drainage Study: to examine soils as a geomorphological and geotechnical medium but also to analyse it from a horticultural perspective. [with Consultant];
- ∞ Proposal for Archaeological Research and Investigations: to retrieve information concerning Mughal use and design of open spaces and the historical hydraulic system and to design a system for archaeological monitoring of works on site [with Consultant];
- ∞ Design of a Research Framework: to identify gaps in knowledge and areas for priority research, and to promulgate interest in the academic community;
- ∞ Publication Programme: to set an agenda for future publication and production of all forms of printed and digital material;
- ∞ Drainage Study: detailed survey and study of the drainage of historical structures and the site and the conservation issues which result [with Consultant];
- ∞ Mughal Plantation Study: detailed botanical design for replanting the site in keeping with Mughal historical documentation, pictorial and scientific sources [with Consultant]
- ∞ Site Interpretation Study: to develop an integrated interpretation policy for presenting Shalamar Gardens to visitors. The consultancy should produce an overall policy, themes to be presented and plans for implementation [with Consultant];

- ∞ Study into Night time opening of the Site: to set guidelines for limited use by visitors on full moon nights only.
- ∞ Historical Site Use Guidelines Preparation: to lay down guidelines and rules for the use of all parts of Shalamar Gardens for public events in order to ensure safeguarding of the site;
- ∞ Garden City Link Study: to design a linkage route, recommend a methodology for implementation and negotiate plans with all stakeholders [with Consultant].

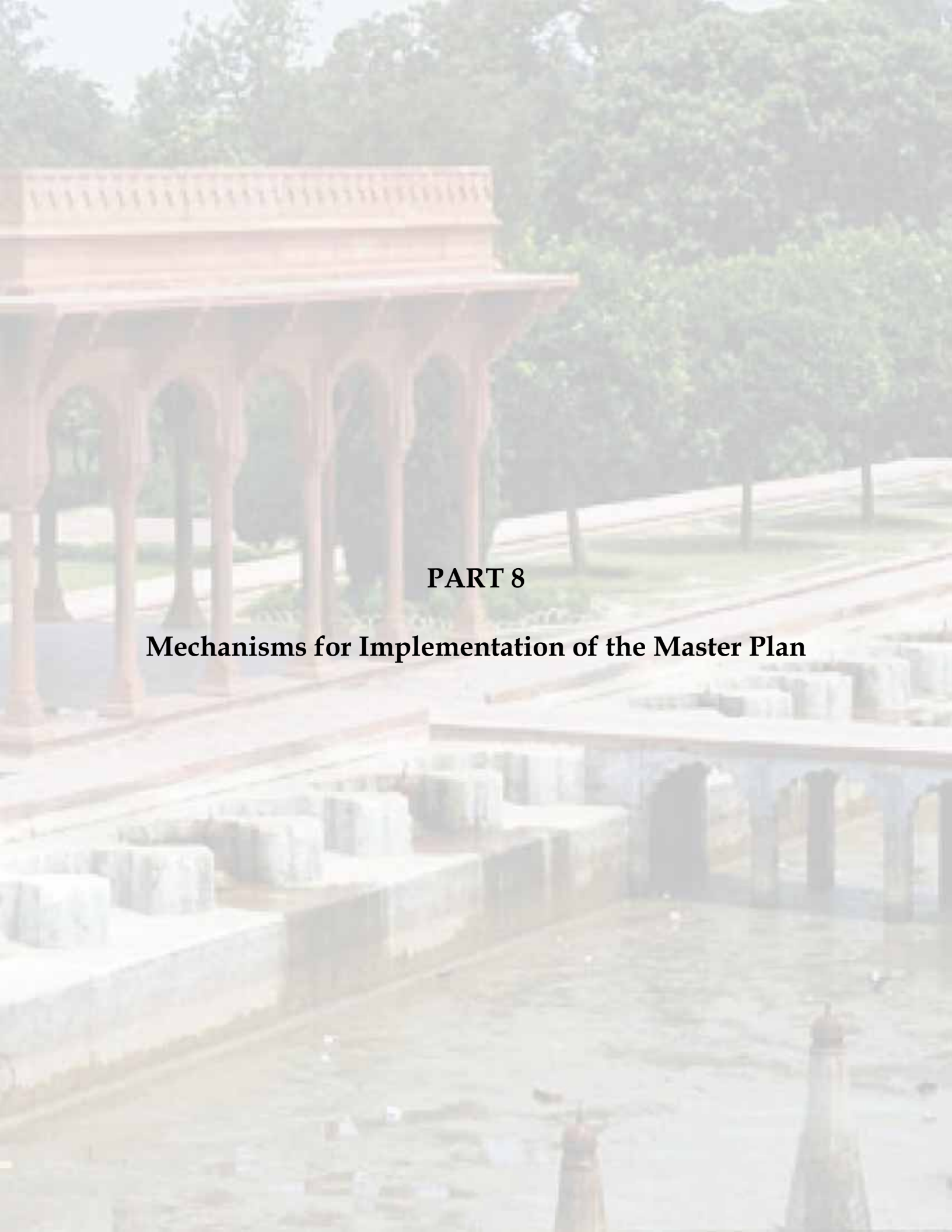
Other studies will need to be carried out by external agencies:

