Preliminary Condition Analysis of Samadhi Dewan Sawan Mal, Multan

[1]Javaid Qamar, [2]Saima Gulzar, [3]Zahid Iqbal

(Received October 23, 2020; Revised February 21, 2021; Accepted March 29, 2021)
Online First Publication
DOI: 10.33317/ssurj.241

***Abstract*— Historic structures are unparalleled jewels of the past embedded in the built environment. They integrate the present society with the past and future through its historic fabric existence over the decades. The negligence due to the economic dilemma in our part of the world is one of the major reasons of the disappearance of many such historic structures. Building condition assessment tool is very useful in decision making for such historic structures that can be saved for the future generations within the available resources through the maintenance prioritization listing developed regionally. The presented research was carried out on one of the historic structure 'Samadhi Dewan Mal' situated in Multan (which is known as the city of saints). The city of Multan displays rich historical evidences in the form of tombs, mosques, historic residential houses, palaces, temples and archaeological sites. Through the visual analysis in addition to the damage identification and observations maintenance matrix was developed for different parts of the historic structure that can be replicated for other structures/sites as well to stop further destruction of neglected heritage. The concluded rating of 'Samadhi Dewan Mal' placed it in medium condition that needs repair strategy to regenerate its original essence with authenticity.**

***Index Terms*— Historic Structures, Repair Strategy, Building Condition Assessment (BCA), Percentage of the Defects, Matrix Analysis.**

I. INTRODUCTION

The historic structures are disappearing very rapidly and preservation of these cultural heritage assets incorporate the documentation (visual and archival), protection (from natural and anthropogenic sources), conservation/restoration and intervention frameworks based on analytical study. The Building Condition Assessment (BCA) tool can provide as the most suitable instrument for performing all above mentioned task within the time frame. Each building that is planned for a specific period of time to fulfill some specific purpose reflects its time and era. If the building assessment has been done after regular interval of time there are minimum chances of that building to be decayed rapidly instead of a building which has not gone under the process of condition assessment.

The protection of cultural heritage on national level is some time becomes very difficult due to lack of resources and some other factors like social, political and economics and in most of the cases, the lack in technology is the main cause of delay in the preservation of historical building so the main purpose of building condition assessment is to check the building structural elements and defects in that heritage building so it may become easy for the management to put right action on the exact defect that has been identified during the identification process. In this assessment tool the defects and the problems are rated according to their severity and maintenance. With the help of visual observation and collected data in addition to the regular site visits, a matrix analysis can be evolved to further elaborate the defects and other problems with respect to time to time changes in that historical building that has been selected for assessment process. This data give better insight in the decision making process and timely action regarding different recorded situations. The understanding of the nomenclature of the materials over a period of time requires the recognition of its physical and chemical properties in addition to the cultural change in the surrounding environment that impacted the historic fabric. This is one of the reasons of studying the historic fabric with reference to its context in detail and making the inventory.

II. HISTORICAL BACKGROUND OF SELECTED HERITAGE

Multan has remained a main focus of foreign invaders due to its economic and geographical position. It is called golden sparrow, that's why a large number of nations invaded it since ancient times. After the decline of the Mughals, the Sikhs appeared on the scenario of the Punjab in late eighteenth century as ruling power and founded a Sikh Kingdom under the headship of Ranjit Singh in 1799. Later on, Multan was captured in 1818 and Ranjit Singh appointed his Nazims (governors). From 1818 to 1821, six governors were appointed but they could neither maintain law and order situation nor good management in the area as per textural references [1-2].

At last the Sikh emperor Ranjeet Singh appointed his best man named as Dewan Sawan Mal as the governor of Multan. Dewan was born into a small village named as Aqalgarh situated near Gujranwala.

