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JOURNAL OF RESEARCH IN ARCHITECTURE AND PLANNING

Introduction

Focusing on research works relevant to the fields of architecture and planning, the Journal of Research in Architecture and Planning (JRAP) explores issues of relevance to both scholars and practitioners in the field of architecture, urban design, urban planning, built form heritage and conservation. JRAP was initiated in 2000 as a peer reviewed journal, initially published annually, however, since 2011 its frequency has increased to biannual. In addition to the papers received through our regular submission process, the two volumes also include papers selected from those presented at the annual Conference of Urban and Regional Planning, hosted by the Department of Architecture and Planning at NEDUET. Contributions to the journal on general topics are accepted any time of the year, and incorporated in upcoming issues after going through a peer review process. A post conference review is also undertaken for the selection of conference papers, before their publication. JRAP holds the privilege of being the first, and perhaps the only peer reviewed journal in the discipline of architecture and planning, published from Pakistan. Contributions are received from across the globe and on average half the papers included in JRAP are from international scholars.

As of 2018, a new category entitled 'Young Scholar's Contribution' has been included in the Journal. In this category, papers from young faculty and early career scholars are accepted and editorial assistance and peer review feedback is provided to improve the research papers. One such paper is published under the head 'Young Scholar's Contribution' within each issue of JRAP.

Aims and Scope

The primary objective of JRAP is to provide an international forum for the dissemination of research knowledge, new developments and critique in architecture, urban design, urban planning and related disciplines for the enrichment and growth of the profession within the context. The journal focuses on papers with a broad range of topics within the related discipline, as well as other overlapping disciplines. JRAP publishes a wide range of research papers which deal with indepth theoretical reviews, design, research and development studies; investigations of experimental and theoretical nature.

Articles are contributed by faculty members, research scholars, professionals and other experts. The Editors welcome papers from interested academics and practicing architects. Papers published so far have been on topics as varied as Housing, Urban Design, Urban Planning, Built Environment, Educational Buildings, Domestic Architecture, Conservation and Preservation of Built Form. All back issues are free access and available online on the Journal's official webpage: http://jrap.neduet.edu.pk/online_journal.html.

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Note: All the photographs included in this issue have been taken by the authors unless otherwise mentioned.

EDITORS' NOTE

The six research papers included in this volume cover themes related to the different components and elements creating various forms of sense of place in the public realm, affordable housing, sub-urban housing and cross references found between historical buildings of the nineteenth century. These may vary from art to monumental statues, with which people may associate in various ways.

The first paper is based on the premise that art is a means of expression, and when given the opportunity to be expressed in the public realm it may lead to social participation in urban life. The Medina of Tunis is taken as a case study and the question raised is if art can be regarded as a necessary tool for the regeneration of the historical urban landscape. The second paper included in this volume, is a review paper and was presented as a key note speech in the Fourth Conference of Urban and Regional Planning held virtually in November 2020, organised by the Department of Architecture and Planning, NED University of Engineering and Technology. This paper questions the true purpose of Confederate monuments in USA and the various meanings they generate.

The third paper is set in the context of Murree, Pakistan and reviews the current government policies and the resultant decline in the affordability of houses in this tourist destination. The fourth paper, taking the case study of Haduwri Bagh Barhdari, in Lahore documents and analysis the cross references observed between Mughal and Sikh architecture.

The last two papers are set in the context of Hyderabad and Karachi respectively. The fifth paper is an evaluation of comfort levels in higher education buildings in Hyderabad and puts forward some policy recommendations which can be implemented in various institutes across the country. The last paper critically analysis the sub-urban development of Bahria Town in Karachi and questions its physical, economic and environmental feasibility.

This volume also includes three book reviews on various recently published books on Sikh Architecture in the sub-continent and the relation of these buildings with the political, social and regional history. These publications have gained impetus with the current political scenarios and the opening up of the Kartarpur border by Pakistan for the Sikh devotees, thus the inclusion of their reviews in this volume seems timely and pertinent.

Editorial Board

URBAN LIFE IS NOTHING IF NOT THEATRICAL: THE ROLE OF ART IN THE REGENERATION OF THE MEDINA OF TUNIS CITY

*Sarah Ben Salem**
*Amine Mseddi***
*Mariann Simon****

ABSTRACT

Arts are the main human expression encouraging man to expose his practices, ideas, and fears. This in turn affects and shapes his environment, an environment which keeps evolving into cities. Nowadays, human expression through art is playing a major role in the development of the urban landscape by shifting the old-fashioned paradigms of the rigid and static urban structuring and development, especially with the new urban trends floating on the surface. The case study of the Medina of Tunis is a paradigmatic example that illustrates the bottom- up approach of social participation in urban life through art.

The research question asked here is to what extent has the artistic practices been influencing the urban development of the city's user experience? Can this be regarded as a necessary tool for the regeneration of the historical urban landscape?

First, a general overview of urban development and the influence of the artistic practices have been presented. Issues such as urban transformation are highlighted. The second part exposes specific examples of artistic manifestations influencing public spaces and urban life in the studied example of the Medina of Tunis. The next step is about elaborating the main examples in their context in the form of case studies. The analysis of these case studies directs towards the outcomes and conclusions regarding the impact of artistic practices in changing the way a city is perceived, used and designed.

Keyword: Art, Public Space, Urbanism, Transformation, Social Participation, Medina of Tunis, Urban Heritage.

INTRODUCTION

Cities are evolutive entities. They are generally characterised by a dynamic process dictated through material and immaterial factors. Societies are necessarily expressing themselves in their spaces. The city is then nothing but the field of action of its citizens. We can look at it as the canvas for the diverse expressions of the community in place (Kostof, 1991).

"In every age, urban spaces -streets and squares- have served to stage spectacles in which the citizenry participated as players and audience. Urban life is nothing if not theatrical" (Kostof, 1991: 222).

From another perspective, creative ways of using public spaces including artistic practices, are important for implementing regenerative ideas, especially in an urban fabric that becomes strewn with unused and neglected areas, disrupting the integrality of the urban plan and "often transforming the public spaces into a residual and abandoned areas" (Amato and Bevilacqva 2020:47). For this, innovative interventions are to be the "counter-transformation" to regain urban character and improve the life in the city.

