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Assessing Ram Bagh: Conservation Challenges Of A Historic Urban Green Space In Amritsar

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Abstract: *The study assesses Ram Bagh, a historically significant urban green space in Amritsar initially created by Maharaja Ranjit Singh. This study addresses a significant gap in methodical, empirical assessments of pre-independence green spaces in India by using a specifically designed Quality Assessment Index (QAI) to measure the garden's current functional and experiential state. The investigation reveals an intricate connection between the site's protected historical identity and a severe deterioration in modern amenities and operational efficiency. While Ram Bagh preserves its extensive green space and historic significance, the study identifies major shortcomings in spatial connection, basic public facilities, safety measures, and facility management. These shortcomings compromise user comfort and accessibility, limiting its potential as a high-quality public area for Amritsar's expanding urban population. The findings provide critical evidence-based insights for integrated urban planning and conservation strategies. These findings also promote a balanced approach that respects heritage while meeting contemporary needs for sustainable, inclusive, and functional urban green spaces.*

Keywords: *Public green spaces, quality assessment, sustainable development, urban living, quality of life.*

1. INTRODUCTION

Globally, urban green spaces—which include parks, gardens, playgrounds, and natural areas—are becoming acknowledged as essential elements of sustainable and livable cities (Lennon, Douglas, & Scott, 2017). Their importance goes well beyond aesthetics; they provide urban residents with a wide range of ecological, social, cultural, psychological, and even economic benefits. In terms of ecology, they are essential urban lungs that improve ambient air quality by absorbing pollutants, improve local biodiversity, help manage stormwater through natural infiltration, and reduce the widespread urban heat island effect by providing shade and evapotranspiration (Hauru, 2015).

In terms of psychology, spending time in green spaces has been frequently associated with lower stress levels, better mental health, and increased memory retention. In the fast urbanizing world the need of green spaces is increasing manifolds (Singh, 2025). In terms of economics, properly cared-for green areas can boost local businesses, attract visitors, and raise property values (Ohly, White, & Wheeler, 2016).

1.1. Historical Context: Pre-Independence Green Spaces in Indian Cities

In many Indian cities, green areas are deeply woven into the rich and complex urban fabric, leaving an eternal mark of pre-independence planning and design that reflects a variety of administrative and cultural influences. These areas, which were frequently created during the Mughal or British colonial eras, each exhibited a different architectural concept and were intended to serve specific aesthetic, recreational, and administrative functions. With their distinctive charbagh (four-part garden) design, elaborate water channels, fountains, and fruit trees and fragrant flower plantings, Mughal gardens demonstrated a strong spiritual bond with nature and worked as administrative zones, royal pleasure grounds, and peaceful places for contemplation (Jr., 2011).

British colonial parks, on the other hand, often presented more casual, large landscape designs, including features like bandstands for open-air concerts, large lawns for sports and recreation, and avenues for leisurely walks. These parks served both European recreational interests and the changing needs of the local population. These parks frequently blended traditional Indian typologies with European landscape design concepts (Sharma, 2014). Rambagh is an example of a pre-independence green space established by the Sikh ruler Maharaja Ranjit Singh in the early 19th century, which went through numerous

influences and alterations during the British colonial era. Amritsar, a city with a rich past, is home to several such green spaces historical (Stronge, 2006).

1.2. Problem Statement: Transformation and Challenges

These ancient green areas in Indian cities have experienced significant and difficult changes over the years. The main force behind this change is the continuous urbanisation, which is marked by uncontrolled development. These factors put strain on the open spaces that are currently in place. Their administration is made more difficult by shifting cultural trends, changing populations, and changing recreational demands. As a result, these areas usually encounter a wide range of difficulties, from direct encroachment by commercial activities, informal settlements, or unpermitted construction to physical degradation brought on by long-term neglect and poor maintenance made worse by a lack of municipal resources (Ramaiah & Avtar, 2019). Their original identity and historical integrity are severely diminished as a result. Additionally, these areas' current infrastructure falls short of meeting the needs of a wider range of visitors.

1.3. Research Gap and Significance

Although India has a large amount of literature on urban green spaces and historical conservation, there is a substantial gap on the methodical, measurable, and detailed evaluation of the functional and experiential change in specific pre-independence green spaces. The majority of studies frequently lack a thorough, empirical assessment of specific sites and prefer to focus on basic policy frameworks or are broadly descriptive. By creating and carefully implementing a context-specific quality review Scale for Rambagh, Amritsar, this study aims to fill this critical gap.

The research is important for a number of reasons: it offers a thorough evaluation of Rambagh's current situation, produces practical suggestions based on empirical data, and offers an evidence-based technique for assessing the performance of historical green spaces. In Amritsar and other Indian cities that face similar difficulties in maintaining and improving their invaluable historical green spaces, these observations are essential for guiding heritage management plans, creating sustainable development projects, and forming more effective urban conservation policies.

2. LITERATURE REVIEW

2.1. Theories of Urban Green Space Planning and Design

Over centuries, the theoretical foundations of urban green space planning and design have experienced significant change in response to changing environmental concerns, advances in science, and societal values . The establishment of large green spaces as the "lungs of the city" was a key component of early ideas, which were heavily influenced by 19th-century scholars like as Frederick Law Olmsted (Harding, 2014). In order to address the problems of overcrowding and inadequate sanitation, Ebenezer Howard led the subsequent Garden City movement in the early 20th century, which incorporated green belts and open spaces as crucial elements of meticulously designed communities (Clevenger & Andrews, 2017).