His father Hoshnak Rai was working in government sector in 1820 where he started as the head of the record office under the governor of that area named as Bedan Hazari at a monthly payment of 250 rupees. Sawan Mal was khatri and chopra by sub cast [3-4]. In 1821 the areas of Multan which came under dewan Sawan Mal has increased the land revenue and the area has been also expanded by 50% in 1829, Sawan Mal was made the Governor of the entire province of Multan. After seeing the work of Sawan Mal the ruler named Ranjeet Singh awarded Sawan Mal by title called "Dewan". This historical background reflects the importance of the selected heritage as this accumulates the precious historical evidences in its

[1]Arch Student, School of Architecture and Planning , University of Management & Technology, Lahore, Pakistan. f2019183007@umt.edu.pk
[2]Professor, School of Architecture and Planning, University of Management & Technology, Lahore, Pakistan. saima.gulzar@umt.edu.pk
[3]Director, Punjab Council of the Arts Development Govt. of the Punjab, Lahore, Pakistan. zahidiqbal1968@hotmail.com

historic fabric that needs to be propagated through the proper maintenance to future generations [5-7].

III. RESEARCH METHODOLOGY

The research methodology followed for conducting the presented research includes the sequential process, as shown in Fig. 1, starting from the literature study to archival document analysis, site surveys and visual analysis, damage/deterioration identification, observational pictorial analysis, development of matrix and maintenance rating charts for final condition assessment of historic fabric of selected heritage in area of Multan. The Building Condition Assessment (BCA) tool is used for assessment of the selected heritage [8]. The tool was developed by Malaysian researchers and was successfully applied to many heritage sites in Malaysia. Here the purpose of utilizing this tool is the economic constraints in our countries that needs model like BCA for initial screening of historic structures that are vanishing at faster pace [9]. Finally recommendation framework is devised for the development of appropriate criteria helpful in decision making for the selected heritage.

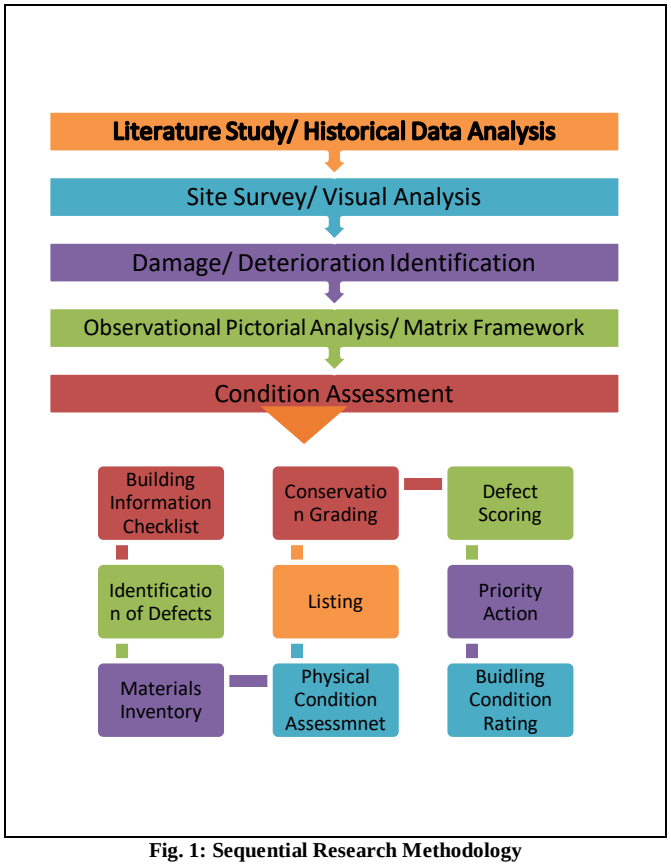
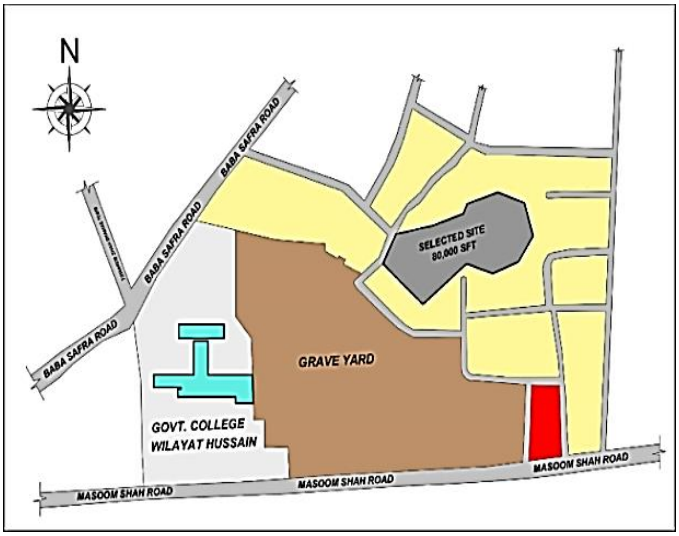


