

Sustainable Viability for Restoration and Adaptive Reuse of Sikh Era Havelis in Lahore, Pakistan

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Abstract— This research is concept-based investigation of assessing the practical viability in terms of sustainability, for restoration and adaptive reuse of Sikh Era historic Havelis in Lahore. The timeless history, architecture and unique features of interior built environment of Sikh Era Havelis are considered to be as an ideal aspiration for conservation and adaptive reuse in the recent times. History reveals that there are numerous cases of reused historic buildings that illustrate the practicality of the concept in relation of sustainability; economic impression, strength of public relations and usability of current urban assets including energy protection. A heritage survey of Sikh Havelis in Lahore, expert interviews and a review of literature regarding adaptive reuse of historic buildings is used as an instrument of conducting qualitative and comparative research. The paper recommends key implications for local governments in Lahore and ultimately offers a theoretical research outline that can be incorporated in the decision-making processes for restoration and adaptive reuse projects. The expert opinion directs that adaptive reuse is important for quality enhancement, practicing sustainability principles; renew the old resource with future demands. The experts were agreed that adaptive reuse increases the age of building, provides safe and healthy environment and feasibility stage of adaptive reuse give direction to decision process.

Index Terms— Adaptive Reuse, Sikh era Havelis, Restoration, Sustainable, Heritage Survey.

I. INTRODUCTION

Rapid urbanization along with industrialization, air pollution and other environmental factors has imposed a threat of severe damage to the Pakistan's built heritage. There are several examples of splendid historic structures that have plunged into poor condition and many more demolished due to lack of consideration for heritage conservation [1]. Owing to the current situation, this paper aims to make people realize the need to preserve our architectural heritage and present the idea of conservation and adaptive reuse of the built heritage in a new perspective.

Historical buildings need to be held as assets and resources. They are often described as reflections of the values and culture developed over the generations. It is a form of a connection through which people can relate to their ancestors. Heritage conservation thus, becomes a value which is intangible and cannot be measured in monetary terms. If the mindfulness is instilled in people, then conservation will not require extensive amount of financial resources. Buildings of historical significance will be taken care of by people living in

the surroundings in their everyday routine without any outside monetary aid [2-4].

While conservation and restoration form integral part of historic preservation, adaptive reuse of these historic structures can also be another viable approach. With the massive increase in population, the concept of adaptive reuse of historic structures is also gaining popularity as people have become aware of the benefits it can yield in terms of sustainable development. However, the ambiguities remain in several areas which are addressed in the research questions. Adaptive reuse is defined as a, "key factor in land conservation and the reduction of urban sprawl". It is essentially, the reutilizing of a building while restoring its original character [5].

The 'Haveli' is a Persian word used for a huge mansion often associated with royalty and wealth. It's a very majestic version of the contemporary urban built environment [6].

The timeless history, architecture and unique features of interior built environment of Sikh Era Havelis are considered to be as an ideal aspiration for conservation and adaptive reuse in the recent times. However, if this concept is a viable option in terms of sustainability, it is the probe of this research paper [6-8].

The international scenarios indicate that throughout the world, conservation of ancient buildings in combination with adaptive reuse is a common practice. For instance, in India, Rajasthan, many havelis have been turned into hotels to promote heritage tourism. There is a growing need for the concerned authorities to implement the same model and declare all the Havelis of Sikh Era as heritage sites and prospects for adaptive reuse [5-9].

The creation of a contemporary space in a heritage building is a promising idea due to several factors. One of the fine examples of adaptive reuse is 'Mangaldass ni Haveli' an abandoned haveli turned into a boutique heritage hotel and restaurant [10]. Considering all three aspects of sustainability namely environmental, social and economic viability [11]; the research investigated into the pros and cons of adaptive reuse for Sikh Era Havelis.

The study has following objective:

- To investigate contribution of adaptive reuse along with conservation of heritage buildings to a more sustainable urban setting.