SOCIAL INTERACTION AS THE ORIGIN OF URBAN LIFE

In a matter of fact, social actions events and daily activities have always been hosted by urban spaces. Therefore, the usage of these spaces has an evolutive pattern related tightly to the users. Indeed, the way cities are shaped and structured, perceived and lived is conditioned and even taken under the realm of social background. Spaces gain their significance

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and their role according to the combination of values, manners, beliefs, ideology, dogma and collective awareness of the people, in addition to other material factors such as geography, demography, land morphology and resources. For instance, the Roman city was planned as a projection of the cosmos based on their divinity and mythological narrative: divided by two main perpendicular axes (Cardo – Documanus) in the very city centre, every Cardan has its particular meaning and functions put in place in a grid structure. Yet Rome, the capital, was the absolute image of an organic city, because of the topography and geography of the region. While in the Islamic civilisation, for example, the cities structure was mainly dictated by the religious value system related to relevant concepts like intimacy, privacy, ethics, hierarchy and respect which formed a sort of social convention that ruled the urban plan. This resulted with other factors intervening, in the sprawling narrow alleys, the density and proximity of the buildings, the enclosure/opening ratio of the facades, water, and vegetation presence. The Islamic medieval city of the Medina of Tunis is characterised by an organic cellular tissue. It provides variety and originality in its architectural elements and a structural link between its components (Ben Salem, 2019). The sacred character of the Islamic culture is a preeminent impact in shaping the city. “The sacred space includes spaces that can be entered physically, imaginatively and visually” (Bandarin and Van Ores, 2014:131). Hence, this shows that the dynamic of urban space use is guided by interdependent systems reflective of social expressions.

In the light of this evolution, it can be observed that the Renaissance period had a huge impact in the way of thinking and perceiving of urban form. A lot of norms changed (culture, philosophy, humanisation, religion role, laws) and along with it, the way cities were experienced also changed. Renaissance designers and theorists draw attention to the usage of public spaces. Roads and pathways, were not just reduced to their passive role of linking the urban elements but started being considered as spatial entities, liveable and independent (Kostaf, 1991). Besides the philosophical and scientific revolution, the Renaissance was also an artistic revolution. The tremendous development of the artistic movement was mirrored in urban life too, to the extent that the famous Michel Angelo was offered the public squares of Florence to serve as open workshops for him and his apprentices. This type of action initiated a free popular movement using studios hosting sculptures, paintings, plays, and poetry. Thus, people were explicitly transforming cities through art.

The perception and use of urban and public space kept evolving gradually until the second half of the nineteenth century. The scientific society witnessed the emergence of "urbanism" as an academic term and as a proper discipline, covering the attribution, design and use of the spaces inside and outside the city. Moreover, in the context of cities evolution, different debates emerged concerned with the way with which historical patrimony should be treated, as attested by the movement of thoughts which were against the theory that the heritage must be intact and considered as a static museum. Instead, theoreticians and urban history specialists of the nineteenth century, such as the Italian Architect Giovannoni, considered the city as a "kinematic system", claiming that the city should be capable to manage the progressive augmentation of the population and the mutation of our social and physical environment. At the same time, the nobility of the city must be respected by valuing the legacy that, not only, has been transferred by our ancestors, but also, attests and embodies the evolution and meaning of human existence and the knowledge of every generation (Giovannoni, 1998).

Since 1960s, the problem of city life appears not only in urban circles, but it was touched by human scientists. With this new component in play, academics and professionals from the fields of architecture, engineering and social sciences were in the quest of finding a middle ground, a compromise to include these diverse areas of expertise in the act of city planning. In addition there was emphasis on the involvement of social aspects so the city would meet more efficiently, the community's needs, goals and strategies. This movement, criticising some axioms of the Modernist school, was led by professionals, thinkers and academics. In his book "The Production of Space", the philosopher Henry Lefebvre (1974) went to the limit of rethinking the notion of "space", its origins, and its connotations from different perspectives. Contemporary experts and practitioners in urbanism such as Gehl (2001) clearly claimed similar notions.

Kevin Lynch, one of the most popular urban theorists, treated this issue in his book "The image of the city" in the early sixties. Urban activist Jane Jacobs also highlighted the disintegration of living public spaces and the gradual transformation of the streets into useless and neglected areas (Jacob, 1960). In the seventies also, architects and city planners, such as Jacobs and Appleyard formulated several planning principles, favouring the theory of "public space for all", where city users could have more access and control of public spaces. They were persuaded that these public milieus were community-based spaces that represented an environment for all, where people could draw more life opportunities, imagination and joy and even feel connected

to their identity (Jacobs and Appleyard, 1987). In addition to the social and psychological dimensions that should be implemented in the public spaces, people need to be a part of the creation act, the design process and participate in shaping the space (Gehl and Suarre, 2013). With the involvement of several NGOs and different civil society actors in general, the participatory trend had a drastic increase especially in situations where vacant spaces and urban voids were continuously degenerating the city structure and bringing discomfort to the inhabitants.

The solutions were established by a bottom-up approach, considering local governance and participative democracy, open-source urbanism and other tools and methods. Ideas like hosting events, open sky workshops, ephemeral architecture, short term rental contracts, and temporary use of space aimed to create more liveable and enjoyable spaces in cities. It added more common areas for social interaction and recreation with a healthier and more sustainable framework. Artistic manifestations were again one of the very considerable options for these kinds of projects.

ART TRANSFORMING LIFE IN CITIES

Art demonstrations in public spaces have increasingly expanded. Contemporary artists were not limited to indoor exhibitions of fixed and static objects. Yet, the artwork itself created a space with its own horizons and generated dynamism and movement around it. As attested by the artists Isabel Cabanellas and Clara Eslava in their research about children and people's relationship to space: "… the urban must be receptacle and motor of human creativity in both senses at the same time. The street becomes, in this way, a plastic space where paradox, dreams, desire, humour, and poetry face all kinds of random and aleatory processes against bureaucracy, utilitarianism and the false spectacularisation of the city" (Cabanellas and Eslawa, 2005:14). Street graffiti, open stages performing arts, sculptures, and other forms of art became part of the urban elements and facilities. The inclusion of the observer in the art exhibition was more highlighted in contemporary art movements. This has, not only, sensitised people to be more and more engaged and concerned with art, but also, it has generated a social experience and an occasion for exchanging ideas and dialogue around the artistic oeuvre. Connecting people from distant lands and cultures is one of the strengths of art (Hulbert, 2018). City space is, in fact, an interface between art and people.

Furthermore, art as a practice must become more participant in the economic structure of the city and its development. As an example of such projects, which aim to revitalise life in the city, different artistic manifestations are organised in different cities of the world. The city of Tunis has been hosting a big number of such projects, especially, in its centre, where the Islamic Medieval town of the Medina is located. This historical site is classified as a UNESCO world heritage since 1979. This Town reflects the collective memory for the Tunisians and is also a singular destination for tourists.

However, this authentic heritage is not receiving considerable maintenance. It is required to accentuate its valorisation, not only concerning its tangible components, but also, to revitalise its intangible values, which are linked to its past and present as well. The question of the preservation of the Medina's heritage should reflect the recognition of the right to the city and the social and functional mix that constitute it (Ammar, 2017).