Urban ecology is the foundation of more modern perspectives, especially from the late 20th century, which see green spaces as essential components of intricate urban ecosystems rather than as separate entities (Forman, 2016). This viewpoint highlights their diverse contributions to the preservation of biodiversity, the management of stormwater (e.g., through bioswales and permeable surfaces), the adaptation to climate change (e.g., carbon sequestration, urban cooling), and the provision of a range of ecosystem services that directly enhance human well-being.

This is promoted by the idea of "placemaking", which moves the emphasis from simple physical design to the development of lively, user-centred public areas that encourage cultural expression, social interaction, a strong sense of community, and active participation. Placemaking places a strong emphasis on adaptability, comfort, accessibility, and encouraging a variety of activities (Crabill, 2009). The outgrowth of the urban cores and engulfing of surrounding villages into city limits is becoming a routine mechanism (Jaffri and Singh 2025).

.2.2. Quality Assessment Frameworks for Public Spaces

Planning, managing, and continually improving public spaces—especially urban green spaces—requires evaluating their performance and quality. In order to quantify and qualify these traits, numerous frameworks and indices have been developed worldwide. For example, the well-known Project for Public

Spaces (PPS) methodology highlights four essential characteristics: Comfort & Image (how the space feels and looks), Uses & Activities (what people do), Access & Linkages (how easily people can get there and move around), and Sociability (how people interact) (Crabill, 2009). Every attribute is further subdivided into distinct indicators.

According to Golčnik and Thompson (2010), other frameworks often incorporate a wider range of metrics pertaining to safety and security (such as crime rates and lighting levels), cleanliness and maintenance (such as waste management and infrastructure upkeep), the provision of amenities (such as restrooms, seating, and water), aesthetic appeal (such as architectural features and planting design), and ecological health (such as tree canopy cover and biodiversity indicators). Comprehensive checklists and ranking systems are frequently offered by certain municipal park rating systems, which are used in large cities like London or New York.

In order to assess green space quality and accessibility, academic studies usually combine quantitative and qualitative methods, such as user surveys, observational studies (such as behaviour mapping), and advanced spatial analysis using Geographic Information Systems (GIS) (Golicnik & Thompson, 2010). Many current Western-centric frameworks have an important shortcoming that they may not adequately capture the distinctive heritage value, complex historical integrity, particular socio-cultural dynamics (such as informal uses, varied recreational patterns), and unique environmental challenges (such as extreme climate) that are inherent in pre-independence green spaces in the Indian context.

These frameworks might not adequately take into consideration the complex multi-layered history, or the particular user expectations that are common in South Asian urban settings. By creating a context-specific index that incorporates these important local details, this study specifically attempts to bridge this gap.

2.3. Historical Green Spaces in India: Typologies and Evolution

The historical green areas found in Indian towns are a diverse tapestry. Formal, geometric layouts (typically a charbagh), elaborate water features (canals, fountains, waterfalls), elevated paths, and a focus on symmetry, symbolism, and sensory experiences (fragrance, sound of water) are characteristics of Mughal gardens, a well-known typology (Koch, 1997). These spaces worked as administrative hubs, leisure gardens, and spiritual paradise.

New types of green spaces came forward with the fall of the Mughal Empire and the arrival of British colonial power. More casual, attractive, and spacious designs were frequently introduced by colonial green spaces, which at times included European horticultural techniques, bandstands for open-air performances, sporting facilities (such as tennis courts and cricket fields), and avenues for leisurely walks (Sharma, 2022).

Following independence, fast and frequently unplanned urbanisation placed immense and unprecedented pressure on many of these priceless historical green spaces. Typical difficulties consist of:

- *Encroachment*: When commercial buildings, unapproved development, or informal settlements gradually or quickly invade, their original area is reduced and their integrity is fragmented (Alabi, 2022).
- *Loss of Original Character*: When historical features (such as water channels, particular planting plans, or architectural elements) are altered, added, or removed because of shifting functional requirements, a lack of historical knowledge, or poor maintenance, their heritage value is diminished (Colding & Gren, 2020).
- *Infrastructure degradation*: Overuse, inadequate funding, and lack of upkeep cause pathways, seats, lighting, and sanitary facilities to deteriorate.

Changing User Patterns: A shift from more sedentary and towards active recreation, big events, and business ventures, which frequently puts a pressure on the infrastructure and managerial capabilities already in place (Alabi, 2022).

- *Environmental Stress*: The health of mature trees and the amount of green cover are impacted by increased pollution, water scarcity, and climate change.

The introduction of commercial activities, such as food vendors and amusement rides, that could take away from the area's main green and heritage purposes is known as commercialisation (Colding & Gren, 2020).

In order to assess the transformation of Rambagh, which was first a grand garden-palace complex

founded by Maharaja Ranjit Singh, is a perfect example of complex evolution. It has undergone both periods of grandeur and subsequent modifications and challenges.

