

Adaptive Re-Use of Sahib Mahal to Small Hotel in Badin District, Sindh, Pakistan

Geeta Khatri, Dr. Sabeen Qureshi, Dr. A.K

Abstract— It is a method that turns a disused building into a new building that can be used for another purpose. So, for this research, we concentrated on one form of adaptive reuse of sahib mahal to small hotel, based on four major changes and impact issues. Criteria have been developed for change and impact, physical change, economic change, change in value and social impact. The aim of this research is to explore the changes and impacts of adaptive reuse as a small hotel on heritage buildings. As for adaptive reuse "Sahib Mahal" has been chosen. "Sahib Mahal" is situated in the city of Khadaro, the town of Tandobhago and the district of Badin. The research is a mixed method, both qualitative and quantitative. The data collection of research is done through observation, interviews and questionnaires by owners and 12 informants from surrounding community.

Index Terms— Adaptive re-use, Heritage building, Sahib mahal, Small hotel, Changes and Impacts

1. INTRODUCTION

1.1 Historical Background

Pakistan has many historic buildings, each of which has a unique story and value. Such historic buildings have an impressive architectural style that needs to be preserved to recognize the quality of past workmanship and historical features, as it will be evidence of future generations of local history. Therefore, it was officially announced by the government to convert heritage buildings into licensed museums, parks, educational institutions, and hotels. Buildings of historic value, religious sites and other tourist sites, scattered across the country, have an enormous potential for tourism that needs to be introduced to the world. Maybe some of us feel they're not important for our economy, but let's think about it for a moment if we can reuse the building that's going to be an economic problem for our country rather than demolishing the building and constructing the new one. Approximately 30% that our country is already waste the production of buildings in Pakistan? That is why the government is focusing seriously on converting them to better and productive use. Adaptive reuse of heritage buildings can offer many benefits in many respects, but what is adaptive reuse? It transforms a demolished building into a new building that can be used for another purpose.

• Dr. A.k., Department of Medicine, Liaquat University of Medical and Health Sciences, Jamshoro, Pakistan

It is therefore a common way of adapting heritage buildings as a type of strategy for the preservation of cultural heritage, as it preserves the life of buildings and prevents demolition, encourages the reuse of incarnated resources and also provides significant social and economic benefits to society. Some successful examples of the adaptive reuse of heritage buildings in Pakistan already exist, such as the House of Prime Ministers for transformation into the Islamabad National University. The Governor House and the Punjab House are transformed into a small hotel and tourist complex in Murree. In Lahore, the Governor's House would be transformed into a museum and an art gallery, while its lawns would be used as public parks. The State Guest House would be transformed into a five-star hotel. In Karachi, the governor's house would be transformed into a museum. The Baluchistan Heritage Building would be transformed into a museum and its grounds would be used as a women's park.

Adaptive re-use has several functional patterns: heritage buildings adapted to office buildings, museums, small hotels, restaurants and shops. (Pongsermpol, 2011). In this research, we therefore focused on an adaptive re-use as a small hotel of the heritage building based on four major issues of changes and impacts. Change and impact parameters have been identified, including physical changes, economic change, value change, and social impact. Each case can show a very different outcome from other cases; the programs of ar-hb-sh have always led to change in physical, economic, value, and social impact. Therefore, this research remains based on these four major issues.

- Geeta Khatri, Department of Architecture, Mehran University of Engineering & Technology, Jamshoro, Pakistan
- Dr. Sabeen Qureshi, Department of Architecture, Mehran University of Engineering & Technology, Jamshoro, Pakistan

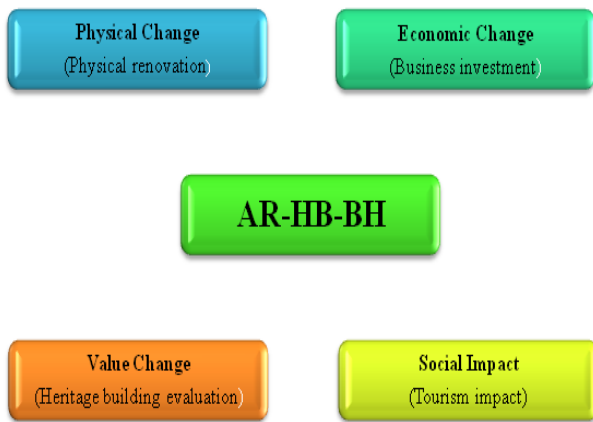


Fig-1: Four major issues of changes and impacts

1.2 Four major Approaches Issues and Sub-Issues

In this research, four major issues focused on change and impact: are as follows:

Physical change, emphasis on five sub-problems, structural strength of the building (column, beam, floor, roof slab), architectural condition of the building (wall, ceiling, finish, door and window, toiletries, stucco, ornamentation system), various systems of building (electricity, supply of water, drainage, air conditioning, fire services), conditions of the interior (fixed furniture, move furniture, appliances, decor) and conditions of the exterior and surrounding areas(plants, landscape, fences).