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II. LITERATURE REVIEW

The 'City of Lahore' is labeled as one of the eight oldest cities of the ancient world because of the historic buildings. The Sikh Era Havelis form an important part of Lahore's cultural heritage. Most of these ancient buildings are outstanding examples of sustainable architecture, with built-in means of insulation specifically designed to be naturally energy efficient. These all can be incorporated with new urban building systems and can be utilized as adaptive reuse to fulfill the requirements of contemporary urban population [12].

Internationally, there are several examples of previously done adaptive reuse projects that have proven to be a viable option in terms of sustainability. One of the finest case in point is a former 13th century church which is now turned into a spectacular library located in the Netherlands. This stunning 700 years old church was left to abandonment before it was converted into one of the world most beautiful bookshop [13]. There are plenty of similar proposals that can be worked on with reference to the ancient havelis in the Walled City of Lahore. However, the impact of these projects on environment, social and economic aspect is yet to be inquired in this region. Examples closest to our scenario, are from India, where adaptive reuse of haveli forms is now becoming a common practice. Restoration and adaptive reuse of Sikh 'Ram Lal Khemka Haveli', Kashmere Gate Dehli is one of the first restoration and adaptive reuse initiative in the Walled City of Dehli [14], [15]. The beautiful Haveli has turned into a modern residential unit. The process of adaptive reuse involved comprehensive structural repair including electrical works and interior design. Another significant aspect is the renewal of historic finishes such as china mosaic, lime stucco plaster etc. The project has proven to be an exemplary precedent of a sustainable forthcoming model to be implemented in the havelis of our region.

There is an ever increasing awareness and acceptance all over the world regarding conservation of heritage buildings to provide benefits in relation to sustainability (environmental, social and economic). The amalgamation of historic conservation along with mindfulness regarding sustainability issues has become a crucial part to encourage sustainability [3-13].

There are several examples locally and worldwide supporting the fact that massive financial benefits can be derived from the adaptive reuse of historic buildings. Locally, restoration and adaptive reuse of 'Baltit Fort', Karimabad can be denoted as a prime example. The historic Fort has been utilized as a resort for foreign and local tourists. With the continued urban development and ever-increasing expansion of the cities, adaptive reuse can be utilized as a sustainable strategy in terms of environmental, social and economic factors. Many countries have begun to recognize that reusing heritage buildings is a significant part of any revival program [16]. However, numerous architects still perceive adaptive reuse as an unworkable choice as planning and development rules and guidelines may constrain their practicality and working. To address this issue, Walled City Lahore Authority supported that heritage rules should need the retention of only the greatest and most valuable features of an historic building [17].

In the context of sustainability, this paper tried to review expert opinions and people's practices related with adaptive reuse of haveli form of architecture. One of the common advantages of adaptive reuse of an existing building is, it may only change the function of the building without any major structural changes [18]. Along with the conservation of historical building adaptive reuse can also be used as a strategy to preserve historical cultures and values.

It is eminent to perceive that adaptive reuse of such havelis may not reach the desired standards of environmental performance as compared to new buildings. There is a widespread conception that adaptive reuse of existing historic buildings can be uneconomical. In most instances, change of function may not be a viable option due to the location or layout of the historic building, especially the ones used for commercial purposes. Nevertheless, utilizing an existing space after conservation is normally best effective source policy to give accommodation or for other miscellaneous purposes.

III. RESEARCH METHODOLOGY

This research is qualitative and comparative in nature. It involves a heritage survey of Sikh Havelis in Lahore, combined with expert interviews and a review of literature about adaptive reuse of historic buildings. A heritage survey is a well-established technique for methodically investigating heritage resources within a defined geographic area. The research methodology partly utilizes individual narratives and oral history, based on discussions held with the local residents and experts in the field. The interview questions were based on the set objectives such as efficiency of adaptive reuse, strategy to achieve sustainability, suitable or unsuitable attributes for adaptive reuse, features effecting decision to reuse, barriers and opportunities to adaptive reuse of Sikh Era Havelis.

The Heritage survey for this research conducted through following process:

- i. Heritage property owners, key experts from the field and community groups were consulted early in the process to identify potential issues, risks and opportunities.
- ii. The local community has been an active partner and contributed knowledge pertaining history of Sikh Era Havelis in the Walled City. A diversity of opinions about restoration and adaptive reuse of ancient *havelis* were sought to ensure that views are broadly representative.
- iii. Heritage professionals employed by local government provided technical skills and services needed to carry out the heritage survey.