3. METHODOLOGY

Because of its extraordinary historical value, its representative status as a pre-independence green space, and its contemporary role as an essential public green space, Rambagh located in the heart of Amritsar, is intentionally selected as the main case study for this study. It was created between 1819 and 1837 by Maharaja Ranjit Singh as a royal garden and summer residence, representing a unique combination of traditional Punjabi garden architecture and Mughal design. It is a great location for examining the long-term changes in urban green areas because of its historical layers, which include later alterations made during the British colonial era (Stronge, 2006). A huge number of different visitors are guaranteed by the size of green space (around 72 acres) and strategic location within the densely populated metropolitan core, making its functional assessment extremely relevant to modern urban needs. Additionally, Rambagh has gone through several stages of abandonment and restoration initiatives, offering an exact example of the intricate relationships influencing ancient green areas in Indian cities. Its selection as a strong and enlightening case study was further assisted by the accessibility of certain historical data and the availability of in-depth on-site observation.

3.1. Development of the Quality Assessment Index and Rating Criteria

A thorough Quality Assessment Index was meticulously developed in order to assess Rambagh's performance. This index was created by carefully incorporating parameters and thresholds that are especially relevant to the distinct historical contexts, sociocultural factors, and environmental challenges that are common in Indian urban environments. The index is organised into four major domains: Planning, Architecture, Social Conditions and Operation & Maintenance. It consists of ten primary parameters, each of which is then broken down into particular sub-parameters. A comprehensive evaluation across spatial, aesthetic, and human-centric dimensions is ensured by this classification (Refer Table 1).

Table 1. Quality Review Scale

Sr. No.	Aspect	Sr. No.	Parameter
1	Planning	a)	Spatial connectivity and access
		b)	Urban Fabric Integration
		c)	Dynamic Space Activity
2	Architecture	d)	Visual Aesthetics
		e)	Historical and Cultural Assets
		f)	Site Amenities and Comfort
3	Social Conditions	g)	Holistic Inclusiveness
		h)	Safety and Order
		i)	User Engagement and Interaction
4	Operation & Maintenance	j)	Facility Management and Upkeep

Source: Author

1. Planning: In order to ensure that the green space works well as part of the city's fabric and supports a variety of activities, this aspect examines how it is strategically integrated and organised within its wider urban context. The aspect is further categorised into three parameters:

a) Spatial connectivity and access: The Spatial Connectivity and Access parameter looks at how well the green area blends in with and is reachable from its urban surroundings. This involves assessing the space's visual reach. In order to determine how easy, it is to stroll to and within the green space, pedestrian accessibility and intra-space movement assessed. In order to ensure that the green space is accessible by a variety of means, the research also considers facilities for diverse modes of transportation including on-site parking capacity and transportation accessibility.

b) Urban Fabric Integration: The green space's ability to be integrated into the larger urban structure and function as a cohesive component of the city is measured by the "Urban Fabric Integration" parameter. To comprehend how developments nearby interact with and affect the green space, the study examines the type of land use that is adjacent. It also looks at the network integration, assessing the way it connects with other parts of the city.

c) Dynamic Space Activity: The green space's ability to support an extensive variety of lively activities is evaluated by the "Dynamic Space Activity" parameter, which shows how adaptable it is to changing user needs. This involves making sure there are designated locations for active recreation. Additionally, it takes note of the existence of multi-modal circulation routes. Additionally, the parameter examines the frequency of temporary occurrences, emphasising the green space's function as a venue for special events.

2. Architecture: This component focusses on the green space's visual appeal and structural components. It explores the aesthetic appeal of its buildings and the availability of a range of site amenities intended to enhance user comfort and enjoyment. The architecture aspect is further categorised into three parameters:

a) Visual aesthetics: The overall visual appeal and design quality of the green space, which includes both natural and built features, are the main emphasis of the "Visual Aesthetics" parameter. This involves evaluating the overall beauty of the area as well as the visual impact of the plantings. It also closely examines the way architectural features and structures, as well as flower arrangements add to the overall aesthetic appeal and sensory experience. The criteria also consider the space's perceived openness, looking at the way unobstructed views contribute to the visitor's sense of comfort and spaciousness.

b) Historical and cultural assets: The green space's everlasting legacy is assessed using the "Historical and Cultural Assets" parameter, which emphasises the understanding and preservation of its past. This involves evaluating the state and preservation of historical landscape features that contribute to its unique character.

c) Site amenities and comfort: The "Site Amenities and Comfort" parameter assesses the features and settings that directly enhance visitors' well-being and satisfaction while they are in the green space. This involves figuring out the amount of seating is available. It also examines at the availability of public restrooms and drinking water. The parameter also takes account of the noise level in the surrounding area.

3. Social Conditions: This aspect looks at how the green space affects people and the community. It investigates how the space serves its users, concentrating on elements like its ability to foster inclusion. The social conditions aspect is further categorised into three parameters:

a) Holistic Inclusiveness: The green space's commitment to accommodating all segments of the community, guaranteeing fair access and participation, is evaluated using the "Holistic Inclusiveness" parameter. This is about evaluating the area's demographic inclusivity. Additionally, it examines the presence of inclusive design elements, searching for elements like sensory gardens, accessible pathways, and ramps that make it easy for people with disabilities and other vulnerable groups.

b) Safety and Order: The green space's potential to provide its users with a safe and orderly environment is assessed by the "Safety and Order" parameter. This includes determining the adequacy of illumination. It also looks at the effectiveness of a public inquiry and feedback system that gives visitors a way to voice issues or make suggestions. In order to discourage illegal activity, the parameter also examines the frequency of local crime and the availability of security measures.

c) User Engagement and Interaction: The "User Engagement and Interaction" parameter analyses the way the green space supports a dynamic and socially rich experience for its visitors. In order to determine user satisfaction, it also looks at user return frequency, which shows how often people decide to return, and user dwell time, which measures how long they stay.