- ∞ Traffic Planning and Management Study: assessment and redesign of the management of traffic into and around the site to ameliorate the environmental impacts on Shalamar Gardens;
- ∞ Integrated Urban Conservation Planning and Land Use Study: a comprehensive strategic planning study of land use in the adjacent areas of the city to create cultural tourism and conservation zones;
- ∞ Cultural Heritage Impact Assessment Study: to define how CHIA can be implemented for assessment of works outside the site, involving liaison with City authorities and departments and integration into local planning processes; and for proposed works within the site.
- ∞ Protective Zoning Study: design and implementation of protective zones and integration into existing and projected urban plans and zoning regulations.

7.11 SHARING PROGRESS WITH THE PUBLIC

As a World Heritage Site, Shalamar Gardens is the property of the community of Lahore, Pakistan and the world and every visitor therefore has a stake in its preservation. When projects are carried out at the site the public should be kept informed as to the nature of the work and the reasoning behind it. This can be achieved by a variety of means:

- ∞ Printing of a regular newsletter to be distributed to visitors, updating them on what is happening at the World Heritage site;
- ∞ Notice boards at the entrance to the site describing what work is taking place, upcoming events, what is on view etc.;
- ∞ Information panels wherever work is taking place giving background information, plans and up-to-date progress reports.
- ∞ Conservation, craft activities or archaeology "in action" provide the public with a fascinating insight into the preservation process and enliven the visitor experience.



PART 8

Mechanisms for Implementation of the Master Plan

PART 8

MECHANISMS FOR IMPLEMENTATION OF THE MASTER PLAN

8.1 IMPLEMENTATION OF THE MASTER PLAN

8.1.1 Goals

This section of the Master Plan pulls together all the recommendations for action from the various plans and discusses ways in which they can be effectively implemented. During the implementation process, a plan often requires reallocation of existing resources of time, money and human resources. One of the first activities, therefore, is to develop a system that can actually carry out the intended work. Just because there is a plan and there are staff and advisory committees available, it does not mean that the two are effectively aligned to do the job. New duties might have to be assigned to staff, a new advisory committee might have to be created or possibly a sub-committee may have to be struck. It is very important to have a clear understanding of how the work will be done and who will do what before any work is attempted.

The goal of implementation is to progress on all the long term objectives set out for Shalamar Gardens. These can be summarized as:

- ∞ Achieve highest standard conservation and presentation to preserve the significance of the site;
- ∞ Work towards holistic and effective management;
- ∞ Seek adequate funding for long term financial stability;
- ∞ Ensure systematic and proactive monitoring and maintenance of the site;
- ∞ Implement a comprehensive access policy to a wide range of people;
- ∞ Enhance the quality of visitor experience through sustainable visitation;
- ∞ Continue building strong relations with the local community.

However, given the realities of staffing and funding, it is clear that movement towards this goal can best be achieved by focusing on those key strategic shorter term objectives highlighted above.

8.1.2 Term of the Master Plan

ICOMOS recommends that planning for management of World Heritage Sites be based on a minimum period of 5 years, at the end of which a review is required. This Master Plan is designed to achieve its basic vision over a period of 6 years. The first 3 year period, or Phase I will be devoted to stabilization, emergency

conservation work and ensuring that all forms of deterioration are arrested. Phase II will focus on implementation of programmes with less urgency but still fundamental to effective management and conservation at Shalamar Gardens. Long term action extending beyond the 6 year term is categorized as Phase III.