In order to make the Medina more livable and consider it as a "kinematic" and dynamic historical complex, different associations and contributors have initiated various "non-formal" activities, such as, architecture workshops, associative urban design trainings and also art workshops and festivals. As a matter of fact, the atmosphere of the Medina and its unique urban character potentially favour those various artistic expressions. In the recent years, the city has become an open museum for two biennial artistic workshops, namely, “Dream City” and “Interference”.

Dream City is a multidisciplinary festival of contemporary art organised in the Medina of Tunis. It was founded in November 2007 by Tunisian choreographers Selma and Sofiane Ouissi, as a response to the "confiscation" of public space by the totalitarian regime at that time, and against the elitism of the cultural/artistic spaces. This biennial festival has been hosting artistic performances in different corners of the old city of the Tunisian capital. The program contains a mixed variety of trainings, art workshops, exhibitions and features musical concerts. Interference is, as well an artistic manifestation that has its first edition in 2016. This light-art project exhibits different artistic creations curated by national and international artists from different corners of the world (Detfel, 2016).

The spaces of the Medina, the usual ones and the unfrequented ones, bearing socio-cultural symbolism and mysticality, were the inspiration and the canvas for emerging and established, nationals and international artists. The two festivals attracted a great number of attendees of all ages, who stumbled into artistic performances in all corners of the old city. Inhabitants of the Medina took part in the event

Figure 1: Urban Parcours of Art Projects in Dream City Art Festival (Projects listed in this paper are circled in yellow).
Source: https://2019.dreamcity.tn

too, which enlightened the sprawling alleys with visual art and music. Community involvement was created by the morning sessions and art workshops spreading everywhere and having the attention of youth. This urban artistic promenade succeeded to connect the population and the visitors with their environment and sensitised them with the land use and function of urban spaces. It was also an initiative to democratise artistic practices and create more social dynamism and dialogue. During the event, the visitors could attend the various art projects through a guided tour. They could also use help of a map (Figures 1 and 2), printed or digital, pointing the location of the different artworks. This created a unique and personalised experience. The impact of this artistic exhibition was witnessed during the period of the festival, and after its closure. In many cases, people stayed connected to the spaces where they had a particular and new experience. The project "El Msab" (the landfill), was a decent illustration of one category of urban transformation from a negative (residual, dirty, unhealthy, dangerous), to a positive state (clean, animated, pleasant, attractive, aesthetic) (Figures 3 and 4).

A recent project was shown in the last edition of Dream City. A public space located near the limits of the dense traditional tissue, that was considered as a trash dump, attracted the attention of the artist who coordinated with the Tunisian association that is concerned with the artistic and social practices in the Medina of Tunis, called l'Art Rue Association. The site was an inspiration for creating a public square characterised by a vegetal/mineral combination. After cleaning the area, an urban landscape of a modern aspect was created and inspired by the historical context using concrete and wooden elements, graffiti, artistic lighting and video projections (Figures 5 and 6). While nobody was against transforming this area from a trash dump into a clean space, some citizens expressed their rejection to the style manifested in the new square. Their argument was based on the contrast between this space and the Medina's architectural and artistic vocabulary. Nevertheless, most of the habitants appreciated the atmosphere created by adding value to a former non usable space.

A second category on urban transformation was valorising the hidden potential of a certain space, in this case, the open sky yard of Sidi Boukhrissane Mausoleum. This yard was abandoned, useless and undervalued and the artist Robert Sochacki noticed its potential. He worked on this project and revitalised the area by transforming it into a huge video

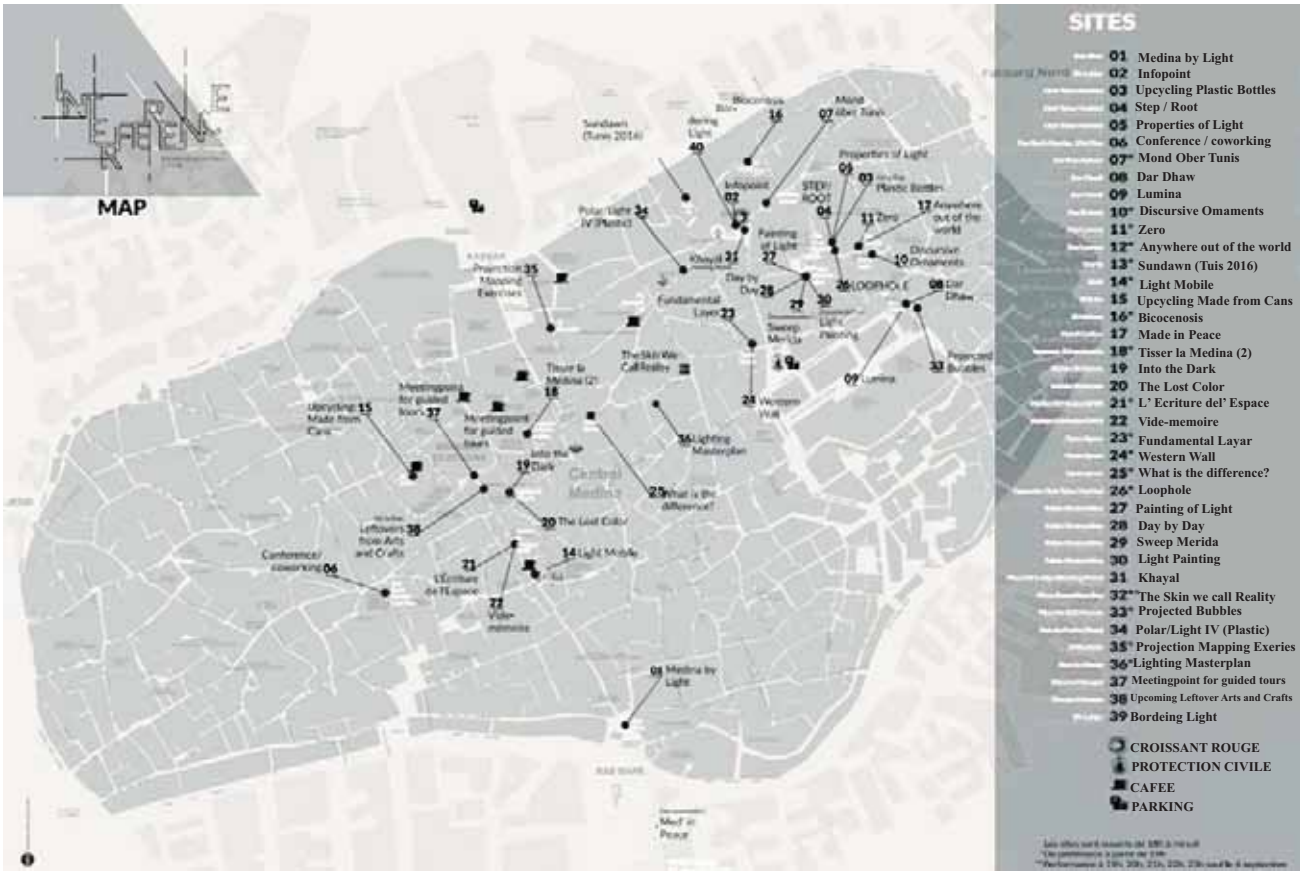

Figure 2: Urban Parcours of Art Projects in Interference Festival (The projects listed in this paper is marked in blue).
Source: https://issuu.com/journaldelamedina/docs/merged