Economic change, emphasis on five sub-problems, building price (estimated building value), exact operating costs per month (Estimated cost of building improvement including , structural and construction work, interior and mechanical work), average monthly income (average monthly income from deductible hotel operations).Owner satisfaction score (Hotel operating income satisfaction level), and overall consumer score (Online visitor satisfaction level).

Value change, emphasis on five sub-problems, cultural identity heritage value (Value reflecting unique identity, pride of ownership of the worth preserving architectural heritage), design value (value reflecting the principles and heritages of architectural design, including form, structures, functional concepts and crafts), aesthetic value (beauty with the most valuable arts and architecture), cultural value (value that reflects the local community's way of life and traditions) and an integrated view of all values (Highly integrated architecture).

Social impact, emphasis on five sub-problems, environmental and pollution (noise, smell, traffic and population density), economic development in the community (tourism income and income from other means), stakeholder interactions (collectivity and

participation), privacy (original lifestyle, serenity) and security (danger, robbery, crime).

1.3 Study Area

The area of research is Sahib Mahal, located in Tandobhago Badin district. This historical building built in 1922 to 1947.

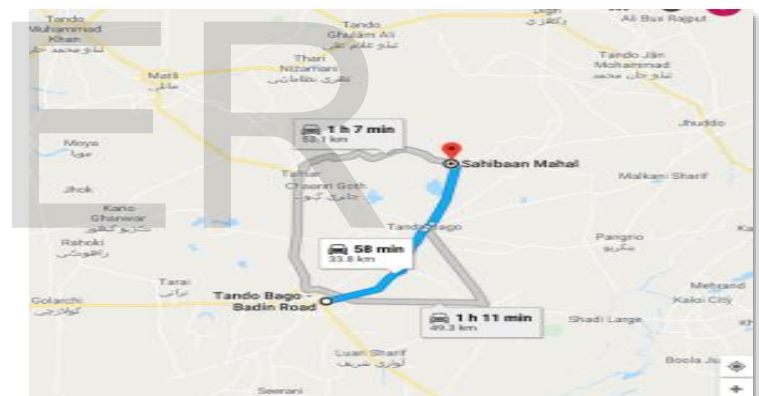


Fig-2: Location Maps of "Sahib Mahal"

1.4 Problem Statement

Pakistan is becoming more aware of the value of cultural heritage. However, heritage buildings that have been used as a tourist site have been linked to the area for the new purpose or function of the buildings. The building's purpose is not to be used as the tourist site and they may face a problem in finding space to view the building's data without affecting the building structure. Minor support may be required for the building to make it stable and safe to visit. It is hard to maintain the building structure in accordance with the building's originality, which is the tourist's draw to come. Determining the materials used in heritage building is challenging. The result of the restoration operation can change dramatically depending on the viewpoint.

1.5 Aim

Aim of the research is to analyse the existing condition of the "Sahib Mahal" and recommend the guideline for adaptive reuse of sahib mahal to small hotel.

1.6 Objectives

1. To investigate the issues that, physical, economic, and value changes that occurred after an adaptive reuse of "Sahib Mahal" and to examine the social impacts on its community.
2. To collect the data regarding four main issues and to analyse the changes and impacts from before and after reuse the heritage building.
3. To provide the information and guidance for adaptive re-use of heritage building to small hotel.

1.7 Scope of the Research

The scope of the research focuses on sahib mahal as a small hotel in the Badin area. As far as the scope of the research is concerned, we chose this building only more than 70 years old with a deeper concentration on mixed qualitative and quantitative research. The reason for this selection was that "Sahib Mahal" was located in the inner area of Badin, a good representative in a mixed-use community, an old and outstanding historical trading community.

2. RESEARCH METHODOLOGY

The research is mixed qualitative and quantitative method. "Sahib Mahal" was selected as a case research for adaptive reuse.