The structures selected for heritage survey included the havelis located inside Walled City Lahore. According to historical interpretations, the Sikhs built several Havelis in the Walled City, by adopting certain features of Mughal Architecture and their own design and techniques. At present, these Havelis are now under the government jurisdiction or owned by private families. While some of these Havelis are very well maintained but most of them requires immediate action for restoration or adaptive reuse. Among the most

prominent havelis, according to their significance in the historical context includes, Haveli Dina Nath, Haveli Baij Nath, Haveli Alif Shah, Haveli Mian Sultan, Haveli Mubarak Begum, Nisar Haveli, Haveli of Nau Nihal Singh and Faqir Khana. The Haveli of Nau Nihal Singh popularly known as Victoria School for Girls. These Havelis are either vacant or used for various purposes e.g. serving as a museum or educational institution. Haveli of Jamadar Khushal Singh has been converted into Chuna Mandi Girls College, Lahore.

IV. FINDINGS AND DISCUSSION

The heritage survey and expert interviews identified significant factors that determine the need for implementing conservation and adaptive reuse for Sikh Era Havelis in Walled City.

Table I: Summarized Results of Interviewed Respondents

Needed Features in Old Havelis	Agreed Features in Old Havelis	Differences of Opinions in Old Havelis
To Encourage Further Conservation	Adaptive Reuse of Old Haveli Increased its Value	To Decide Adaptive Reuse is Economical or Not
	Adaptive Reuse of Old Haveli Increased Age of a Building	
To Enhance The Quality of Built Heritage	The Old Buildings Give Incentive to Rebuild or Demolish	
To Incorporate Sustainability Principles	Old Buildings Reuse Provided Safe and Healthy Environment.	
To Treat Old Buildings as Renewable Resources	Feasibility Stage Provide Factors to Incorporate in Decision Process	
To Consider the Ability of the Building to Blend in Future Changes		

The Table 1 demonstrated the fact that there is a dire need to encourage restoration/adaptive reuse projects to preserve the historical architecture. The emphasis was placed on incorporating sustainability principles and these Havelis should be treated as refurbished renewable resources. There was wider opinion about preserving a building in a better prospect if it is used for some other function. Since the current situation of the havelis is crumbling, the respondents believed that adaptive reuse should be a viable option instead of disposal of the building. In the same instance, respondents perceived the poor condition of a building provided the potential for restoration or adaptive reuse as well as demolishing the structure. Interviews identified that it is important to consider the ability of the building to blend in requirements of urban progression. Incentives provided by the relevant authorities, were identified as the most important factor that can motivate the concerned people to conserve buildings. Experts from the field were convinced of adaptive (building) reuse and refurbishment as a sustainable option as opposed to demolition and rebuilding.

To formulate conceptual working framework for the architects and developers regarding restoration and adaptive reuse of Sikh Era historic Havelis, the survey highlighted various

factors that should be considered in the decision-making process. Cultural significance of the haveli needs to be assessed before adaptive reuse consideration. In addition, multiple practical options for reutilizing a building shall be explored while keeping cultural and historical character of the building in the view. To initiate the process for adaptive reuse, feasibility studies should be carefully developed and analyzed to ensure and determine whether projected outcomes can meet sustainability benchmarks in terms of social, economic and environmental benefits. Some of the respondents perceived it to be necessary to explicitly determine the technical and economic challenges of adaptive reuse of a Sikh Era historic building. In particular, the determination of how existing mechanisms and the intended construction method would maintain the structural integrity of the building was considered essential. In combination, a cost-benefit analysis that was extended to triple bottom line objectives (including economic, social and environmental sustainability) was also identified as being required. The elements on which the comparison is made are separated in Table I for the new construction and historical structures.