Figures 3 - 4: The Site Before the "El Msab" Project.
Source: L'Art Rue Association Facebook page, Pol Guillard Photography

Figures 5 - 6: The site after the "El Msab" project (project number 21 on Figure1 map).
Source: L'Art Rue Association Facebook page, Pol Guillard Photography

Figures 7 - 8: The Mausoleum Yard Animated During Art Festivals (Project number 14 on Figure 1).
Source: L'Art Rue Association Facebook page, Jennifer Braun Photography

painting. This project reminded the habitants of the space qualities as a convivial square hosting recreational activities and social interactions. It also inspired local artists to create different types of artworks, keeping the yard more alive than it was (Figures 7 and 8).

The Public Parliament or "El Miad Collectif" was also a project created in the last edition of the Dream city. Artists and architects worked together on a socially engaged project. People were not just participating as observers but were invited to be actively participating in its creation and installation. It also made them the main contributors and the center of the project's concept. The flexible architectural oeuvre was installed in different places in the Medina, in a park, in the periphery of the city, in the gate of Beb Bhar Square, and in different squares and streets as well. In this exposed Parliament, people could freely talk about different topics. It also acted as an open theatre where people could express their feelings and emotions (Figures 9 and 11). These artistic creations essentially generated social interaction and transformed urban life by producing a community-built environment. This intervention also proved that the objective of public art is not simply to "decorate" a public space, but should rather contribute to building a feeling of community

Figures 9 - 11: The Public Parliament in Dream City Festival, its preparation, and installation (project number 9 on different locations in Figure 1 map). Source: Author and L'Art Rue Association Facebook page, Pol Guillard Photography

(Brea, 1999). Moreover, art should not ignore the social and political conditions that encounter it. Through curating cities projects, artists can give voice to people in their daily-life spaces, as it may make a direct impact on the political life, especially when it is allied with the social movements. On the other side, this type of project, which is based on social contribution should take into consideration the characteristics of the host space, to avoid any nuisance to the habitant's privacy and acoustic comfort among other factors. Another approach to urban transformation is presented within "Interferences 2018", which also included the citizens in the decision-making process (Figures 12 and 13). The project tends to be an artistic social experiment. Using a less spectacular form of art, Malika Hagemann set the ground for the inhabitants and visitors to be the real artists. With some candles, small furniture and tools, she spread mini workshops in different alleys, squares and corners of the Medina. In this cozy meditation-like atmosphere, the visitors were invited, guided by some questions, to express their feelings, desires, aspirations. The expression is absolutely free, varying from poetry and prose to sketches and drawing. While collecting the citizen's artworks, Malika had a considerable database of the people's opinions regarding their neighbourhoods. Indeed, this method gained its share in social analysis. The findings of this artsy "social experiment" were used, or at least taken into consideration, to decide the future of certain spaces more democratically with a bottom-up style. The artist chose a subtle art installation to stimulate urban change through a more elaborate approach, which was both participatory and strategic. The bigger part of the impact of this artwork was not directly detected nor foreseen, yet it was very significant, deep and well oriented and the "scientific relevance" of the project did not decrease its artistic value by any means.

CONCLUSION

The artistic collectives existing in the city were destined to be a network for the linkage and urban regeneration, with the aim of creating a deeper relationship with the space in the scale of the neighborhoods, playing a crucial role in structuring the public urban domain.

The design of transitional spaces, meant primarily for mobility purposes, is nowadays evolving into a process focusing on attractiveness, complexity and multifunctionality. This approach is trying to shift a major part of urban identity, the memory of spaces based on city transformations (Amato and Bevilaqua, 2020).

Embellishing the urban scene of the Medina with artistic installations and performances, these curatorial projects moved away from the routine of life in the city and opened the horizons for new social and emotional experiences. Spontaneous, irrational, bizarre and out of common, these artworks certainly caused interferences and bouleversements on the observers and participants and thereafter affected and influenced them (Hlavajova, 2008). Thus, through the individual and collective experience in a particular space, the user changed his perception and drew a different mental image after that the space had been transformed with artistic effects and sceneries. On the other hand, these exhibitions had an impact on space usage, as they contributed to the production of urban spaces and shaped the social life that was boosted and enhanced during the event. In fact, art nurtured community building because it gathered together from different social backgrounds ideologies and cultures.


Figures 12 - 13: A Creative Socially Inclusive Installation in Interference Art Project (marked in blue in Figure 2 map, located in Achour Street). Source: L'Art Rue Association Facebook page, Alpha Bakemono Photography

To highlight the outcomes of such projects, numerous examples of art installations have been selected. These have directly and radically changed life in devaluated and deserted places. The "El Msab" project and the Sidi Boukhrissane Mausoleum light performance injected more life in these public places during and after these artistic manifestations. While for the other listed cases, the social dimension was considered as a priority. In fact, through creative and innovative approaches, people were invited to be part of the projects and freely expressed their feelings and desires in an unusual frame. Art was a way to evoke and arouse people's imagination and liberate their thoughts. It was also used for engaged artists, as a means to evoke debate on different topics related to politics, climate change challenges and social inequity. These projects had tangible and intangible impacts on the city and transformed the usage of certain public places.

Although the historical specificity of the Medina, as well as the touristic factor, were already putting pressure on the urban infrastructure, this kind of congested festivities added more urban pressure. These artistic initiatives considered the importance of the historical stamp, the fluidity and functionality of the city fabric, and respected the responsivity of the habitants. As a consequence, the planning of the public domain became a foundation of urban regeneration including design solutions for sustainability and resilience, prioritising the flexibility of the public space, characterised by social interactions (Amato and Bevilacqua, 2020). Moreover, these projects contributed to the decrease in the crime rate of the area. According to an empirical study about urban security and practices related to insecurity in the Medina, led by a group of Tunisian researchers, establishment of social relationships were important variables explaining the improved security conditions. In one of his interviews, "El Ghali", emphasised that the artistic practices in the Medina contributed in creating an environment for youth to use their energy in a positive way through artistic expressions instead of violence and excessive drug consumption (El Ghali, 2018). As it also created social bonding and interaction between inhabitants and the visitors.