The schematic timetables of various components of the Action Plan are set out in the Shalamar Gardens Objectives - Action Plan Table 7. 9 - 14.

Conservation and maintenance of the World Heritage site will be a continuous and ongoing process, dependent on funding, and cannot adhere strictly to an imposed schedule. The Master Plan has set out priorities for conservation work and has highlighted buildings and elements in need of emergency conservation action. As funding becomes available, decisions as to how to use it most effectively should be based on these priorities.

8.1.3 Responsible Agents for implementation

The key agencies and partners involved in delivery of the Master Plan are listed in Section 1.5; however, effective implementation will require the involvement of many. It will be the overall responsibility of the World Heritage Site Commission, with membership representing all government, institutional and community stakeholders, to ensure that actions recommended in the Plan are carried out following the priorities and guidelines in the Plan. They will be advised by the Technical Committee who will also advise and consult with the Project Management Team who will function as the executive arm. As a World Heritage Site, UNESCO and the World Heritage Centre play an important advisory and training role and provide links with international expertise and potential funding sources.

Efforts must be made to ensure endorsement and adoption of the Master Plan at the highest levels required to ensure its successful implementation. The most important goal is to provide legal cover to the document so that it is binding on

The reconstructed red sandstone Pavillion

The Upper Terrace fountains with the Aramgah in the distance

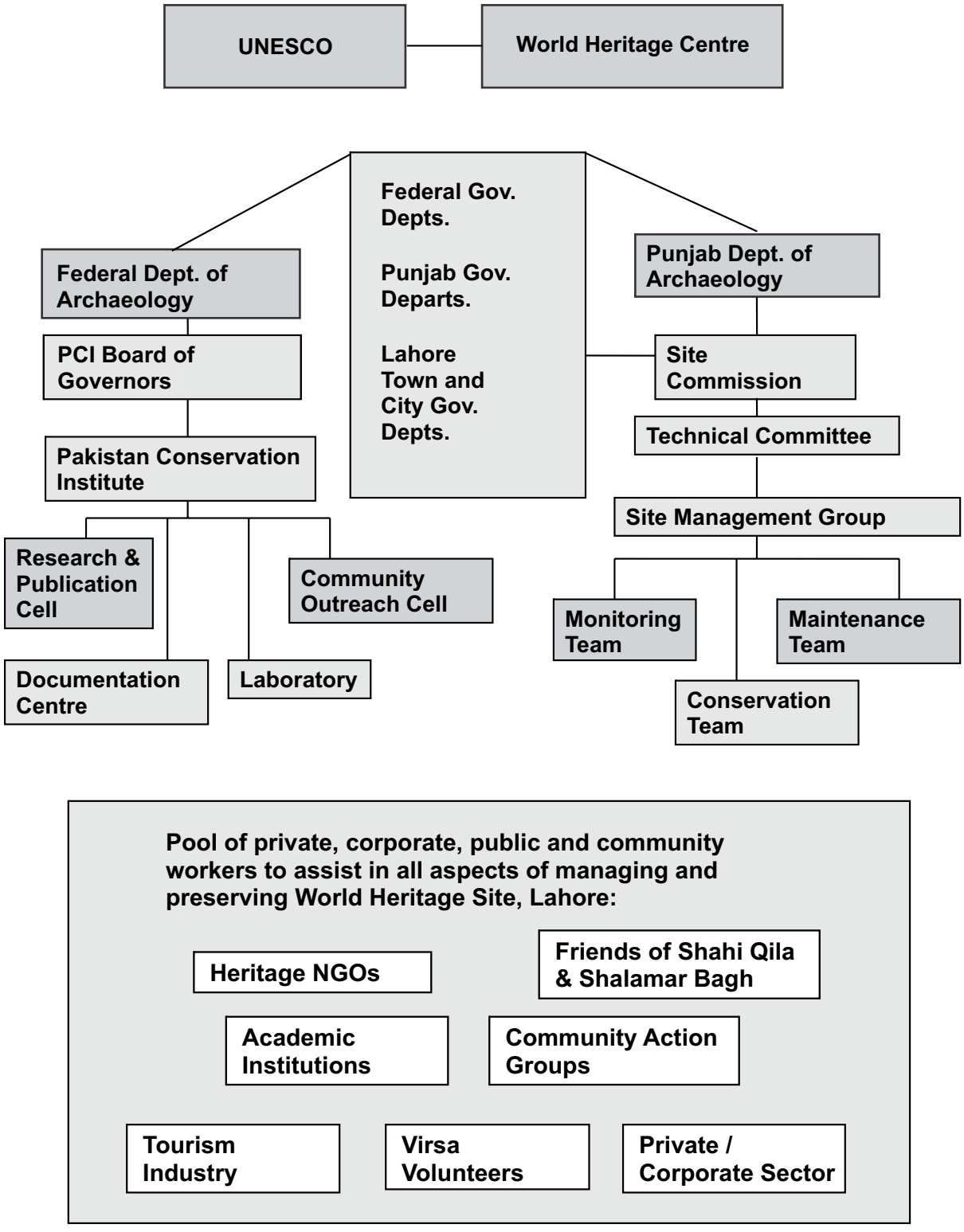


Figure 8.1 Partners responsible for implementation of components of the Action Plan

the custodians, those entrusted with the administration and management, the Site Commission and the Site Management Group. This is essential in order that each constituent is mindful of safeguarding the heritage resources to ensure their integrity and authenticity for the future generations.

In view of the shared responsibility for the World Heritage Site, it is important that all the parties formally agree to the stipulations in the Master Plan Document i.e. Federal Government as owners of the Site, Punjab Government as custodians of the Site and UNESCO as international agency charged with safeguarding of World Heritage Sites. Figure 8.1 sets out who is involved in partnerships for the implementation of the individual actions making up the Action Plan.

8.2 REVIEWING THE MASTER PLAN

Planning for conservation and management of a World Heritage Site is a dynamic process and does not stop with the production of a Master Plan document. Decisions beyond the control or scope of the program can change the conditions which the plan is meant to influence. The action plan may not be able to meet its goals if they are planned to meet certain problems and issues and those specific problems and issues change. Therefore the plan's objectives should be reviewed and decisions made as to the best strategies for the coming period. In this way the action plan stays flexible and relevant and, hence, is a more effective management tool. The *MGWCHS* states that "reviews at regular intervals can, if the planning process is scientific and logical, correct mistakes and refine concepts." (*MGWCHS* pg. 23)