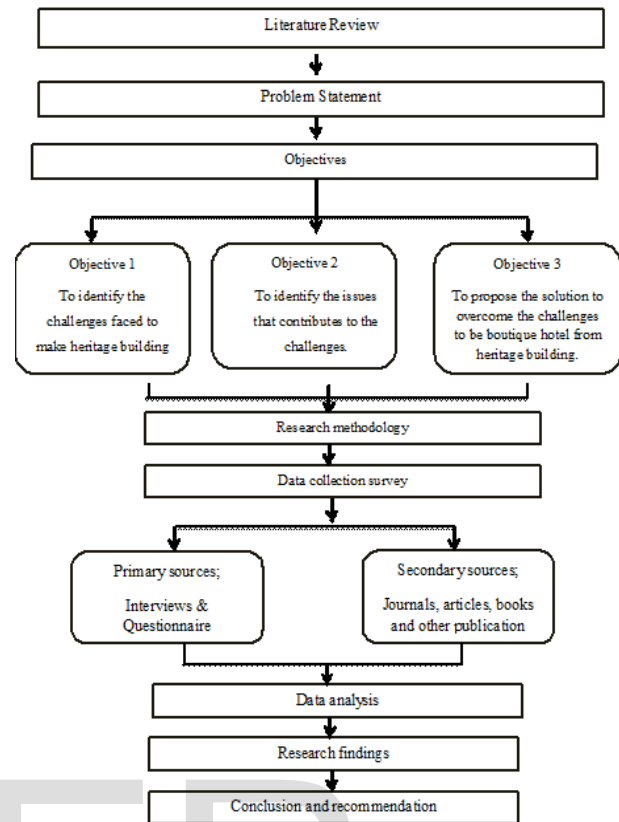


Fig-3: Research process framework

2.1 Data Collection

Research data collection consists of observations interviews and questionnaires from the building owner and 12 informants from the "Sahib Mahal" surrounding community. M.S Excel is used to compare the views of the owner and the informant. Furthermore, digital camera and sound recorder was used as tools for data collection.

2.2 Basic Information on "Sahib Mahal"

The Mahal had three levels, five entrances and six circular roof, two on each level, each floor had a space with a terrace and colorful stained glass, the Mahal had two terraces on three sides of the building and a round swimming pool on the front of the building, Mahal's doorway is 70 years old and the wood is broken but still it gives a fitting picture of Mahal, this Mahal hasn't lost its true essence yet, the Mahal is undeniably an amazing hand imagination. The labors came from India to build this beautiful monument, according to the old natives of this region. The wood and furniture from Belgium were imported. There was no railway track and roads in the 1940s linking the metropolitan towns with this small town of Khadaro, so all the stuff came via boats. This beautiful monument is concerned with the beauty of its uniqueness. The Mahal is built in the center of the beautiful fields and a beautiful view can be seen on the roof, sunrise and sunset with the natural fragrance of the fields. Outside and inside

the Mahal, Neem trees and other plants make it look more beautiful.

2.3 Materials Used In Construction of “Sahib Mahal”

- ✚ Burnt Bricks
- ✚ Ordinary Portland cement (OPC)
- ✚ River sand
- ✚ Hill sand
- ✚ Lime
- ✚ Coarse aggregates (Crush)
- ✚ Reinforcement(Steel)
- ✚ Wood (Sag wan)
- ✚ Fibre Glass
- ✚ Plaster of Paris (False ceiling)
- ✚ Cemented colour glazed and unglazed Tile

2.4 Design characteristics of Sahib Mahal

There are three floors in the Mahal, floor plus two stories.

2.4.1 Ground Floor

The ground floor consists of five verandas, three bedrooms, one kitchen, two staircases, three bathrooms, two dome rooms, four storerooms. Ground floor contain boundary wall in between Sahib Mahal structure consists, it has swimming pool within the boundary of Mahal it is the beauty of this Mahal shows the luxuries and living style of this Mahal. The area covered by the ground floor is 463sq. Yards (4160 square feet). Ground floor height is 12.6.' There is a stair case in the veranda on the right side to go to the top floor. An iron staircase to go up to the first floor. The boundary wall is made of cement mortar bulk stone masonry. The protected area of the entrance porch is 580.64Sq-Ft (47'-9 "X 12'-2"). Veranda height is 12'-6."The walls of the verandas are made of concrete sand mortar (1)"thick. Room width (19'-"X14'- 0") Space height is 12'-6. "The walls are made of concrete sand mortar. Distemper paint is used on the interior walls.

2.4.2 First Floor

First floor consists of three rooms, two bathrooms, two terraces open to the sky, four covered verandas, seven balconies and four domes. The first floor covered area is 5944 sq. Ft. Ground floor height is 12.6 '.verandas

2.4.3 Second Floor

The second floor consists of one bedroom, seven balconies and two domes. The second floor is 12.6 ' in height.