However, despite the importance of these artistic manifestations and their impact on the public life, such projects rarely happen internationally. A compromise between these non- formal bottom-up interventions and official master plan projects prepared by the municipalities and other governmental organizations is needed to arrive at a coherent and effective public space intervention, as in the Medina. For example, some projects such as "El Msab" (Figures 3 – 6) were meant to be integrated in official design schemes and plans, permitting a continuous and coherent networking of designed green and public spaces eligible to host artistic creations.

Finally, there are undoubtedly countless innovative ways in transforming our cities for better living spaces. Cities are the world which we created; they are also the world in which we henceforth live (Park, 1967).

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REVIEW PAPER

DISSONANT HERITAGE AND THE HAZARDS OF RETENTION

*Jon Calame**

ABSTRACT

Finally, after years of negotiation and fundraising, a Confederate monument in Athens, Georgia (USA) – decorated with fresh flowers – was ready for public dedication. Many supporters, along with clergy and local politicians, were in attendance. Just as a solemn speech had begun, though, a local newspaper records the sudden arrival of a violent storm as "wind, rain and lightning… suddenly burst forward in great fury. (Merton,1956 : 30-247). The assembly scattered momentarily, then carried on in a nearby Baptist church. It was the first of many storms which would swirl around this memorial to Athens' Civil War dead.

These words were let it be:

Bright Angels come and Guard our Sleeping Heroes

… which may ring strangely to our years now, it being unusual, even in a literary context, to compare the dead with the sleeping. Were these simple poetic indulgences, or did the monument's designers intend to suggest that their object represented something more… something which was then merely dormant, temporarily defeated, but capable of being awoken to a new life? Was the true purpose of the monument to gaze forward in anticipation of this awakening, rather than to look back in reverence?

This paper will explore a few divergent contemporary interpretations of these controversial objects in the public domain, tracing the lineage of motivation leading some call for their protection and others to call for their removal.

Keyword: Heritage, Monuments, Confederate States.

INTRODUCTION

A full one hundred and fifty five years after the conclusion of the American Civil War (1861-65) which they were built to commemorate, ongoing turmoil surrounds hundreds of Confederate monuments in the southern United States.

Lumped together, the challenges posed by this controversy point to the hazards of retaining cultural heritage objects by default. They also point to the broader problem of the intentional appropriation of public space – both physical and psychological – in support of a malicious political agenda.

There are many strands of the problem presented by Confederate monuments in the American south. To begin with, the monuments themselves are far more enigmatic then it would first appear. Though hundreds of monuments were erected in towns and cities throughout the former Confederate states, each in some way commemorating the citizens and soldiers who contributed to the Confederate cause during the Civil War, many of these monuments were not constructed immediately after the end of the war. This is to say that while many of the monuments appear to be tributes to the war dead, and therefore seem to possess a funerary character, it seems that the chronology and provenance of these monuments often point to a different interpretation of their purpose.

When considering the Confederate monuments constructed between 1880 and 1920, it is clear that motivations and objectives are quite separate from simple commemoration of the Southern war dead. Specifically, monuments constructed in this period function mainly as emblems of

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the regional regime of coercive implementation of Jim Crow laws which were intended to intimidate African American citizens. In this way, they affirmed the hegemony of white supremacist political groups acting in defiance of their constitutional obligations stemming directly from the thirteenth amendment, the Emancipation Proclamation, and dramatically altered legal norms emerging from the Civil War.

In this way, the Confederate monuments to the war dead function historically – and in many cases still function up to the present day – as a powerful living emblems of white supremacist influence in the unreconstructed South. Those who paid for their creation appear to have been sending a message to the communities in which they were built which might be roughly summarized in this fashion: "We may have lost the war but we will continue to govern with the values of the defeated Confederate cause in deference of the full emancipation of African American citizens; we placed this sign among you on behalf of a vigilante army which will in tireless support of segregationist laws and policies based on a living narrative of cultural and racial superiority."

Monuments created under these social and political circumstances qualify as "dissonant" heritage and constitute a negative legacy with enormous narrative complexity within the American context. These objects have generated consternation and controversy for many decades, culminating in a series of recent events which place their legitimacy in the foreground of violent and vexatious political exchanges. The very best example of this maybe seen in the Charlottesville, Virginia "Unite the right" demonstration which occurred in August 2017. Demonstrators converged on Charlottesville to oppose the proposed removal of the Robert E. Lee statue from that city's Lee Park, leading to highly charged exchanges between demonstrators and protesters resulting finally in the murder of a young female protester by a supporter of the monuments who purposefully drove his pickup truck into a protesting group.

These dire events contributed to, and intensified, an already fraught political exchange with national repercussions. One thing that became painfully clear during the Charlottesville protest and its aftermath is that the question of how to handle the Confederate monuments in southern cities is tied to the question of how to interface with white supremacist advocacy groups whose members are willing to inflict violence and chronic intimidation upon any vocal critic of their position on the monuments issue. One could say that the Confederate monuments have become emblems of a racist political viewpoint, the advocates of which trace their cultural and political lineage back to the failed Confederate cause of the late nineteenth-century.

The Iconoclastic Dialogue

It is difficult to discuss the question of removal or retention of the Confederate monuments without pausing at least briefly to review the broader tradition of iconoclasm in relation to public memorials. It may be noted in this regard that iconoclasm has been treated in the popular domain both as virtuous purgative process (when carried out by official actors), and as a barbaric reflex (when carried out by nonofficial actors). Too many examples exist to summarize easily, but perhaps a few will be instructive.

In April 2003 the United States Marine Corps, which had occupied the capital of Iraq following the extended hostilities in that country, decided to destroy a statue of former President Saddam Hussein which stood upon a large stone plinth in the center of Firdos Square. After grappling with several technical challenges in relation to the removal of the metal sculpture from its base, the American soldiers allowed Iraqi citizens gathered as spectators to drag the toppled sculpture away after subjecting it to assorted verbal and physical abuses. In this instance, the destruction of the monument honoring an enemy leader suited the political and military objectives of the iconoclasts well; it provided a useful public relations gesture on behalf of the occupying American military forces.

Along similar lines we might recall that a statue of King George III was toppled in New York City in 1776, during one of the first overtly defiant gestures of the Revolutionary War, leading to political independence for the United States. Many of the reasons given for this iconoclast project are similar to the reasons asserted for the removal of Confederate monuments today, and it was celebrated at the time as an important symbolic action for citizens, hoping to effect a political migration from monarchy to a representative democracy. In both of these cases, iconoclastic destruction and erasure were official and sanctioned, relative to tenuous political conditions. As a result, their actions were portrayed as patriotic and appropriate, by a generally obliging American press.