It is recommended that a system of review of the issues and strategies be implemented and the Plan revised as and if necessary (Figure 8.2). When changes are needed the relevant section of the Plan should be updated and reissued for inclusion in the document. All changes and additions should be noted on the amendment pages of the Master Plan document.

Elements of the Master Plan have different life spans; as a result different strategies must be integrated in order to ensure efficient review and revision of the Plan:

a. Ongoing evaluation
   This involves continually looking at what you are doing and how you are doing it. It's something done, on an informal basis, almost every day during implementation and planning. This form of review or evaluation should be undertaken by the Site Management Group and other custodial staff as part of their regular routine, perhaps at monthly progress meetings.

b. An annual performance review
   This is a more formal level of evaluation. It involves reviewing whether master plan

objectives have been met and determining the most effective strategies for the following year. Every year all new information should be collected from the amendment sheets and an annual progress review carried out to measure progress against the short term Action Pan objectives. This annual review should be undertaken by the site custodians and Site Management Group with input from the Technical Committee.

In particular, prioritization of conservation needs should be reviewed as part of this annual performance review to ensure that funding is spent effectively. This review should be carried out by the Technical Committee in consultation with the Management Group.

c. Three year audit
Every three years, the UNESCO Heritage Audit will focus on evaluating the effectiveness of the Master Plan proposals in safeguarding the values and authenticity of the site.

d. Long term programme evaluation
This constitutes a less frequent and more thorough evaluation. It should be undertaken at the end of the six year term of the Plan and involves a review of the strategic parts of the management plan including:

- the vision statement
- the statement of goals
- identification of objectives
- Action Plan elements

This level of evaluation can determine whether the plan still meets the needs of the site and the community or whether a major program overhaul or rethinking is required. Long term evaluation should be an activity involving as wide a selection of stakeholders as possible, including the Site Commission, Technical Committee, Site Management Group and UNESCO expert advisors.

e. Periodic Reporting
Periodic Reporting is required by the World Heritage Committee on, *inter alia*, the state of conservation of the World Heritage properties located on its territories. "To ensure the efficient implementation of the World Heritage Convention it is essential that all the actors involved have access to up-to-date knowledge on the application of the Convention and on the state of conservation of World Heritage properties" (*Periodic Reporting)*. This exercise must be carried out every six years, with the next reporting taking place in 2008.