4. Operation and maintenance: The continuous and efficient handling of the green space is covered in this section. It addresses the systems, methods, and resources needed to guarantee the long-term functionality, quality, and general maintenance of Rambagh's infrastructure and environment. This aspect has further a parameter:

a) Facility management and upkeep: To assess cleanliness and the efficacy of waste management, this involves reviewing the dustbin density and the frequency of garbage collection. In order to make sure

that these necessary amenities satisfy comfort and health requirements, it also evaluates restroom hygiene. Additionally, the parameter evaluates the general quality of green spaces, including the state of equipment maintenance and repair as well as the health of plants and lawns.

Each sub-parameter is rated using a 4-point Likert scale, with "Minimal/Absent" (Score 0) to "Excellent/Extensive" (Score 3). Importantly, each level of the scale has precise, quantitative, and qualitative levels that are rigorously defined to ensure objectivity and reliability in the evaluation process.

3.2. Data Collection Methods

To guarantee a thorough and reliable evaluation of Rambagh's quality, an integrated approach was methodically used for data collection. This method integrated historical study, spatial analysis, and direct observation:

- On-site Observation and Inventory: To document usage patterns and physical conditions, extensive field surveys were carried out at Rambagh across several visits, during different times of day (morning, afternoon and evening) and week (weekdays, weekends). This required listing of particular sub-parameters, detailed photographic documenting, and careful observation.
- Google Earth/GIS Analysis: Accurate spatial analysis and quantification of area-based metrics were made possible by high-resolution satellite imagery from Google Earth Pro and GIS platforms (such as ArcGIS).
- Historical Research: To create a historical baseline for Rambagh's original design, intended uses, and previous modifications, extensive study of archives was carried out. This required consulting old maps, historical photograohs, written accounts.
- Informal Interviews and User questionnaires: Although the main evaluation was quantitative, a variety of users, including families and young people participated in questionnaires and informal conversations. This qualitative data provided vital insights into their individual perceptions of safety, comfort, satisfaction with amenities, and overall experience, supplementing the quantitative assessment with human-centered perspectives. These exchanges aided in the identification of intricate user demands and the validation of observational data.

3.3. Data Analysis

In order to get thorough scores for each sub-parameter, the gathered data from multiple sources was systematically examined. These scores were then combined to produce ratings for the primary parameters. The following stages were followed in the analytical process:

- Conversion of Quantitative Data: Raw counts and measurements from on-site inventory and GIS analysis were translated into numerical ratings (0-3) based on the selected thresholds of the Likert scale for all quantitative sub-parameters
- Qualitative Data Scoring: Informed by in-depth on-site observations, photographic evidence, and user feedback, was used to assign scores against the descriptive criteria of the Likert scale for qualitative sub-parameters. This procedure involved closely comparing the situations that were observed with the thorough explanations for every score level.
- Score Aggregation: The scores for each of the sub-parameters were combined to create the scores for the corresponding main parameters. All sub-parameters within a given major parameter were given the same weight in order to guarantee a balanced evaluation and prevent any one component from receiving too much priority. In the same way, Rambagh's overall quality rating was determined by assigning equal weight to each of the ten primary factors. This guarantees that a comprehensive performance across all evaluated domains is reflected in the final score.
- Overall Quality Rating: By averaging the results of the ten primary parameters, the overall quality rating for Rambagh was determined.
- Finding and Interpreting Patterns: In addition to calculating scores, the study included identification of critical weaknesses (areas that need immediate attention), specific strengths (areas that are performing well), opportunities and threats.