Fig. 1: Sequential Research Methodology

A. *Location of Selected Heritage Site*

The site is located in the heart of the city Multan as shown in Fig. 2, on Masoom Shah Road opposite to the Tomb of Hazrat Shah Shams Sabzwari (R.A.). The site is surrounded by some public spaces such as Aam Khaas Bagh, Shah Shamas Park etc., and some religious monuments are also situated in the locality of the selected site like the tomb of Hazrat Shah Rukn-e-Alam, Hazrat Bahawal Haq Zikriya Multani, Hazrat Shah Shamas Tabreez etc. The selected site is also recognized as the educational hub comprising of well-known educational institutes including Government Wilayat Hussain College, Government School Aam Khaas Bagh and some private sectors. The surroundings of the historical building also includes modern development as shown in Fig. 3, including commercial areas like plaza's shops and petrol pumps etc. depicting the urbanization reflection off modern era.

(a)



(b)

Fig. 2: Location Map of the Selected Heritage Site (Samadhi Dewan Sawan Mal);(a) Larger Map; (b) Precise Map

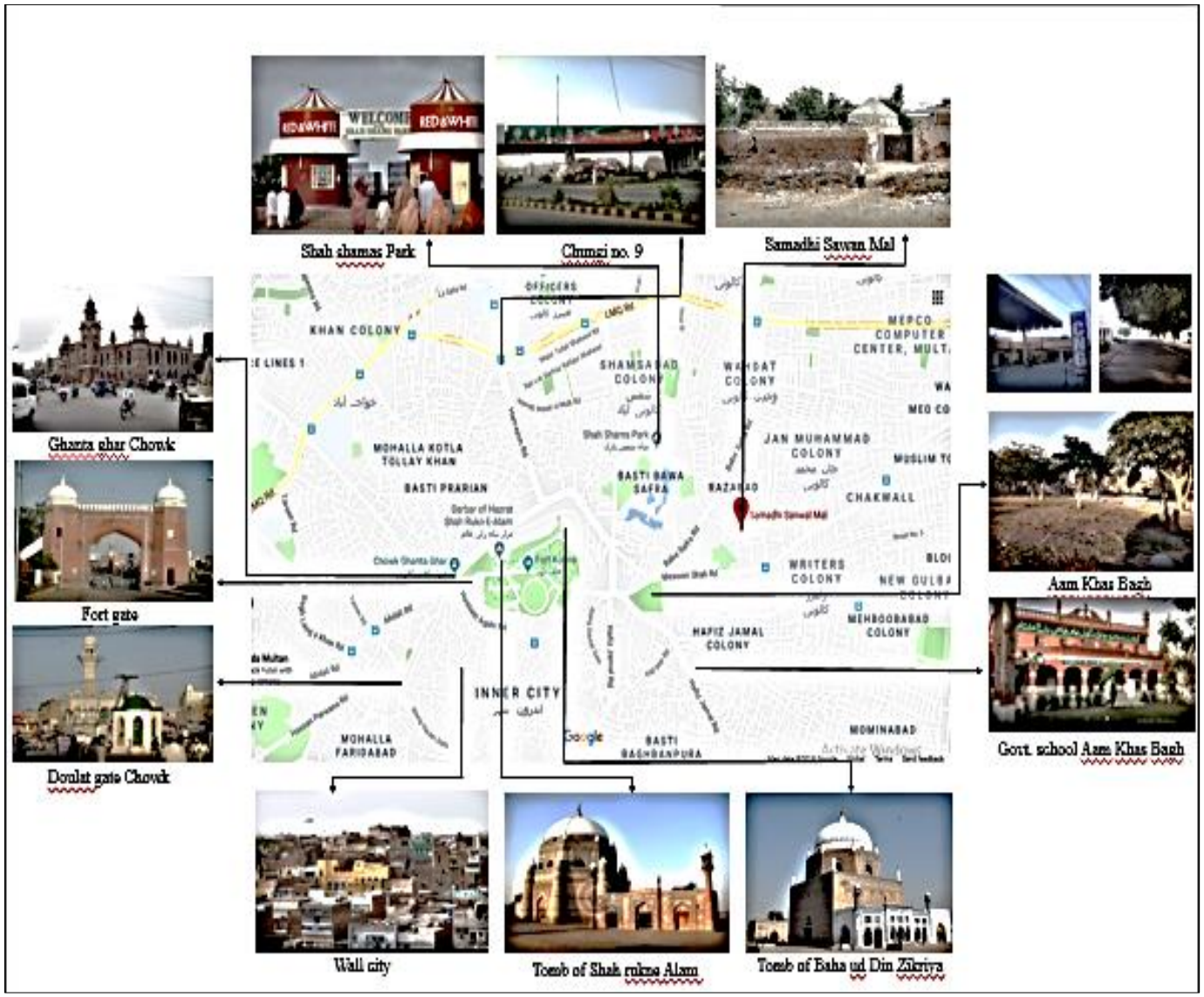


Fig. 3: Surrounding Site Area with Notable Structures

IV. RESULTS AND DISCUSSIONS

The whole process of condition assessment of the Samadhi Dewan Sawan Mal, Multan shown in Fig. 4, started with the historical analysis as explained above that was further supplemented with the analytical study through visual observations as documented and explained below. Building Condition Assessment (BCA) is used as a tool that can help in the preliminary investigation of the historic structures as evident by its application to the Samadhi Dewan Sawan Mal, Multan [9-10]. The application of this tool for initial investigation and categorization would be beneficial in generating the inventories for heritage assets that are deficient in our part of the world. The country like Pakistan that is struggling through the economic dilemma could not spare funding for heritage sector easily like in other countries. So in this scenario, this tool can help in developing the heritage inventories with priority listings that can further save the available resources for the same [11]. The heritage conservation needs proper allocation of funds therefore this preliminary inspection would serve as a key player in the decision making for considering any conservation project.

A. Visual Inspection

Visual inspection of Samadhi Dewan Sawan Mal, Multan was the main task to prepare the physical condition assessment. Visual inspection as described below included each type of data associated with that historical building whether in the form of historical and archival description, photographs or drawings. The visual inspection and a detailed survey of the Samadhi has been conducted to document every single defect on the building and according to the condition of that defect the area was categorized for future treatment according to the standards devised by International Council on Monuments and Sites in addition to the regional interpretations as approved by the authorities.

The visual inspection usually is done with the help of available archival data and visual observations in the heritage sector followed by the scientific examination according to the recommendations. But through this tool the scale has been developed that ranked the selected historic structures according to their physical examination that helps in the preliminary categorization. This segregation based on the condition assessment serves as the baseline data for any historic structure that fix the priority for taking conservation and restoration works.