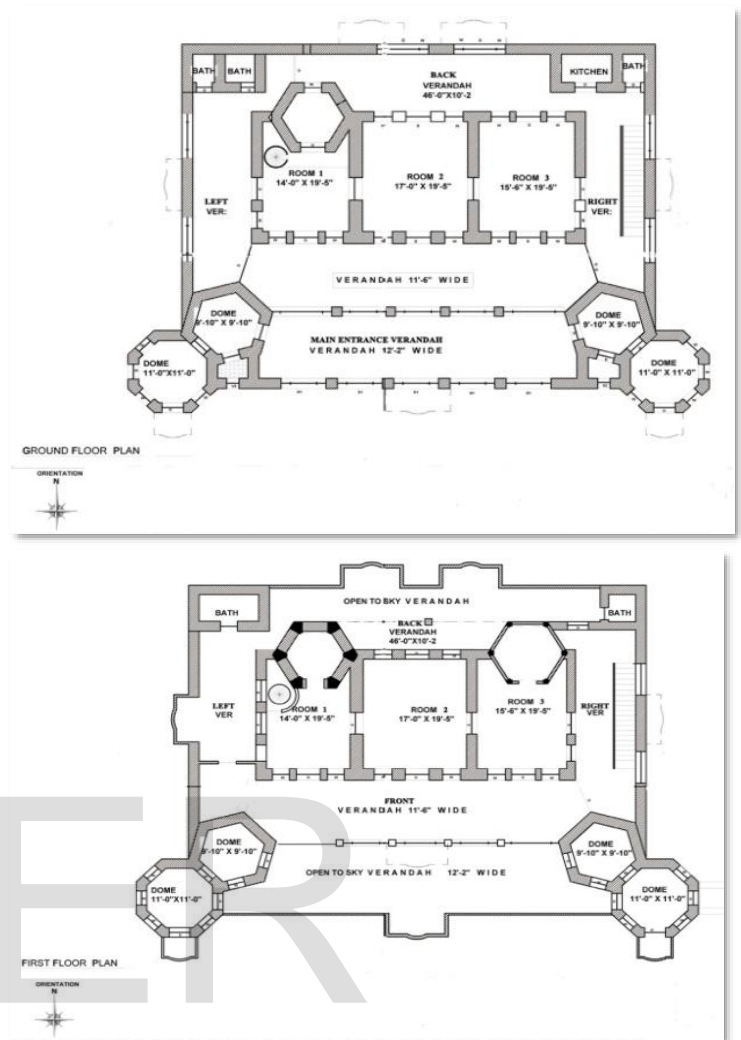


Fig-4: Existing floor plans of “Sahib Mahal”





Fig-5: Exterior views of "Sahib Mahal"

3. RESULTS

Data obtained from the building owner's assessment and 12 informants from the surrounding community, which are divided into four sections. M.S Excel is used to generate bar charts for the assessment data.

3.2 Physical Change

Physical change based on the physical renovation building, physical data was obtained from secondary data assessment and a detailed interview with the "Sahib Mahal" owner." We focused on five main issues for physical change research.

Table -1: Survey Results of Physical change

S#	Issues	Results
1.	Building's Structural Strength	As for the "Building's Structural Strength", the former conditions of the pile system, column, beam, floor, and roof framing were all in good condition. There was no change in structural strength after re-use. Columns constructed with R.C.C and chips work is found over columns and found in good condition. All cantilever beams found to be in good condition. Reinforcement used in beams, columns, and roof slabs it is found in fine condition. floor inside the building is made with cemented coloured Tiles (8"x8"x3/4") which are in good condition too.
2.	Building Architectural Condition	As for the "Building Architectural Condition", the former conditions of the brick wall, false ceiling, and door-window system were in good condition and there were no change in after the re-use. Architectural work

		is done on outer sides of building found in very good condition. Whole building is plastered with cement except two walls in 1st main entrance veranda walls only finishing layer of lime plaster found and white wash is done on it. All doors, windows and ventilators are made with wood and glass found in good condition. All of the finishing materials such as floor and wall finishing materials were in good condition and were no change in after the re-use.
3.	Various Building Systems	As for the "Various Building Systems", air-conditioning, and fire protection systems had been previously nonexistent, they were installed after the re-use. The former electrical, drainage and water supply system were in good condition and there were no change in after the re-use.
4.	Interior Conditions	As for the "Interior Conditions", all fixed furniture and decoration were previously in good condition, there were no change in after the re-used and movable furniture, and appliances, were previously moderate condition. They were improved to good condition after the re-used.
5.	Conditions Of The Exterior And The Surroundings	Lastly, as for the "Conditions of the Exterior and the Surroundings", previously landscape, and plants had been moderate condition, They were built or planted and were improved to good condition.