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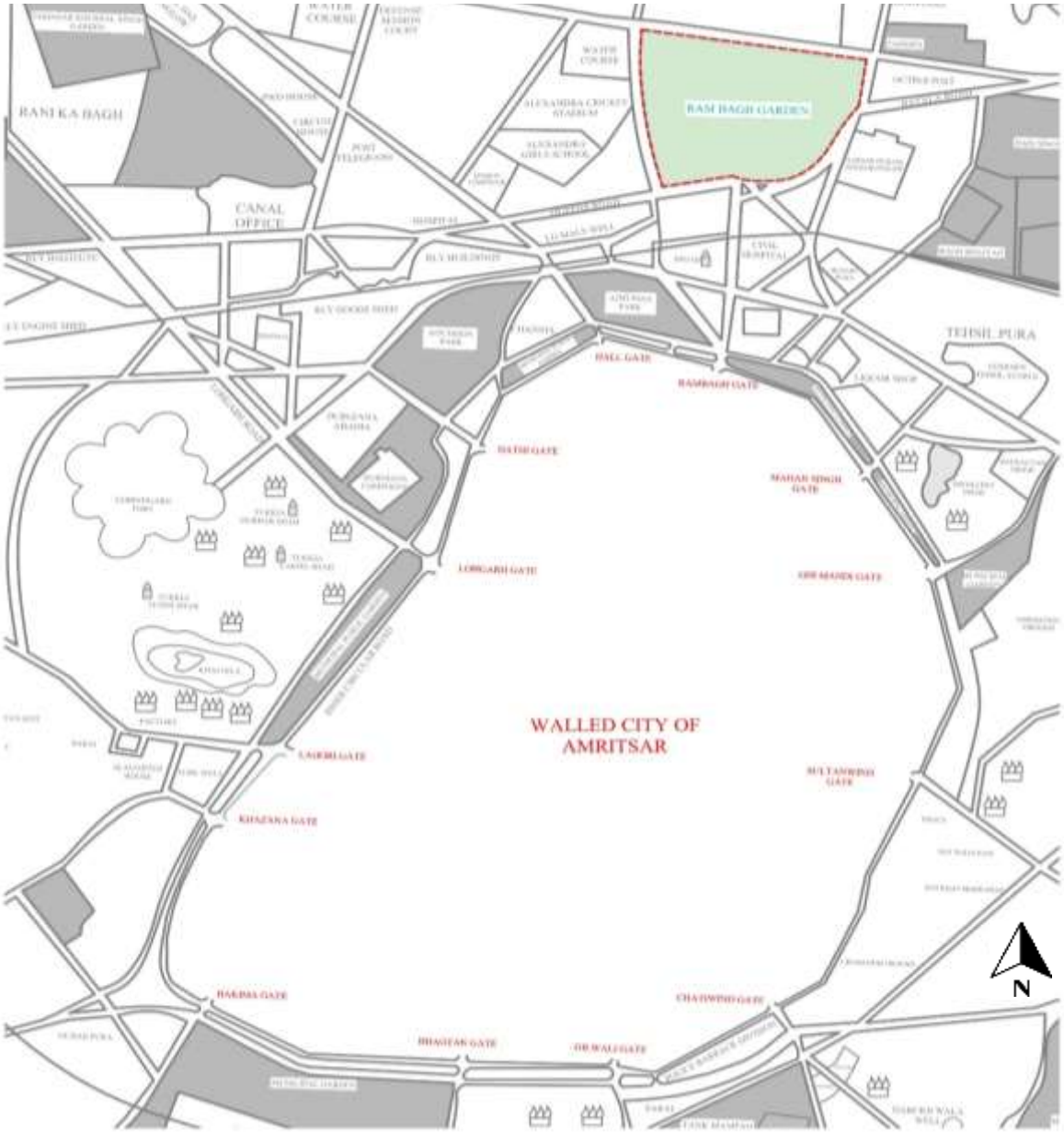
4. CASE STUDY ANALYSIS: RAMBAGH, AMRITSAR

Rambagh located in the heart of Amritsar, is significant to city historically. The Sikh Empire's founder, Maharaja Ranjit Singh, initiated its development between 1819 and 1837 (Refer Figure 1). As a refuge for the Maharaja and his court, the space was intended to be a magnificent royal leisure garden and summer palace complex. Rambagh's initial layout combined intricate aspects of both native Punjabi garden styles and ancient Mughal garden architecture, which is renowned for its geometric accuracy, water features, and meaningful plantings. Water channels, fountains, a central pavilion (the summer palace, which is now the Maharaja Ranjit Singh Museum), and a variety of trees and flowering plants were all carefully arranged to create a calm and beautiful setting. A massive masonry wall defined the garden's unique nature and offered security (Islam, 2024). Rambagh experienced substantial changes during the

Figure 1. Amritsar 1947: Walled City and Rambagh Garden



Source: Gauba (1988)

British colonial era after Punjab was annexed. Some of its essential elements were kept, but other parts were altered or repurposed to accommodate colonial recreational activities. As a result of changing administrative requirements and recreational preferences, a golf course, tennis courts, and other

administrative buildings were added to the larger complex. With limited access in some areas, the garden progressively changed from a secluded royal hideaway to a more open recreational area (Stronge, 2006). Rambagh completely changed into a public green space after independence, going through phases of irregular upkeep, intense pressure from the city's rapid growth and changing public needs. Its limits, internal design, and operational nature were further altered as a result, often diluting its initial grandeur and making it more difficult to maintain its infrastructure under expanding public use.

4.1. Application of the Quality Assessment Index to Rambagh

A detailed and multidimensional picture of Rambagh's current situation is obtained through the meticulous use of the created Quality review scale (Refer table 2). The evaluation showed a complicated interaction between strong advantages derived from its rich historical past and major difficulties brought on by current urban demands and poor management.

1. Planning: A moderate degree of strategic design and integration within the urban setting is indicated by Rambagh's overall planning aspect, which has obtained an average rating of 2.05 (on a scale of 0-3). This implies that even while its layout has some admirable aspects, several important elements still need to be improved in order to fully realise its potential as a vital urban green space (Refer figure 2). The following subparameters make up this average:

a) Spatial Connectivity and Access: This metric has been assessed as 1.5, indicating that the space's visual and physical ties to its surrounds are not very strong. This low score speaks about issues with the space's accessibility, its entrances, and ease of pedestrian traffic entering and leaving the area. Additionally, the space is less permeable and easily accessible for visitors due to on-site parking, public transportation links, wayfinding information, and the condition of the surrounding wall. Urban Fabric Integration: This metric, which has a rating of 2.25, indicates that the green space is fairly well integrated into the larger urban fabric. Its reasonable network connection with other urban systems, healthy green cover, and typically harmonious relationship with other land uses are the main factors contributing to this favourable evaluation. Even if there may be restrictions on its ability to grow in the future, the space's current integration ensures that it contributes to and works as an integral component within the larger urban structure.

b) Dynamic Space Activity: This metric had the highest score 2.4, suggesting a great ability to promote and support a wide range of social, cultural, and recreational activities. Multi-modal circulation routes, a robust presence of temporary events, and well-equipped sports spaces are all responsible for this high performance. With its capacity to accommodate both planned and unplanned public events and its plentiful on-site food options, the space excels at providing a pleasant visitor experience that can be adjusted to meet the demands of the varied population.