A wide range of barriers and opportunities to adaptive reuse were identified in the interviews (Table II). An inability to estimate economic viability of adaptive reuse was considered to be a barrier. The difficulty to estimate the costs of adapting a building compared with the costs of constructing a new one. There was a perception that it was more economical to demolish and construct a new building than to reuse. Adaptive reuse was perceived to be cost effective, in most cases, but the availability and price of materials to match existing elements/fixtures/fittings was an issue of concern. It was perceived that retaining older buildings rather than building new ones would create a more aesthetical environment for the community. While older commercial buildings often do not support passive environmental techniques, it was perceived that existing buildings do provide opportunity to test many new innovative technologies and develop diverse solutions to enhance sustainability. Analyzing the impact of adaptive reuse on sustainability, respondents believed that adaptive reuse would impact sustainability by reducing the amount of demolition. However, some respondents felt the impact would be beneficial, while a few felt it would have a negative impact. The respondents felt that the adaptive reuse project of a Sikh Era Haveli will be economically viable only if costs and benefits were factored in over the life of the building. Although adaptive reuse was seen as a more sustainable option than redevelopment, the decision would be case sensitive. Although some of them felt that in some cases adaptive reuse could inhibit energy efficiency and the opportunity to increase urban density, it had other benefits in this context such as visual amenity and cultural heritage values. Provided the structure of existing buildings is still functional, respondents felt that adaptive reuse should be a prime consideration in terms of sustainability. The majority of responses emphasized that it must be assessed on a case-by-case basis, but with an innovative approach the longer term sustainability of a building should be enhanced by adaptive reuse. Adaptive reuse was seen to be effective because the respondents that referred to economic viability, felt the costs to demolish outweighed the costs to improve the building. Respondents

identifying eco-efficiency as a factor, referred to case studies that show eco-efficiency of buildings is increased during adaptive reuse by using efficient heating, insulation and low-impact materials. It would appear from the respondents generally that utilizing existing buildings through adaptive reuse provides the opportunity to make the total built environment more aesthetically pleasing and productive, while holding streetscapes and our sense of place.

Table II: Opportunities and Barriers of Adaptive Reuse of Historic Buildings

S.No	Opportunities	S.No	Barriers
1	Retaining older buildings rather than building more new ones would create an aesthetically pleasing environment for the locality.	1	An inability to estimate economic viability
2	Adaptive reuse would impact sustainability by reducing the amount of demolition	2	More economical to demolish and construct a new building than to reuse
3	Sikh Era Haveli will be economically viable only if costs and benefits were factored in over the life of the building	3	Availability and price of materials to match existing elements/fixtures/fittings
4	Adaptive reuse could inhibit energy efficiency and the opportunity to increase urban density	4	Older commercial buildings often do not support passive environmental techniques,
5	Visual amenity and cultural heritage values	5	Existing buildings do provide opportunity to test many new innovative technologies and develop diverse solutions to enhance sustainability
6	Total built environment more aesthetically pleasing and productive, while holding streetscapes and our sense of place.	6	Felt the costs to demolish outweighed the costs to improve the building.
7		7	Eco-efficiency as a factor, referred to case studies that show eco-efficiency of buildings is increased during adaptive reuse by using efficient heating, insulation and low-impact materials

V. CONCLUSION

The restoration and adaptive reuse of historical Havelis in Lahore can be a promising idea as far as the principles of sustainability is concerned. However, there are ambiguities and grey areas to be addressed, especially where economic viability is concerned. In case of Sikh Era Havelis in Walled City, these heritage buildings can engage local communities with a commanding reason to look after their surrounding environments. These Havelis are Heritage and cultural representations of a golden era in the subcontinent and the restoration/adaptive reuse will impact on community wise sense of belonging which is main component of social sustainability. Regardless of unusual plot ratios or lack of functional efficiency, it is preferable to reuse these Havelis