A prominent sanctioned iconoclastic event occurred on Thanksgiving day in 1970, when several members of the American Indian Movement (AIM) occupied the Mount Rushmore Memorial in South Dakota. The site of this famous sculpture - featuring four American presidents carved into the living rock of the mountain—had always been

controversial, since the Black Hills were long sacred to the Lakota Native American tribe. The mountain itself had been promised in perpetuity to them in the Fort Laramie Treaty of 1868. Following the discovery of gold in the area in 1874, the United States government took the land, which included the Mount Rushmore site and sold it for mining and settlement to European Americans.

Protesting this treaty and the offense caused by carving the faces of white Europeans into the side of the sacred Mountain, two of whom owned slaves, Native American protesters briefly occupied the site and attempted to reconsecrate the mountain by planting a prayer staff at the top. While the occupiers did not physically destroy the face of this famously massive sculpture, they did enact several gestures of desecration in order to draw attention to their complaints. In this case, the iconoclasts were nonofficial and non-sanctioned actors in the public domain, so that their acts of public defilement were branded illicit and barbaric by a scandalized American press. Thus, it may be safely said that the value and legitimacy of a given iconoclastic gesture depend greatly on whether power aligns with the icon breakers or with the icons themselves. From a more neutral vantage point, iconoclasm may be characterized as a public dialogue related to objects assumed to have magical properties. Since each monumental object in the public domain carries a heavy freight of assumptions about public norms, public values, and public actions worthy of admiration across generations, there is the problem which always arises in relation to these objects regarding how to accommodate those who are discontented with the values exemplified. When those discontented viewers assert their dissatisfaction with the values embodied in the object by breaking it or removing it, they complete their part in the iconoclastic dialogue.

Here it may be useful to restate that the issue at hand is not related to an individual's desire or prerogative to install. This is about a monument of similar character placed in the public sphere with the assumption of a general and implicit acceptance of the values it projects. These public, monumental-scale objects are about the projection of power in the form of implied values assumed to be universal but which, in actuality, should be subject to recurrent cycles of review, critique and potential rejection by subsequent generations of visitors.

The Power of the Image

Freedberg, (1989), in his landmark study on the subnational and subconscious power of images, discusses the complex ways in which paintings and sculptures – aside from any subjects they depict – arouse fear, empathy, hope, love, hate, excitement, and even sexual arousal in the minds and bodies of spectators. This power is something we tend to take for granted, but it is by no means easy to explain how a lifeless object can automatically betoken values and emotions, exert influence directly on viewers without words or language, shape their subsequent behaviors and engender new actions.

Freedberg looks at some length at the ways in which powerful images – especially those permanently fixed within the public domain – imprint there message and their values on spectators. This engraving process brings along with it a transmission of values which is somewhat automatic, and not entirely voluntary. Within any large and diverse society, no single set of values or associations maybe publicly transmitted without generating consternation and refutation. Freedberg notes that episodes of iconoclasm often reflect this "strain of antagonism," something resulting in the destruction or partial breaking of the offending object. While this may be understood in very negative terms by some, it also could be seen as a form of restorative appropriation of the mythic content of a psychically or symbolically dynamic artwork. If a disruptive object has power or seems to exert a kind of "unearthly thrall" upon its viewers, then the iconoclastic gesture maybe seen as a demonstration of individual superiority over the power of both the image, the values which it seems to contain, and its creators.

Meanwhile all objects in the public domain are inevitably subject to some form of revision, redaction, repossession, reprogramming, reinterpretation, and finally, simple organic decay. None is static. In the case of the Confederate monuments in Southern United States, commemorative objects created originally to assert majoritarian governance by white supremacist politicians have been adopted by a new generation of citizens who embrace the bigoted and exclusionary worldview the statues seem to embody. These supporters appear to accept the idea that a hierarchy of races should still shape access to privileges and resources, and that a form of loyalty may still be due to the failed Confederate State.

Dissonant Heritage

A ghostlike continuity of these seemingly defeated values echoes clearly in many of the monuments in question. The Confederate statue in Yazoo, Mississippi, constructed and dedicated in 1909, salutes local residents who died in the Civil War and then observes with poetic flourish. The idea seems quite clear that in the minds of the people who

designed and paid for this monument, a war of values would and should continue long after the military battles ended, an evolving conflict which perhaps continues up to the present. Given the intensity and violence of debate currently surrounding the destiny of these confederate monuments, it is easy to believe that the broader and deeper conflict has not yet concluded.

Defenders of these monuments have argued that their historical and documentary value, independent of our opinions in relation to the objectives or allegiances of their sponsors, should protect them from removal. This position convincingly asserts that all evidence of historic change is valuable as a public text of where we have been as a society. The negative or dissonant heritage, as embodied by the Confederate statues in the minds of most observers, is not only admissible as part of this text but perhaps is explicitly valuable because of its fallacious, failed, or morally offensive content.

Without clear and public records that our country passed through these ugly and regrettable chapters of its formation, so the thinking goes, how could we suitably remember the power and toxicity of race hatred in a country at the moment when it suddenly emerged from legal slaveholding? In a public library, by comparison, we do not discard the books which articulate unpopular philosophies or distasteful political viewpoints, mainly because we collectively assume that there is value in recalling and appreciating the patterns of thought which allow for such perspectives to exist and thrive within a larger social context.

Good examples of this general approach to dissonant heritage maybe found in the Auschwitz extermination camp sites in Poland, and in the Hiroshima Ground Zero Memorial in Japan. Both sites without any special artistic or architectural value, are preserved carefully in order to support a clear and thorough interpretation of the regrettable ideas and events which led to the wholesale slaughter of innocent persons due to the careful and strategic maneuvers of hundreds of coordinated political actors. These sites, along with many others worldwide, offer convincing examples of why the retention of places and monuments which remind us of unpleasant things can be not only compatible with liberal ideals, but also an optimized approach to constructive historic interpretation of the built environment.

Public Speech and International Law

The assertion that racist and offensive objects should be removed from the public sphere is partially supported by American caselaw. In particular, courts in United States have routinely upheld the curtailment of hate speech when it incites listeners to certain forms of violence, especially racist antagonism (Lixinski, 2018). At the same time, the first amendment of the Constitution supports free speech and the right to receive many forms of information without interference, and this hallowed freedom has proven legally impervious to many claims that hurtful or hateful content should limit its application.