Table 2. Quality review assessment for Rambagh, Amritsar

Sr. No.	Aspect	Sr. No.	Parameter	Rating (0-3)
1	Planning	a)	Spatial connectivity and access	1.5
		b)	Urban Fabric Integration	2.25
		c)	Dynamic Space Activity	2.4
2	Architecture	a)	Visual Aesthetics	2.4
		b)	Historical and Cultural Assets	2
		c)	Site Amenities and Comfort	1.42
3	Social Conditions	a)	Holistic Inclusiveness	2
		b)	Safety and Order	1.6
		c)	User Engagement and Interaction	2.4
4	Operation & maintenance	a)	Facility Management and Upkeep	1.41

Source: Author

2. Architecture: The green space's architecture had an average rating of 2.3, indicating that its aesthetic composition and physical design aspects are of acceptable overall quality(Refer figure 2). This

demonstrates an admirable presence of its built form's aesthetic appeal, historical authenticity, and comfort elements.

a) Visual Aesthetics: This metric was rated at 2.5, indicating that the green space's overall visual appeal and design quality are above average. Its numerous sub-components, such as the overall aesthetics, arrangement of its vegetation, and the layout and state of its architectural elements, all consistently receive favourable evaluations. Its beauty is further enhanced by the flower displays, and the space's vast and pleasing appearance is greatly enhanced by a strong sense of openness.

b) Historical and cultural assets: Rated at 2.0, this indicator reflects a reasonable level of preservation and display of the green space's historical and cultural legacy. This score indicates that there is potential for further improvement in the mindful preservation, restoration, and interpretation of its historical landscape elements and built environment to fully capitalise on their cultural significance, even though it demonstrates an acceptable condition, suggesting that key historical features are still visible.

c) Site amenities and comfort: This criterion had a score of 2.4, indicating that the site amenities that support the comfort and health of visitors are well-provided and maintained. The green space performs well in terms of providing weather shelters, public seating, and especially inviting shade. There is space for improvement, nevertheless, especially in the areas of public restrooms and drinking water availability and quality. Despite many shortcomings in the fundamental features, the generally well-managed ambient noise level enhances the overall user experience of comfort.

3. Social Conditions: With an average rating of 1.95, the green space's social component performed moderately in terms of encouraging diversity, guaranteeing safety, and fostering human contact (Refer figure 2). Although many aspects are positively appreciated others draw attention to ongoing difficulties in establishing the best possible social environment for every user.

a) Holistic Inclusiveness: With a rating of 1.8, this criterion appears to have good efficacy in guaranteeing that the green space is inclusive of all community members holistically. The presence and efficacy of inclusive design elements is hampered that support accessibility for vulnerable groups. The efforts to welcome and accommodate all segments of the population require further optimisation.

b) Safety and Order: With a rating of 1.8, this metric shows that there is a moderate degree of safety and order in the green area, however there are some obvious places that want attention. The effectiveness of feedback systems for users to report issues and the sufficiency of illumination are both clearly problematic. Although there is a moderate amount of crime in the area, security presence visibility might be improved. While the green space does a better job of controlling antisocial behaviour, indicating some attempts to uphold basic decorum, overall safety perceptions need to be reinforced for an atmosphere that is truly secure.

c) User engagement and Interaction: With a score of 2.25, this metric demonstrated an elevated level of user interaction and engagement in the green area. The utility of the space is often rated favourably by visitors, which results in higher user stay times and return rates, indicating contentment and extended visits. The green space successfully promotes casual social interaction as well as participatory activities, creating a lively social atmosphere and a strong sense of community among its users.

4. Operation and Maintenance: An average rating of 1.85 was given to the Operation & Maintenance component, indicating a lower level of performance in daily management and maintenance of the green area (Refer figure 2). This suggests that there are major obstacles to operational diligence, which has an immediate effect on the space's functionality and quality.

a) Facility management and upkeep: This metric, which measures all aspects of operational diligence, received a score of 1.85, indicating irregular and frequently insufficient maintenance procedures. There are noticeable cleaning problems as a result of specific inadequacies in the number of dustbins, the frequency of waste collection, and—most importantly—washroom hygiene. Water runoff efficiency and overall green space quality are moderately maintained, but equipment maintenance and repair need to be improved. Although the structures' visual integrity is comparatively better, the scores indicate that more comprehensive and consistent operational measures are required to improve the space's long-term quality and visitor experience.