The purpose of periodic reporting is to:

- Provide an assessment of the application of the World Heritage Convention;
- Provide an assessment as to whether the World Heritage values of the property are being maintained over time;
- Provide up-dated information about the World Heritage property to record the changing circumstances and state of conservation of the property;
- Provide a mechanism for regional cooperation and exchange of information and experiences between States Parties.

Section II: State of conservation of specific World Heritage properties requires a description of the management in place at the site, an assessment of the factors affecting the property and an analysis of the state of monitoring of the site. This analysis details the conditions of the property on the basis of key indicators for measuring the state of conservation. If, as is the case with Lahore Fort, no indicators were identified at the time of inscription, these should be developed for future reporting. Presumably, this was carried out as part of the 2002 reporting exercise. The *World Heritage Guidelines on Periodic Reporting* state that "up-to-date information should be provided in respect of each of the key indicators. Care should be taken to ensure that this information is as accurate and reliable as possible, for example by carrying out observations in the

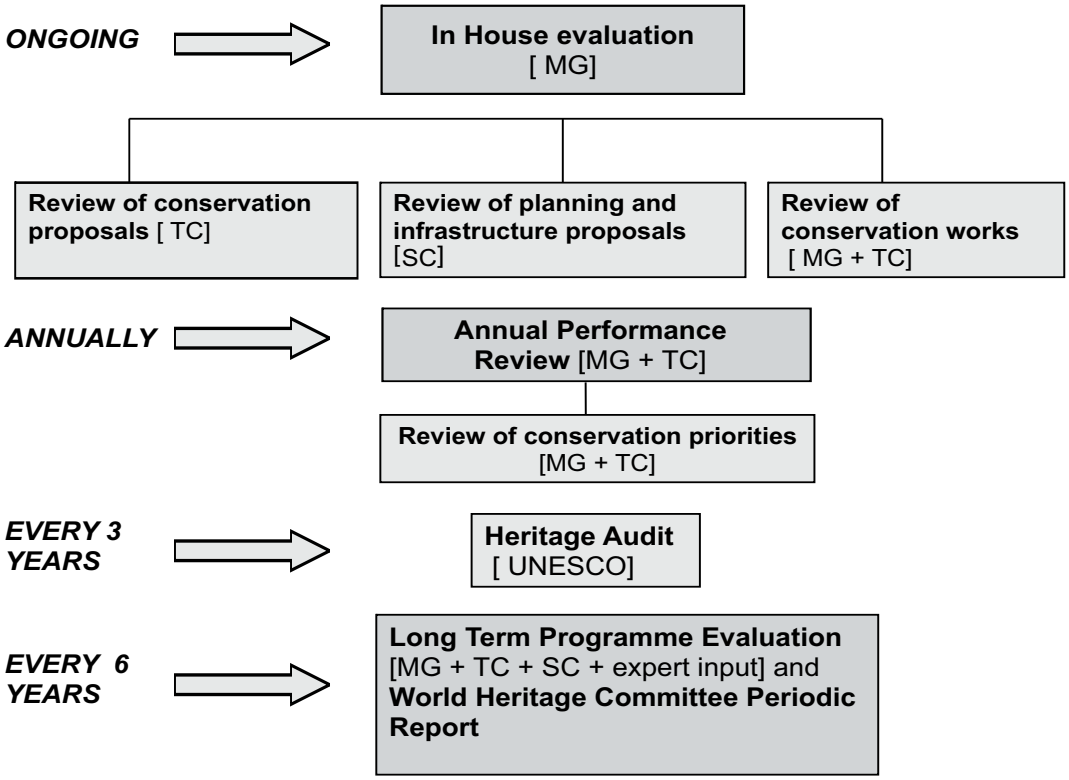


Figure 8.2 Diagramme illustrating the review process (MG = Management Group, TC = Technical Committee, SC = Site Commission)

same way, using similar equipment and methods at the same time of the year and day." On the basis of this assessment, the guidelines require a description of proposed future actions. The proposed review programme of on-going evaluation, annual performance review, three year audit and long term programme evaluation should provide up-to-date- information" for integration into the Periodic process.