The International Convention on the Elimination of all Forms of Racial Discrimination (CERD) requires signatory states to declare as a punishable offense any form of"dissemination of ideas based on racial superiority or hatred" or "incitement to racial discrimination". Both of these international declarations have been signed and ratified by the United States.

Questions that arise from examination of these legal guidelines include:

- Are all forms of information in the shape of historic documents, structures and physical evidence equally useful and relevant, or must some be excluded from the public domain because they have imposed harms or encouraged the adoption of harmful ideas?
- When should freedom of speech and diversity of perspective in the public sphere become limited in relation to the insults and injuries they imposed on particular segments of a society?
- Is it possible for a relatively neutral observer to render fair decisions regarding public monuments which explicitly offend and injure a group of which that observer is not a member?
- Should a racist emblem somehow placed in the public domain remain there simply because it advocates once had enough money and political influence to construct it, or continue to have enough clout to defend it?

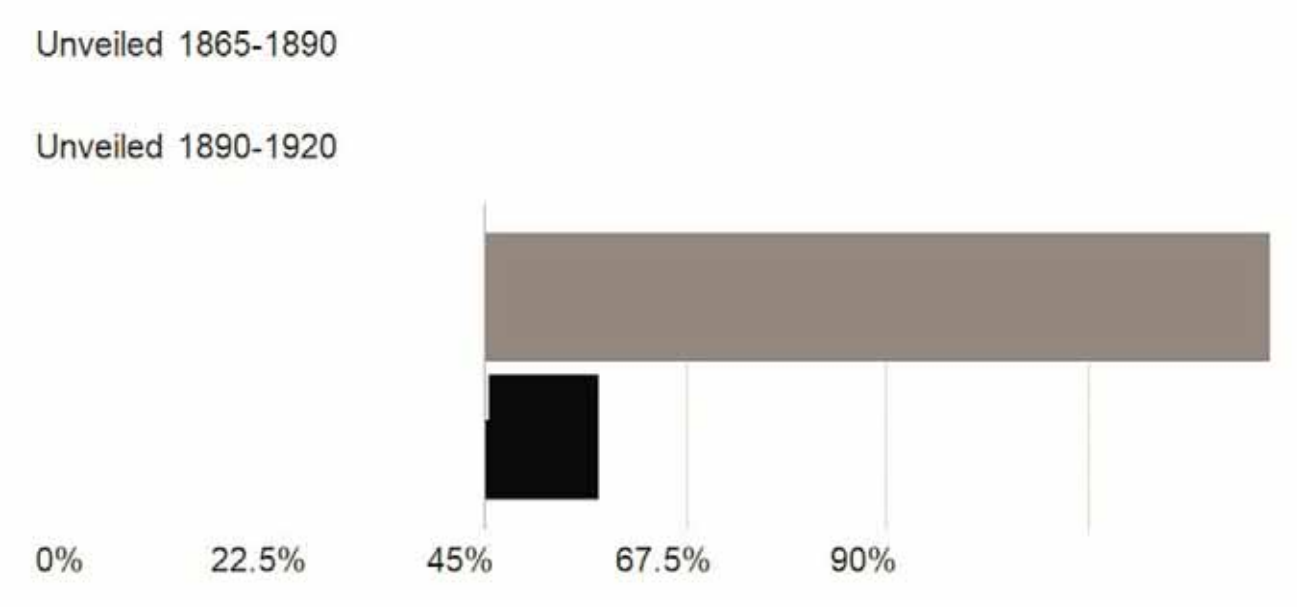

Figure 1: Confederate Monuments Located in Cemeteries

Challenges to the Retentive Standard

It should be recognized here that the default position for historic preservationists is to retain and conserve; the working assumption is that erasure of public sites and monuments is dangerously arbitrary and often political, such that preserving what exists is the safest position and the one that retains the greatest number of future options. It may be added that retention of structures and monuments in the public domain typically increases the overall diversity of experiences and psychic inputs for future generations, which may generally be said to be broadly beneficial under many divergent circumstances.

The case of the Confederate monuments in Southern United States presents a few special difficulties, however. Firstly, these monuments do not commemorate what they claim to commemorate in most cases. As described previously, many hundreds of monuments ostensibly recognizing U.S. Civil War deaths were actually erected long after the close of that conflict in order to symbolize and consolidate political power as held by recalcitrant citizens who wished to retain a segregationist society even after federal laws had prohibited such practices. So the first difficulty is that the monuments themselves, as originally conceived and constructed, exploit a historic narrative for political purposes in a manner that is non-explicit and culturally encoded. These objects may be memorials, but the narrative which they seek to commemorate does not correspond to the narrative to which explicit references are made.

These internal contradictions are reflected in a few simple observations. For example, in the decades following the end of the Civil War in 1865, more than eighty seven percent of Confederate monuments were situated in cemeteries – suggesting symbolic emphasis on a straight forward funerary theme. Yet after 1890, only about thirteen percent of new Confederate monuments in the American south (a much greater number than had been constructed in the previous period) were found there (Figure 1). Rather, they were sited prominently and centrally in public spaces within the fabric of cities and towns. This dramatic shift in orientation may correspond to a shift in social and political function.

Similarly, of the more than seven hundred Confederate monuments built in the American south since the close of the Civil War, about two thirds were commissioned between 1890 and 1920.

Standard intuition would predict that war memorials dedicated to fallen soldiers would grow less numerous as the number of intervening years increased; the pattern we actually observe is quite the opposite. These figures provide another suggestion that a purely commemorative function – the one explicitly borrowed by the monument makers –

was not the primary function intended for a majority of all monuments constructed.

A second difficulty is that these memorials were constructed and paid for, for the most part, by individuals who actively advocated policies and social systems which systematically contravened federal law in order to maintain long-standing cultural, economic and political privileges. The assertion of these privileges inflicted great and lasting harms on minority racial groups in the communities where it was made. It is not unreasonable to suppose that the Confederate monuments celebrated, in the eyes of both of those who advocated for them and those who interpreted their message as violent and oppressive, a white supremacist political agenda. The outcome of the Civil War pushed the message below the surface; it needed to be cloaked underneath relatively innocuous patriotic forms in order to express an enthusiasm for illegal actions felt strongly by a privileged majority.

The third difficulty is that these illegal actions continue into the present time, and are defended-along with their emblems-by a group of advocates who retain significant influence, power, and virulence in southern society. By extension, the harm and oppression generated by these half-hidden assertions continues in many insidious forms as well, leading some observers to conclude that the Confederate monuments continue to have a toxic effect in those communities where they stand.

By logical extension, some conclude that removal of these monuments would facilitate certain forms of reconciliation, or at least deprive hateful thoughts of their privileged status within the public sphere. According to this line of thinking, the harms which might stem from erasing historic objects are greatly outweighed by the harms consciously experienced on a daily basis by those whose social status and political rights are undermined by the Confederate monuments' message.