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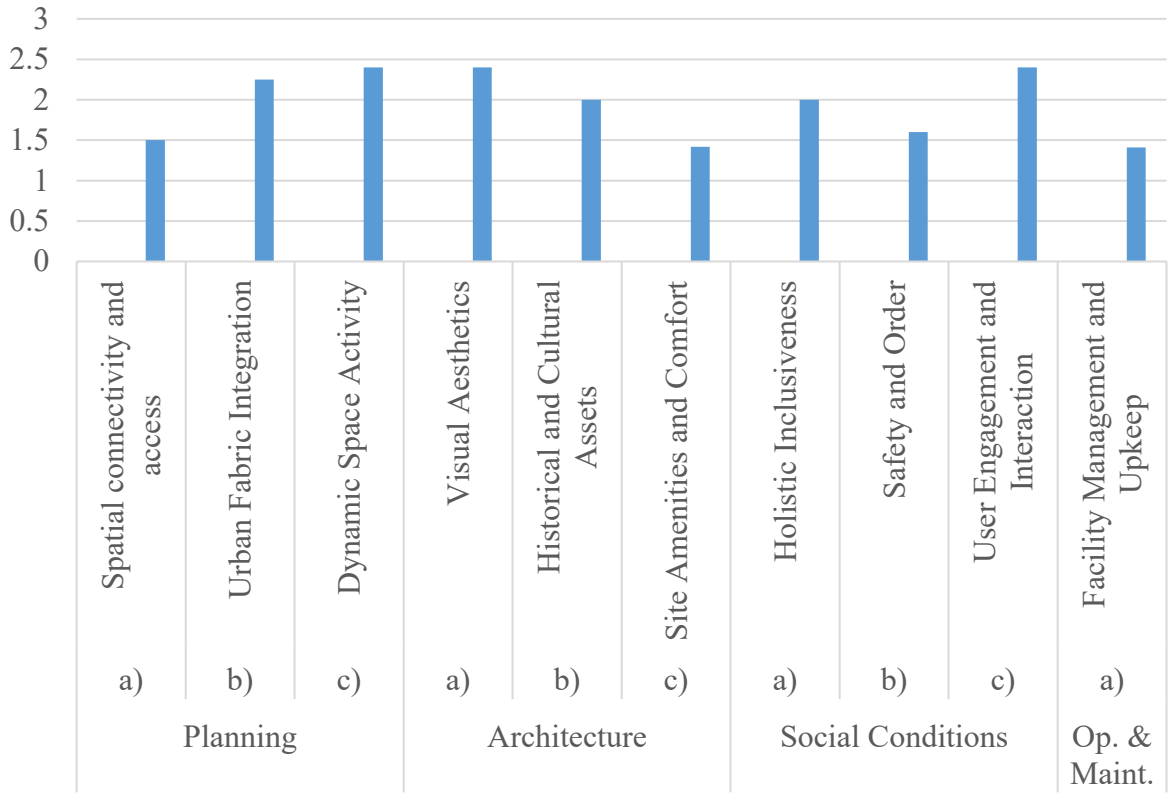
Figure 2. Quality rating across various parameters for Rambagh, Amritsar



Source: Author

4.2. Key Findings

According to the thorough quality assessment, the green space exhibits a blend of external opportunities and threats, as well as internal strengths and weaknesses, within its dynamic urban environment.

Strengths: Significant strengths of the green space are mostly found in its visual appeal and social vitality. Its harmonious interaction with other land uses and healthy green cover contribute to its notably good urban fabric integration. The region has excellent multi-modal circulation and thrives in Dynamic Space Activity, effectively hosting a variety of social, cultural, and recreational activities. The space has pleasant aesthetics, high-quality landscaping, well-maintained architectural components, and an outstanding sense of openness, all of which contribute to its architectural visual satisfaction. Strong User Engagement and Interaction are facilitated by this favourable environment. The exceptional abundance of shade, a notable comfort factor, greatly improves the experience of visitors, particularly during hot weather.

Weaknesses: Notwithstanding its advantages, the green space is hampered by serious flaws in important areas. Limited visual reach, ambiguous entrance points and poor pedestrian accessibility are some of the key issues that still plague spatial connectivity and access. Public amenities and hygiene are regularly lacking, especially when it comes to the scarcity and unclean condition of public restrooms, the lack of drinking water, and the inadequacy of dustbins and waste collection routines. In addition, the space exhibits a lack of holistic inclusivity, necessitating changes to its outreach and design features in order to truly serve a variety of demographic groups. Last but not least, issues with safety and order continue because of poor lighting, a lack of security, and difficulties controlling antisocial behaviour.

Opportunities: There are obvious chances for focused improvement and enhancement due to the flaws that have been highlighted. The space may significantly improve accessibility and connectivity and attract a larger audience by making developments in better parking, prominent transit connections, and upgraded pedestrian infrastructure. Prioritising improvements in essential facilities, such as restrooms, drinking water, and thorough waste management, will improve user comfort and health standards. Additionally, by adopting inclusive design principles, the space can be guaranteed to truly serve all demographic groups.

Threats: The space's limits and character may be eroded by the constant threat of encroachment brought on by the continuous urbanisation pressures of fast growth. There is still a serious risk of uneven municipal funding and resource distribution, which could result in a continuous deterioration in infrastructure quality and maintenance standards. If left unchecked, the ongoing problems with cleanliness, safety, and basic facilities may cause consumer sentiment to fall apart, which would lower tourism and damage the area's reputation. Furthermore, if heritage conservation efforts are not committed and maintained, there is a chance that the space's distinctive pre-independence character and its historical narrative will be completely lost due to further degradation.