Samadhi Dewan Mal, Multan as shown in Fig.4 is found to be in deteriorated condition. The unplanned urban sprawl decreased the original boundaries of the heritage site with the encroachments under the masked commercialization activities in the vicinity. The increased pressure on the infrastructure further enhanced this deterioration phenomenon by urban pollution. The visual disappearance of this historic evidence from all sides in the name commercialization also contributed in this present condition. The historic structure displayed the severe damaged/cracked facades with biological growths. The absence of water disposal system further disintegrated the construction materials. The detailed inspection with the visual evidence results into the classification and categorization as described below.

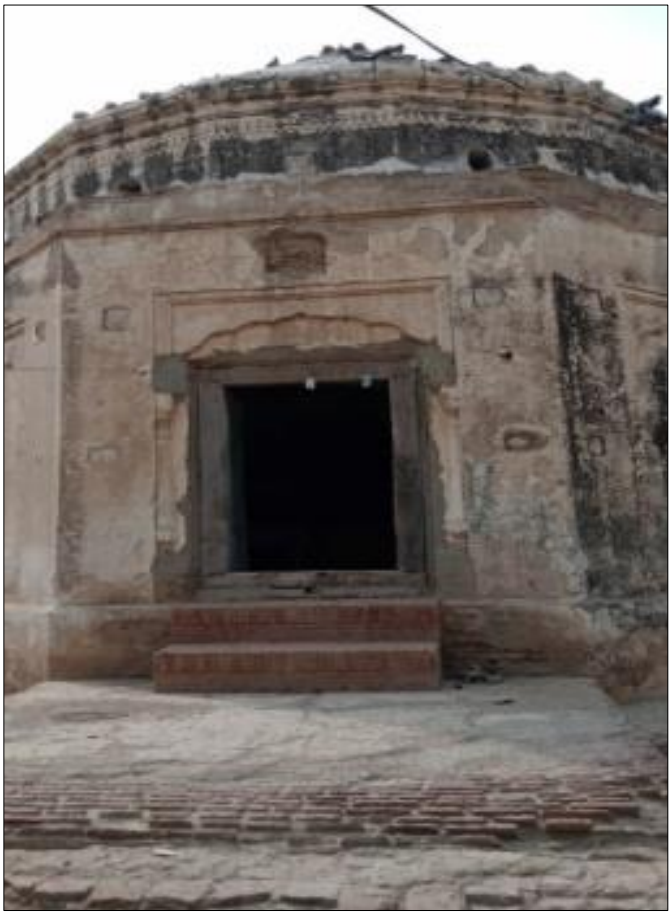


Fig. 4: Views of Samadhi Dewan Sawan Mal (a) Rear View; (b) Front Facade, Multan-Pakistan

B. Classification and Categorization

The physical condition assessment with all documentation of individual defects generated the rating of the historic fabric components and categorized in accordance to the BCA tool as shown in below table i.e., Table I.

Table I: Building Physical condition Assessment Grading System [11]

S.No	Ranking	Categorization
1	a	Great
2	b	Fine
3	c	Sensible
4	d	Essential
5	e	Very Essential

The classification of historic fabric components according to the above mentioned criteria (Table I) was the first assessment directly associated with the conservation hierarchy development plan for further investigations. The conservation hierarchy grading system was followed for each classified rating that connects the physical condition with the priority listing as depicted in Table II.

Table II: Conservation Hierarchy Rating [11]

Rating	Condition	Maintenance Action	Score
1	Acceptable	Defects are not structural and not even damaging	1 – 5
2	Inappreciable	Defects are minute and needs a minimum repair	6 – 10
3	Medium	Defects are structural and needs further investigation	11 – 15
4	Necessitous	Defects are severe structural and the historic structure is unsafe	16 – 20
5	Extreme	Verge of Failure and needs emergency treatments	21 – 25

C. Matrix Development

The next step was the formulation of the matrix and deterioration/damage score as illustrated in tables i.e., Table III and IV, in accordance with the condition and conservation grading system.