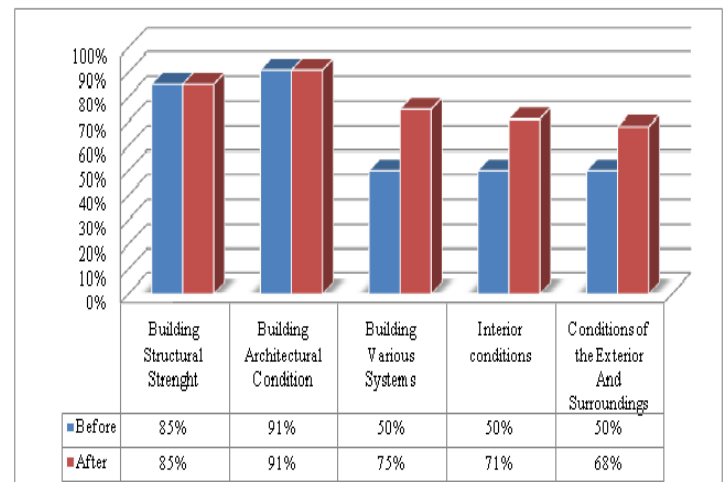


Chart -1: Summary of the issues of physical changes is shown as a bar chart

3.3 Economic Change

Economic change based on the small hotel business, data relating economic change was collected through the assessment and a detailed interview with ' Sahib Mahal ' owner. We focused on five main issues in the research of economic change.

Table -2: Survey Results of Economic change

S#	Issues	Results
1.	Building Price/value	The "Building price/value" was at the high level before the reused, and rose to a highest level after the reused.
2.	Exact Operational Cost Per Month	The "exact operational cost per month", such as for structural work, building work, interior work, and mechanical system work for the before vacant building was at the low level, after the reused, the exact operational cost per month was at a moderate level.
3.	Average Income Per Month	The "Average income per month" for the before vacant building was at the zero level, after the reuse, the average income per month assessed from hotel operation with deducted operational expenses was at a high level.
4.	Owner's Satisfaction Score	The "Owner's satisfaction level" was at a moderate level before the reused and after the reused, level of satisfaction toward the income from hotel operation rose up to a high level.
5.	Overall Score From Consumers' Rating	The hotel's "Overall score from consumer's rating or Tourist satisfaction" was at the high level before when it was a vacant building, after the reused satisfaction score by visitors much improved from the high to highest level.

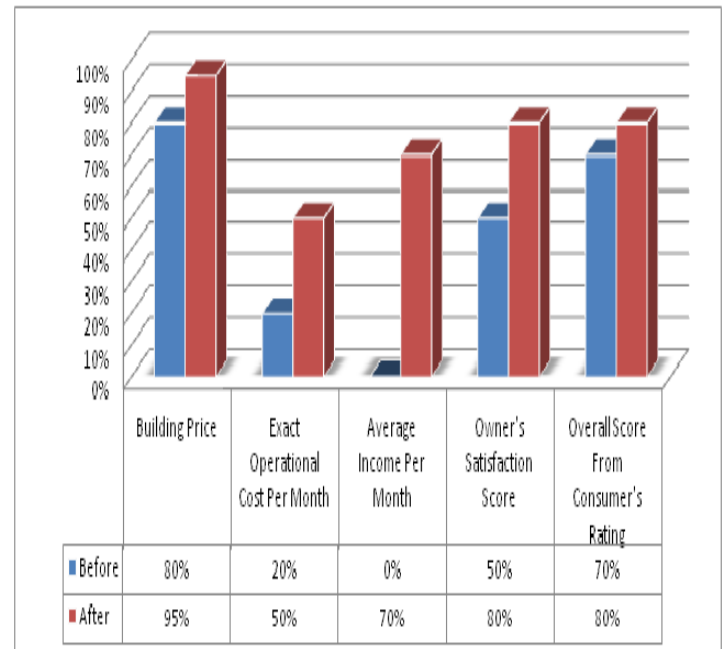


Chart -2: Summary of the issues of economic changes is shown as a bar chart

3.4 Value Change

Value change based on the heritage value, Data on value-change were obtained from the owner of "Sahib Mahal" and 12 informants living close to the building through detailed interviews and questionnaires, so we found that the overall perceptions of small hotel building values were raised to the highest level when the building was completed. On average, nearly every perceived value of the old building after its reuse at a small hotel had a high value than the perceived value.