5. CONCLUSION AND RECOMMENDATIONS

This study, using an innovative and context-specific Quality Assessment Index, provides a detailed and measurable appraisal of Rambagh in Amritsar. The study firmly confirms Rambagh's immense historical and cultural significance, which remains its core and most powerful strength, considerably contributing to the city's identity and history. However, the assessment also identifies serious shortcomings in key areas critical for contemporary urban green spaces, namely the provision and maintenance of public amenities, the efficiency of accessibility infrastructure and the effectiveness of safety provisions. Rambagh's evolution illustrates a common issue for historical green spaces in rapidly urbanising Indian cities: reconciling cultural preservation with the dynamic demands of modern public use and effective urban management.

5.1. Implications for Urban Green Space Management in Amritsar

The research results from the Rambagh case study have significant consequences for the overall management and design of urban green areas in Amritsar, as well as for other heritage towns in India. They emphasise the critical need for a paradigm shift in how these invaluable assets are seen, planned, and managed.

- Integrating heritage conservation ideas into modern green space design and administration is crucial for future urban planning initiatives. This involves going beyond the mere preservation of historical structures and actively ensuring that new facilities, infrastructural upgrades, and functional solutions. It advocates for master plans that are both historically informed and future-oriented.
- Prioritising experience for users and providing fundamental amenities: Improve everyday experience for users by addressing basic necessities. This includes providing clean, accessible, and well-maintained public bathrooms, dependable drinking water supplies, appropriate and comfortable seats, and an effective waste management system.
- Sustainable maintenance and management models: Developing financial sources and efficient operating models for maintenance is critical to prevent further degradation and ensuring the long-term quality and resilience of these areas. This could include looking into alternative funding sources, establishing public-private partnerships, or actively engaging local communities.
- Explore adaptive reuse and functional diversification for historical materials, keeping their heritage value while fulfilling modern purposes. Furthermore, green spaces should explore a variety of activities, including areas for both quiet contemplation and active recreation to appeal to a broader audience.
- Encouraging community involvement in green space design and maintenance which may boost collective ownership and accountability, resulting in sustainable outcomes and more compatibility with local needs.

5.2. Recommendations for Rambagh's sustainable future

Based on a thorough assessment of Rambagh's strengths, weaknesses, and identified opportunities and threats, the following practical recommendations are put forward to ensure its continued quality, functionality, and historical integrity:

1. Prioritise basic amenities and hygiene.
2. Addressing severe shortcomings in public utilities is essential for improving user comfort and public health.

- Washrooms: Install new, modern, and universally accessible public restrooms at important areas. Ensure that these facilities have consistent flowing water, soap, and are subjected to rigorous, frequent cleaning methods.

- Increase the number of functional, well-maintained, and easily accessible drinking water stations in the space.
- Increase public seating density. Place these strategically in shaded places and in high-activity zones, and be ensure to fix and clean these items on a regular basis.
- Increase the number of well-designed, properly labelled dustbins, including options for separate disposal (e.g., wet/dry garbage), particularly in high-traffic and amenity areas.

2. Improve spatial connectivity and access.

Improve the space's physical and visual interaction with its surroundings in order to increase permeability and ease of use.

- Improve the legibility and design of access points to make them easily visible and recognisable as entrances.
- Improve pedestrian walkways to make them smooth, well-maintained, and universally accessible, including ramps for strollers and wheelchairs.
- Install a well-designed wayfinding signage system with maps, amenity locations, and directional cues in multiple languages to improve navigation.
- Provide a public inquiry and feedback method, such as digital platform, allowing visitors to express concerns about safety, maintenance, or other issues.

3. Maintain historical and cultural assets.

Leverage the most valuable asset by guaranteeing rigorous heritage conservation and compelling interpretation.

- Restoration and preservation: Create and implement a conservation strategy for all historical landscape elements and constructed structures.
- Enhance the historical narrative with relevant signage or guided tours. Make the space into a living museum that educates visitors about its rich history and significance.

4. Strengthen facility management and upkeep.

Implement comprehensive and proactive maintenance techniques to preserve the green space's long-term condition and operation.

- Proactive maintenance schedule: Transform quick fixes into a proactive, regular maintenance program for all equipment, infrastructure, and horticultural elements.
- Horticultural Excellence: Maintain lawns, planting beds, and trees by professional procedures such as trimming, pest management, irrigation, and planting native species.
- Enhance the space's drainage infrastructure to prevent waterlogging during monsoon seasons.

5. Promote holistic inclusivity and dynamic activities.

Build on existing engagement to make the space really welcoming and flexible to all.

- Inclusive Design: Audit universal accessibility and include elements like tactile paving, ramps, accessible play equipment, and sensory gardens to accommodate people of all ages and abilities.
- Structured programming, such as educational workshops, fitness programs for elders, and cultural events reflecting Amritsar's broad society.
- Encourage community involvement in planning, design, and management to create ownership and meet various needs.

These ideas, if carried out meticulously and with a long-term vision, would ensure that Rambagh not only protects its rich past but also transforms into a really high-quality, inclusive, safe, and dynamic green space that meets the current and future requirements of Amritsar residents.

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