8.3 PERFORMANCE INDICATORS FOR REVIEWING IMPLEMENTATION OF THE MASTER PLAN

The most effective tool for reviewing the progress of implementation is a set of performance indicators or indicators of change. They allow management and decision-makers to monitor progress and plan for mid-course corrections to programming. Indicators must be reliable signals that tell, directly or indirectly, about the real facts and answer the question "How do we know whether we are achieving/have achieved our goal?"

Indicators are of three types;

- ∞ Direct statistical indicators that measure quantifiable change in the short to medium term;
- ∞ Proxy indicators that are normally quantitative but do not directly relate to the expected result; they are used when getting the full data is too time-consuming or not timely. There must be a prima facie connection between the proxy and the expected result;
- ∞ Narrative indicators which focus on the "process of change" where the expected result may be qualitative and a non-statistical approach may be the only way possible to develop an indication of "progress". They focus on what happened as a result of the intervention/participation.

Table 8.1. presents a set of basic, short-term performance indicators to start the review process and to inspire further thought on how to measure progress in the longer term.

No.	Objective	Performance Indicators
SMS 1	Management Structure	Is the management structure formed and functioning? How many times have all parties met? Has liaison with Lahore City/Town governments begun? Is there a World Heritage Site Division?
SMS 2 & 3	Funding Scheme	Has the World Heritage Site Endowment Fund been set up? How many of the recommended budget lines are in place?

SMS 4	Informed management Team	How many Master Plan seminars/ presentations have been arranged? Are the main points and Action Plan translated into Urdu?
SMS 5	Conservation training	Are staff appointed and is a training programme designed? How many people have attended courses and received certification? Is a broad range of institutions involved?
SMS 6	Identification of job skills	What % of guards, artisans, gardeners, maintenance workers and curatorial staff have received Core Competency Training?
SMS 7	Defined job scopes	What % of all tasks have been recorded as SOP?
SMS 8	Use of management tools	Has LFA been employed by management? Has the first UNESCO Heritage Audit taken place in 2007? Has a study of risk identified the requirements of the site?
SMS 9	International and regional networking	How many managers / researchers have attended regional and/or international professional meetings? Is there an international collaborative project at the site?
MM 1	Monitoring and Maintenance system	Do records show that every building/structure, garden & hydraulic element has been monitored at least once a month? Do checklists reflect improvement in overall condition? How many maintenance recommendations have been made? and certified?
MM 2	System for monitoring and maintaining re - plantation	Have the irrigation and drainage recommendations of the expert study been completed? How many months has the calendar format and recording system been in action? What % of the trees have been numbered?
MM 3	Monitoring and maintenance of modern water display system replaced?	What % of damaged fountains have been What % of pipes have been replaced as recommended?

MM 4	Monitoring and maintenance of modern drainage and irrigation system	Is there a log of all components of the system? What % of the pipes have been replaced as recommended?
MM 5	Monitoring and maintenance of built heritage	How many monitoring checklists have been prepared? Has monitoring equipment been purchased as recommended?
MM 6	Monitoring of maintenance works on site	What % of maintenance tasks carried out have been monitored for standards and compliance?
MM 7	Monitoring of archaeological remains in and around the site	Have the archaeological remains been mapped? How many test excavations have been undertaken?
MM 8	Cleaning of the site and its monuments	Is regular cleaning implemented? By women? What % of the site has received initial cleaning? How many man days of specialist cleaning expertise has been spent on decorative elements?
MM 9	Technical issues regarding site maintenance	Are all points of water impact eliminated? Is a termite control programme in place?
COS 1	Guiding principles for garden conservation	Have the principles been reflected in decision making?
COS 2	Priorities for conservation Works	How many Priority 1 tasks have been carried out? Do they account for at least 50% of works?
COS 3	Conservation of the remains of the Mughal hydraulic system	How many sq. ft. of hydraulics works have been excavated and are open to public viewing? Is there signage? And protective arrangements?
COS 4	Conservation of the modern hydraulics system	What % of tube wells are functioning for what % of the day? How many additional hydrants have been installed?
COS 5	Revitalization of the Mughal plantation scheme	Has the Garden Conservation Plan been completed? How many sq. ft. of the garden have been replanted according to an experimental Mughal plan?