rather than replace or demolish due to significance of their historic existence and cultural values. These ancient Havelis can be a visual delight that connects the local surroundings with its historic origin. However, if the restoration/adaptive reuse of these Havelis in the Walled City can contribute to the three principles of sustainability; has not been explored comprehensively. There seems to be a conflict of interest whether the historic values to be preserved or the progression of the sustainable urban design agenda should be promoted. In some cases it appears that the historic materials used in the Havelis may obstruct the use of new innovative materials or techniques needed for adaptive reuse. Also, to ensure not to interfere with the ancient Haveli's original character is yet another challenge. Despite presenting many positive outcomes in terms of sustainability, the adaptive reuse of historic Havelis, may create many such problems. This idea may entail many technical difficulties that working on ancient Havelis will generate. The availability of the materials used in the ancient buildings can become a major issue as many of the materials and components used in these historic buildings are no longer readily available in the market and may have to be contrived on order. Next issue will be the availability of the suitably qualified skilled craftsman. There used to people working manually to create the masterpieces in architecture we witness today in the form of these ancient Havelis. Modern architecture, however, uses innovative time-saving technologies therefore craftsmanship of such level is exceptionally sparse and expensive. Therefore, from an investment point of view, these issues will impact on the economic viability of carrying out an adaptive reuse project and may prove totally impractical for developers in Pakistan. Only if the federal government or on provincial level incentives are provided, maybe the case of adaptive reuse will present a strong footing. The need of the hour is to provide awareness to the general public about the crumbling situation of these Havelis in the Walled City. The ability to make heritage buildings attractive to developers as viable reuse projects relies heavily on the introduction of legislation that offers substantial financial incentives. The research has highlighted several broad questions concerning the adaptive reuse of Sikh Era Historic Havelis. These heritage buildings are icons that should be conserved rather than left for abandonment and disrepair. The research will be helpful in formulating a conceptual framework to plan and implement restoration and adaptive reuse of Sikh Era historic Havelis in Lahore

VI. RECOMMENDATIONS

According to the findings, following key recommendations are provided to formulate a framework of understanding for restoration and adaptive reuse of these Sikh Era Havelis in Lahore. From the crux of the heritage survey and the views of the local community and professionals, three fundamental guidelines were identified for the implementation of policies regarding restoration and adaptive reuse of these ancient buildings:

- Taking account of the territorial dimension of these ancient sites is the most crucial aspect in the restoration or adaptive reuse of the Sikh Havelis.

These heritage buildings are inherently connected to the surrounding urban territories. It is required to consider the urban functional aspect along with the cultural and historical values attached to the site. The acknowledgement of this territorial dimension is dependent on a better co-ordination between the policies guiding the protection of heritage buildings and territorial strategies of the urban settings. This co-ordination between public and private entities for the development of infrastructure is deemed essential for heritage restoration and conservation. A rigorous definition of a heritage Haveli within the territory would clarify its relations with other areas. It will ensure that the heritage site is restored and utilized for something better again without losing its original character, and will not cause any disturbance in the daily life function of its surrounding area.

ii. The heritage sites all over the world are considered to be as witness of relationship between past and present. There is global strategy widely accepted for the development of historic buildings which is based upon respect for heritage values and the strengthening of identity to contribute in reinforcing social interconnection. The aim is to safeguard the social connection as well as economic viability with tourism promotion. For this, there is a dire need to elaborate an economic and social development strategy. To achieve this improvement, awareness programs for the residential community, small businesses, artisans and other activities must be encouraged. The activities must be designed to welcome populations from all social, ethnic or religious categories. The outstanding cultural image of these historic Havelis and the specific potentials originating from their history can be used in developing economic strategies for the Lahore city. Therefore, it is of paramount importance to strengthen the mutual collaboration among concerning national and municipal authorities, non-governmental organizations and local community, as well as with the private sector in defining an integrated socio-economic urban development and heritage conservation and restoration strategy.

iii. A proper working framework is essential for strengthening the public institutions that contribute in the formulation of restoration and adaptive reuse policies. Economic and social development projects should be based upon a long-term clear, coherent and publicly approved political vision. In this framework, the involvement of the legitimate local authorities is an essential component for successful implementation. These authorities should be responsible for the coordinated supervision of conservation or restoration and development interventions. The inclusion of these Sikh Havelis in the law as well as the implementation is essential in true letter and spirit. Private property owners of these ancient buildings, who are participating in restoration and development policies of general interest, should be supported by public funding.

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