Table -3: Survey Results of Value change

S#	Issues	Results
1.	Value Of Cultural Heritage Identity	The perceived values of "Cultural heritage identity" was at the high level before the re-used and rose to a slightly more than high or same high level after the re-used.
2.	Design Value	"Design value" rose up to highest level after the re-used
3.	Aesthetic Value	While the "Aesthetic value" rose up to slightly more than high or same after the re-used.
4.	Cultural Value	However, the new perceived "Cultural value" was at a high level, before and rose to slightly more than high or same high level after the reused.

5.	An Integrated View Of All Values	The "Integrated view of all perceived values" was at a high level, rose up highest from the value before the reused.
-----------	-----------------------------------------	----------------------------------------------------------------------------------------------------------------------

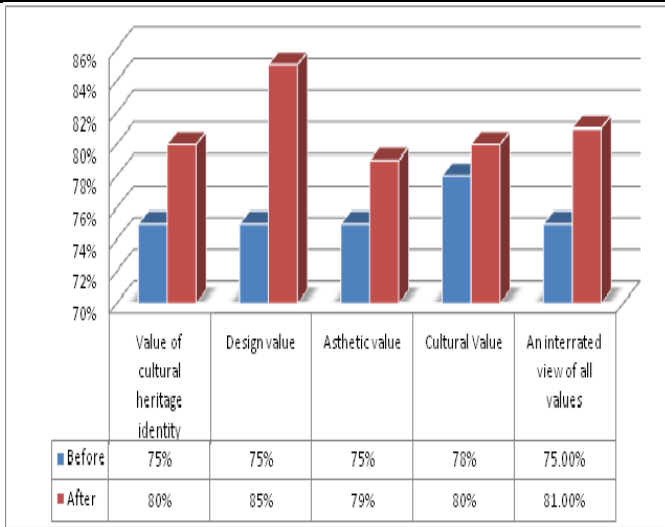


Chart -3: Summary of the changes in perceived values is shown as a bar chart

3.5 Social Impact

Social impact focused on the impact of tourism, as data on the social impact were obtained through in-depth interviews and questionnaires from 12 informants from the surrounding community. We found that before and after re-use of a small hotel project, the overall impact on the community was low. The level of each impact was low on average and slightly different. We focused on five issues for research on social impacts on surrounding community.

Table -4: Survey Results of Social Impact

S#	Issues	Results
1.	Environmental Impacts And Pollutions	The before and after levels of perceived impact on the "Environment and pollutions" (Noise, Odour, traffic condition, and population density) were the same at a low level.
2.	Community Economic Development	For the level of perceived impact on the "Community economic development", (Income from tourism, and Income from other means) it was slightly higher than that before the project was done on the average. Apparently, this increase was from the consideration of higher income from tourism development.
3.	Stakeholder's Relationship	For the "Stakeholders' relationship" (Community interaction, and Participation) were also the same but at a slightly higher level. the adaptive reuse of heritage building to small hotel made the community physical

		environment better, but they did not have much effect on the community's infrastructure. there was more public social interaction but more than half of the informants expressed a neutral opinion, no positive or negative comments.
4.	Privacy Impact	For the impact on "Privacy" (Original way of life), former lifestyle and serenity were not affected even though the community became better known to outsiders.
5.	Security Impacts (Danger)	The perceived level of impact on "Security" (Robbery, Crime) was higher than before shown from the lower level of the possible danger. Some informants thought that the security at night was heightened because of more luminance in front of the building.

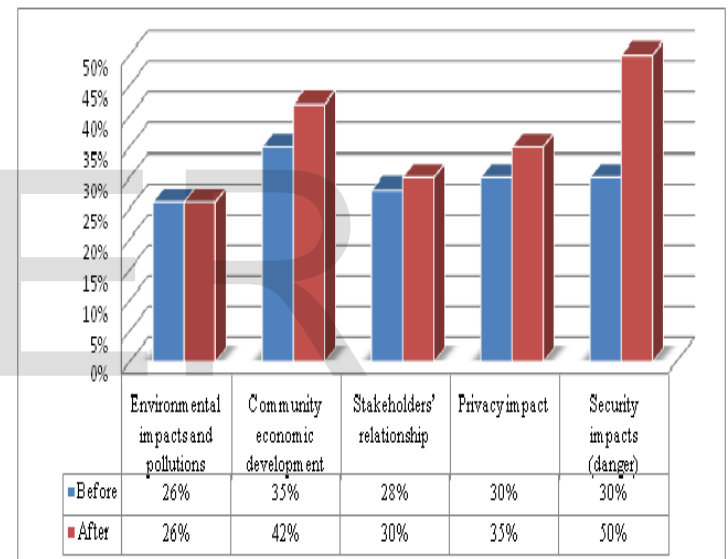


Chart -4: Summary of the perceived social impacts is shown as a bar chart

4. DISCUSSION

The data examination method under this research was set out in three sections to explain this research.