Table III: Preservation/ Conservation Action Listing [11]

Score	Preservation/ Conservation Action Listing
21 – 25	Very harsh and want Urgent actions
16 - 20	Harsh and want more factors to study
11 – 15	Main fault and want more deep studies
06 – 10	Slight fault and simple repair
01 - 05	No preservation necessary

Table IV: Matrix Analysis [11]

Matrix Analysis		Maintenance Priority Rating				
		5	4	3	2	1
Condition Rating	5	25	20	15	10	5
	4	20	16	12	8	4
	3	15	12	9	6	3
	2	10	8	6	4	2
	1	5	4	3	2	1

The Samadhi was investigated with all available data/resources and defect sheets were prepared (Table V). While considering the priority listing the whole structure was documented and interpreted with the help of photographic evidences.

Table V: List of Defects Observed on Site

S.No	Component	Defect / Deficiency	Condition Rating	Maintenance Priority Rating	Matrix Analysis
1	Samadhi Structure	Cracks	4	4	16
2	Stair case	Missing	5	5	25
3	Door	Termite attack	2	1	2
4	Window	Missing	3	2	6
5	Water body	Destroyed	5	5	25
6	Steps	Dismantled	4	4	16
7	Facade	fungus	3	3	9
8	Dome	Broken	4	5	20
9	Boundary wall 01	Demolished	5	5	25
10	Boundary wall 02	Temporary wall	3	2	6
11	Boundary wall 03	Missing	5	5	25
12	Boundary wall 04	Broken	4	3	12
13	Boundary wall 05	Temporary wall	3	2	6
14	Boundary wall 06	Demolished	5	5	25
15	Boundary wall 07	Missing	5	5	25
16	Boundary wall 08	Mostly cracked	5	5	25
17	Landscape	Destroyed	4	2	8
18	Decorative elements	Missing	3	1	3
19	Lotus Flower	Broken	5	2	10
20	Paintings	Dull	1	1	1

The sorted data was further used for rating and analysis through matrix of each defect identified. The overall rating of the building (Table II) is calculated as follows:

Building Rating = Sum of Matrix/Sum of Defects
Building Rating = 290/20 = 14.5
Building Rating = 14.5 = 15
Building Rating = 3

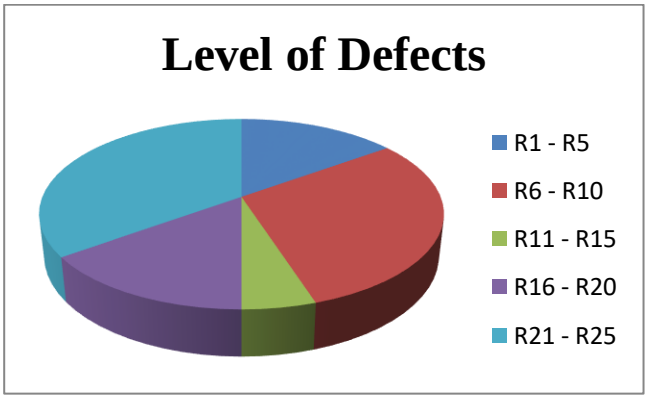


Fig. 5: Chart Shows the Percentage of the Defects

The overall rating of the Samadhi is '3' indicating the medium damage scale that needs repair strategy with advance scientific examination to ensure its long term survival. This initial rating of the whole structure indicated the need for further detailed investigation of few severely damaged parts in addition to the repair of other minor damaged parts. This tool classifies the structures according to their needs and demands that can facilitate in generating the funds according to the rating system.