COS 6	Basic conservation procedures for built heritage	Are full records of decision processes and implementation available for all works? and complete sets of drawings?
COS 7	Standardized and ongoing Documentation	Has existing documentation been substantially expanded? What % of all buildings, structures, garden & hydraulic elements has received detailed documentation?
COS 8	Upgraded conservation Laboratory	How many times in the past year has the conservation lab been consulted for assistance in technical matters?
COS 9	Centralized materials storage and inventory	Are all archaeological and architectural pieces consolidated in one place? Can individual items be retrieved by accessing a computerized register?
COS 10	Conservation resource Library	Is there a set of designated shelves in the Documentation Centre? What % of the basic resource list generated by UNESCO has been acquired? Has Shalamar Gardens documents been added
COS 11	Development and use of in-house conservation capabilities	Is more than 70 % of conservation work being carried out by in-house rather than contracted expertise?
REF 1	Formulation of a Research Framework	What % of the items in the research framework is being pursued by scholars? How many regional and overseas academics are carrying out research?
REF 2	Publication programme	Have basic maps and pamphlets been produced? How many scholarly and popular publications are published or in progress?
REF 3	Archaeological investigation programme	Has geophysical survey of the site been carried out? Have excavations been planned/ implemented? Are archaeological remains in the vicinity mapped and recorded?

REF 4	Archival protection	How many archival items have been inventoried? Is there a staff member trained in care and conservation of archival documents?
VIP 1	Overall Visitation Plan	Has the consultancy been completed? What % of the proposals of the Plan have been implemented?
VIP 2	Visitation which safe-guards and presents the values of the World Heritage site	Is there a checklist of values, indicators for their state of preservation? When surveyed can visitors identify one or more values of the World Heritage site?
VIP 3	Visitation based on the ability of heritage resour-ces to withstand tourism pressures	How many areas of the site are entirely closed to visitation? Or to limited access?
VIP 4	Visitation zones for the World Heritage site	Is there a visitation zone map available to custodians with annotations re: use?
VIP 5	Interpreting the site for Visitors	Is the Site Interpretation Study complete and plans initiated for centres and galleries? Are "themes" identified and agreed? Are there design standards set? Are interim display and information improvements all in place?
VIP 6	On-going monitoring of the impacts of tourist visitation on the site	Is a monitoring form available? How many times and how regularly has it been used?
VIP 7	Improved and appropriate visitor services and Amenities	How many amenities and services have been relocated to the designated areas in the Buffer Zone? Is 100% of non-canteen food consump-tion restricted to the designated areas?
VIP 8	Need for Historical Site Use Guidelines	Are all events open to the public? Are *Guidelines* in place and being enforced?
VIP 9	Adaptive re-use of historical buildings	Have Building Modification Briefs been prepared for all planned re-uses?

VIP 10	Creation of museums and exhibitions on site	How many displays are on site? And how many visitors have been recorded?
VIP 11	Community outreach and economic benefit	How many heritage awareness events have been staged per year? How many Virsa Volunteers are assisting at the site? Have counts of school visitation increased? What % of school visits is involved in some sort of heritage education activity while on site? Are women being effectively targeted?
VIP 12	Reinstating links with garden sites	Does a garden area map exist? Have nearby remains been cleared of occupiers? How many signs are in place?
EPI 1	Protective zoning around the World Heritage site	Are the recommended zones finalized and do they form part of the urban planning process of the city government?
EPI 2	Inadequate and inappropriate parking facilities	Has the Parking Lot been developed? What % of parking is still close to perimeter wall? Are interim parking areas being utilized?
EPI 3	Rerouting of traffic and creation of pedestrian only areas	Has the diversion of the G.T. Road been completed? Has the pedestrian route to Eastern Gate been developed?
EPI 4	Controls over development in environs of the site	Is the CHIA study complete? and negotiation with city and town authorities for implementation? Are assessments being carried out for on-site works?
EPI 5	Lines of communication between site and city/town	Have lines of communication been set up between all levels of site administration and the surrounding government bodies?
EPI 6	On site improvement of Drainage	Have all sources of leakage been stopped? Have stop gap measures been implemented? Is the consultancy study in progress or completed?

EPI 7	Upgrading of toilet Facilities	Are all old facilities closed and are new toilets in use?
EPI 8	Improved waste removal	Are upgraded bins in place and is there a visible improvement? Has a "No Litter" campaign been initiated?
EPI 9	Upgrading of electrical Facilities	Have all units attached to historical fabric been removed?
EPI 10	Illumination for evening Opening	Has an illumination plan been agreed? How many evenings per week is the site open?
EPI 11	Improved security	Are guard numbers increased?

Table 8.1 Proposed preliminary performance indicators