4.1 Changes and Impacts Effected By Ar-Hb-Sh

For the physical change, we found that the average level of physical change perceived by the owner rose up from a moderate level (65.2%) before re-used to a level between moderate and high (78%) after re-used, the former building's structural strength and architectural condition was in high level but the levels of various building systems, interior condition, and conditions of the exterior and the surroundings were successively moderate. After re-used, the building's

structural strength, and architectural condition, was perceived to be at a highest level, and building various systems, interior conditions and exterior conditions and surroundings at a high level.

For the economic change, the average perceived level of economic aspect increased from a level between low and moderate (44%) to a level between moderate and high (75%). The owner evaluated the former building's economic value and satisfaction at a high level while the other sub-issues of economic changes were at the low and moderate level. After re-used, the levels of economic changes mostly were at a high level but the exact operational cost per month was at a moderate level.

For the value change, the perceived level of this change altered drastically from the former to the reused building. The average level of value change increased from a high level (75.6%) to slightly more than high level (81%). The informants who were the building owner and the people living near the building and recognizing the changes of the building gave priority to the design value the most, followed by the aesthetic value and value of cultural heritage identity.

For the social impact issue, the average levels before and after re-use was almost the same between low and moderate at 29.8% and 27.8%, respectively. The social impact affected by this "Sahib Mahal" trended in a positive direction, especially for the security issue. Such as, some informants thought that the security during the night became better because of more luminance in front of the adaptive of heritage building to small hotel.

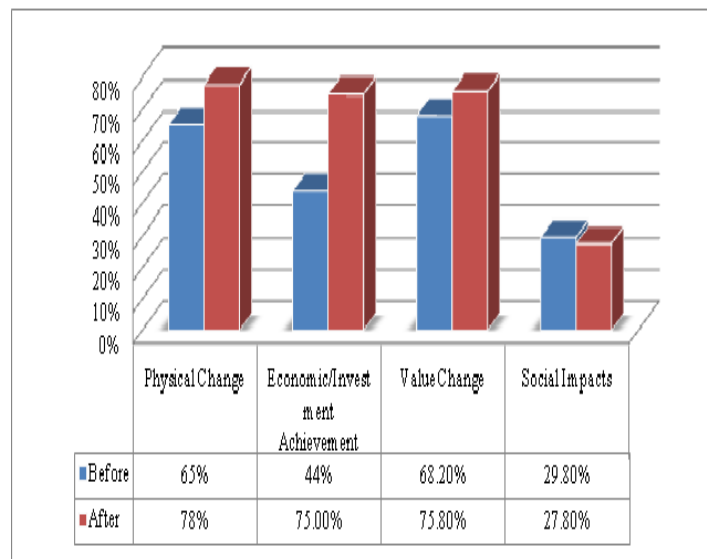


Chart -5: Bar chart of levels of changes and impacts effected by AR-HB-BH

4.2 Comparative Results of Changes and Impacts

With respect to the four main approaches issues, the results from the survey of the adaptive re-use of heritage building to small hotel building named "Sahib Mahal" showed that the level of physical change rose up a little more than twelve percent (12.8%) while the level of economic change rose up thirty one percent (31%) while, the level of value change rose up a little more then five percent (5.4%) and while the level of social impact was at the same level or a little less than before reused (-2%).

4.3 Result Guideline

Four main approaches issues used in this research can be a good general guideline for changes and impacts of adaptive reuse of heritage building to small hotel. Good business supervision and focus on the intended target guests that match well with a particular project are very significant for business success. In addition, adaptively reused small hotels that were not heritage buildings can also be studied this way. The four main approaches can be used to examine any old buildings turned into small hotels with similar procedures. Comparatively, these adaptively reused small hotels might have low scores on value perception and social impact issues but high score on the level of physical changes and it might achieve a high score in economic changes. No matter what they may be, the results from this kind of studies can make the hotel owner and other informants understand their situation more clearly. Most hotel owners may be a newcomer to the community that the hotel is located in. If there is not much negative social impact to the surrounding community, the owner can run their hotel business happily.

alternatively, if there are a lot of social impact issues to the community, the owner and stakeholders can examine what the causes are and make an effort to solve the problems such as participating with the community more and developing the environment of the community more, and so on. The hotel owner can compare the levels of physical and economic changes of his AR-HB-SH to those of other AR-HB-Small hotels. Moreover, if the owner can add some values to the building, he can enhance his hotel business as well. Referring to the introduction, this case study is a good representative of adaptive reuse of heritage building to small hotel of which changes and impacts to the community were clear.