V. CONCLUSION

The presented analytical study categorized the Samadhi Dewan Sawan Mal, Multan on the rating system of Building Condition Assessment (BCA) tool with the action plan. The rating of the whole historic site including the structure and its surrounding is '3' that needs repair strategy to regenerate its original character with authenticity. The structure is not severely damaged and proper maintenance plan at this stage can save the historic structure for future generations. The Samadhi Dewan Sawan Mal is one of the important cultural heritage assets with the associated high historical value. The repair and maintenance plan according to the guidelines will help in regenerating its essence and will further enhance its historical value. The BCA tool application on the selected heritage site can be replicated on other sites and national priority listing can be developed. The initial classification can save many such historic sites that are vanishing due to lack of funds availability on time. The employment of this tool can also facilitate the decision making for severely damaged historic structures and emergency requirements/actions.

VI. FUTURE RECOMMENDATIONS

The presented analytical study categorized the Samadhi Dewan Sawan Mal, Multan on the rating system of BCA tool. The rating of the whole historic site including the structure and its surrounding is '3' that needs repair strategy to regenerate its original character with authenticity. The structure is not severely damaged therefore the following framework/recommendations can stop the further decay:

- A detailed documentation of Samadhi Dewan Sawan Mal, Multan in the present condition.
- Identification of Historic Fabric that needs scientific examination for further clarity in decision making.
- Preparation of conservation plan after identification according to the condition analysis.
- Scheduling of the proposed restoration and conservation works.
- Keeping the Authenticity and Integrity of original content in the light of historical analysis.
- Technical expertise for the implementation of the conservation plan.
- Minimum interventions necessary only for structural consolidation.
- Maintenance scheduling and planning.
- Proper Implementation of the proposed sequential process can only ensure the long term survival of the Samadhi that is on verge of disappearance.
- The final recommendation is the development of Endowment Fund Trust in Punjab for restoration of damaged historical places at regional level as well as other provinces that can further creates the consortiums at national level.

ACKNOWLEDGMENT

J. Qamar would especially like to thank to School of Architecture and Planning, University of Management and Technology for providing unconditional support for the preparation of this research work. The authors would like to thank all contributors in providing the necessary assistance for the documentation of the historic structure.

REFERENCES

[1] Faridi, M., N., A., K. (2007) *Tareekh e Multan* (3rd Ed.), Qasarraul Adab. pp. 225–300.

[2] Aleem-ud-Din, F.S. (2012) *The Untold Story of Sikh Rule under Ranjit Singh*, Faqir Khana Museum, Lahore, pp. 50-77.

[3] Ali, S. (1847). The Sikhs And Afghans, In Connection With India And Persia, Immediately Before And After The Death Of Ranjeet Singh, London: JohnMurray and Albemarle.

[4] Amarnath, D. (1928). *Zafarnama-i-Ranjit Singh* (S. R. Kohli, Ed.) Lahore: Punjab University.

[5] Banerjee, A. (1985). The Khalsa Raj. New Delhi: Abhinas Publication.

[6] Banga, I. (1978). Agrarian system of the Sikhs: Late Eighteenth and Early Nineteenth Century. New Delhi: Manohar Publishers.

[7] Qaiṣar, I. (1998). *Historical Sikh Shrines in Pakistan*. Punjabi History Board.

[8] Yacob, S., Ali, A. S., & Peng, A. Y. C. (2016). Building condition assessment: lesson learnt from pilot projects. In *MATEC Web of Conferences* (Vol. 66, p. 00072). EDP Sciences.

[9] Zuraidi, S. N. F., Abdul Rahman, M. A., & Akasah, Z. A. (2018). The development of condition assessment for heritage building. E3S Web of Conferences 65, 01007.

[10] Zuraidi, S. N. F., Rahman, M. A. A., & Akasah, Z. A. (2017). Measuring the Important Element of Defects in the Heritage Building. *Management*, *2*(6), 73-83.

[11] Noor, S. M., Mei, C. S., Ibrahim, I. S., Sarbini, N. N., Osman, M. H., & Khiyon, N. A. (2019). Heritage building condition assessment: a case study from Johor Bahru, Malaysia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 220, No. 1, p. 012024). IOP Publishing.