5. CONCLUSIONS AND RECOMMENDATION

For changes and impacts, this study focused on the physical, economic, and value changes, as well as social impacts of adaptive reuse of a heritage building

to small hotel named "Sahib Mahal" in Badin. We found that the level of physical, economic, and value changes rose up to 12.8%, 31%, and 5.4%, respectively, from before the reuse while the level of social impacts stayed the same or decreased very little from the level before the reused (-2%). This mixed qualitative and quantitative research may not be generalized completely to another case with a significantly different context, but the four main approaches, physical, economic, value, and social issues, used in this study can be a good general guideline for generating a new research procedure for other studies of the changes and impacts of adaptive reuse of sahib mahal to small hotel.

REFERENCES

- [1] Pongsermpol, C., & Upala, P. (2017). Impacts of Adaptive Reuse of Heritage Buildings to Small Hotel Buildings in Bangkok. *Environment-Behaviour Proceedings Journal*, 2(5), (449-458).
- [2] Bullen, P.A. and Love, P.E.,(2011). Adaptive reuse of heritage buildings. *Structural Survey*, 29(5),(pp.411-421).
- [3] Plevoets, B., & Van Cleempoel, K. (2011). Adaptive reuse as a strategy towards conservation of cultural heritage: a literature review. *Structural Studies, Repairs and Maintenance of Heritage Architecture XII*, 118(12),(155-163).
- [4] Rashid, R.A., Ismail, E.D. and Abdullah, A.S.,(2015). Adaptive Re-Use of Heritage Buildings in Malaysia—A Case Study of Penaga Hotel in Penang. In Proceedings of the Colloquium on Administrative Science and Technology (pp. 463-477). Springer, Singapore.
- [5] Wang, H.J. and Zeng, Z.T.,(2010). A multi-objective decision-making process for reuse selection of historic buildings. *Expert Systems with Applications*, 37(2),(pp.1241-1249).
- [6] Haymond, J.,(1982). Adaptive reuse of old buildings for archives. *The American Archivist*, 45(1),(pp.10-18).
- [7] Cantell, S.F.,(2005). The adaptive reuse of historic industrial buildings: regulation barriers, best practices and case studies. The adaptive reuse of historic industrial buildings: Regulation barrier, best practices and case studies. Master Thesis: Virginia Polytechnic Institute and State University, USA, 40.
- [8] Langston, C., Wong, F.K., Hui, E.C. And Shen, L.Y., 2008. Strategic assessment of building adaptive reuse opportunities in Hong Kong. *Building and Environment*, 43(10),(pp.1709-1718).
- [9] Ma, T. and Yu, M.,(2017). An Analysis of the Adaptive Reuse of Heritage Buildings in South Australia. In Proceedings of the 20th International Symposium on Advancement of Construction Management and Real Estate (pp. 1307-1316). Springer, Singapore.
- [10] Bullen, P. A. (2007). Adaptive reuse and sustainability of commercial buildings. *Facilities*, 25(1/2),(20-31).
- [11] Said, S.Y., Aksah, H. and Ismail, E.D.,(2013). Heritage conservation and regeneration of historic areas in Malaysia. *Proscenia-Social and Behavioural Sciences*, 105,(pp.418-428).
- [12] Misirlisoy, D., & Günçe, K. (2016). Adaptive reuse approaches for heritage buildings: A holistic approach. *Sustainable Cities and Society*,(26, 91-98).
- [13] Dewiyana, E., Ibrahim, N., & Hajar, N. H. (2016). The Green Aspects of Adaptive Reuse of Hotel Penaga. *Procedia-Social and Behavioral Sciences*,(222, 631-643).
- [14] Zhang, S. (2007). Conservation and adaptive reuse of industrial heritage in Shanghai. *Frontiers of Architecture and Civil Engineering in China*, 1(4),(481-490).
- [15] Langston, C., Yung, E. H. K., & Chan, E. H. W. (2013). The application of ARP modelling to adaptive reuse projects in Hong Kong. *Habitat International*,(40, 233-243).