The totality and incompatibility of these concerns suggest that a simple and straightforward formula for how to manage the Confederate monuments in professionally neutral and evenhanded ways is unlikely to emerge. As apparently sanctioned and sturdy objects situated prominently in a shared landscape, these objects may function in part like a Trojan Horse, a tool of clandestine conquest which appears as a simple and unassuming gift to the general public highlighting the sacrifices of duty-bound soldiers. By excepting and absorbing the Horse at face value, the Trojans made what may be the most infamous mistake known to western military history, or, at any rate, to western literature.

Many voices in the rancorous debate surrounding the Confederate monuments in United States urge us not to make a similar error. They tell us that these monuments contain, and have always contained, subtextual messages which are purposefully dangerous and antithetical to what most consider to be the ethical and political norms preferred by the country as a whole.

Monuments and myth

One possible clue to assist with the navigation of this labyrinth is provided by Roland Barthes in his treatment of political appropriation of symbolic meanings. Barthes observes that when straight forward and superficial emblems are transformed into the raw materials of a new kind of public speech, a new "language object", then myths are formed. He argues that this process of political and cultural myth-making requires that a familiar language of signs is taken hold of, emptied, and made into a container similar to a Trojan horse. This infected vessel becomes a "speaking corpse" and a "parasitical form" which feeds off of the signs and symbols stolen from a collective symbolic vocabulary, but imposes upon those forms an abnormal regression from meaning back to form.

Barthes (1972) describes this as an impoverishment of meaning in which the outer form is retained and keeps its life while the inner chain of signs is broken and corrupted. In the semiotic language favored by Barthes and his intellectual contemporaries, a sign (comprised of a clearly defined signifier and signified) is converted into the signifier for a "second order" metalinguistic sign, or myth.

In the case of the typical Confederate monument, we find a war memorial. This is a sign which would have appeared familiar and archetypical for Americans in the late nineteenth century postwar milieu, dignifying death. This is repurposed as the vehicle for a myth of rebirth and vitality with indirect reference to "unreconstructed" white supremacist social and political hegemony in the American south. That is, we can see hundreds of examples in which a ordinary symbol, in the form of a war memorial, is appropriated for a non-ordinary purpose: the public assertion of an illegal and violent political prerogative, the continuation of a "lost cause" whose advocates had been sleeping, but have new vitality.

The power of this type of myth, Barthes (1972) argues, is partly derived from its "reliance on a history, geography, orality, cultural lineage, and ritual significance" which is inherited and borrowed from exploited symbolic forms. These borrowed forms, like many of the Confederate monuments under consideration here, become a new "vessel" for mythic speech. In the case of the Confederate monuments, this takes the form of racially- encoded hate speech.

The constitutive, familiar elements lent authority and validity to what may have be a novel message: that race relations in the American south would be managed along pre-War lines by white supremacist factions retaining, despite unambiguous military defeat, enormous power and influence in the region. They may still be functioning this way.

If this is the case, and as built environment professionals it may be our moral obligation to assume that this is so unless contradictory evidence can be readily found, then the Confederate monuments are a kind of dissident heritage fundamentally different than even an Auschwitz. In the case of surviving Nazi death camps, though underlying narratives of racial superiority and violence are highly comparable to the Confederate monuments, it may be argued that the specific narrative which pitted a powerful political group against a beleaguered cultural minority in Europe is no longer associated with active or relevant threats to Jewish citizens in Poland or Germany. The same may not be said, according to many sources and witnesses, in the case of white supremacist factions in the American south with respect to African American citizens in that region. Accordingly, if certain chronic harms are ongoing in relation to the embedded subtexts and Barthesian mythology of these Confederate monuments, an automatic professional aversion to removal and erasure may become highly problematic. If the Confederate monuments constitute a special case, a progressive built environment professional might consider adopting a harm reduction strategy borrowed from healthcare providers who manage substance abuse. While the controversial decision to remove these confederate monuments would not address all the vexing problems they pose, nor would it fail to generate some new problems of its own, it would potentially reduce the infliction of onerous injuries in the future as felt by many citizens compelled to interact with offensive objects.

Conclusion

This paper argues that the toxicity of some Confederate monuments – in particular those constructed in the early twentieth century by advocates of unofficial racial segregation who appear to have undertaken a cynical appropriation of commemorative symbols linked to the American Civil. This calls for serious assessment of the ongoing harms associated with their retention. Where the nature and burden of these harms are unacceptable, a reduced diversity and complexity of the historic built environment should be sacrificed to an increased diversity of human experience which may be safely supported in the public domain.

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SOCIO-ECONOMIC DETERMINANTS OF AFFORDABLE HOUSING IN HILLY AREAS OF PAKISTAN

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ABSTRACT

In developing countries like Pakistan, affordability to own a decent house is a critical issue for middle to low income households as the cost of plot and construction has increased enormously over the last couple of years as compared to household income. It affects the socio-economic environment of the country and the households. Hence to provide affordable housing not only is it required to lower the cost of the house but a range of social and economic determinants need to be addressed. This paper examines these social indicators, like household size (HH), marital status, education, unit/plot size, location and economic determinants (income, expenditures, unit cost) of affordable housing and its relationship to affordability. The paper presents findings from household questionnaire survey in Murree urban area. Findings show that lack of affordable housing has resulted in overcrowded low quality housing with substandard infrastructures that have highly affected the socio-economic status and well being of the households. The majority of the respondents demanded small size unit and plot as per their affordability. In spite of lower income the respondents preferred to own their houses.

Keywords: Affordable housing, socio-economic status, location, low- income housing, hilly areas, Pakistan.

INTRODUCTION

Affordable housing is the basic need and dream of every household. Affordable housing provides a sense of dignity, pride, physical safety, security and well being to the households. Housing plays a pivotal role in reducing poverty and promoting socioeconomic development (UNHabitat-2011).

In developing countries housing sector is of great socio-economic value. Ten percent of the global GDP and seven percent jobs are related to the housing sector (Wallbaum et. al., 2012). Housing as adequate shelter for all is recognized as a basic human right, related to vital living standards, housing, food, health care and clothing (Zuo, Armaan and Wilson, 2009; Choguill, 2007; GOP, 2001). The historical gap between rich and poor communities can be identified by the living conditions and housing standards (UNHabitat, 2010**).** To tackle the increased housing demand of households, in the next twenty years, about eight hundred seventy-seven million housing units would be required (UN- Habitat-2008-09, Bredenord and Lindert, 2010). In Asian cities, each year, there is an addition of about forty four million due to urbanization. This equals to an addition of one hundred and twenty thousand people per day in the urban population. This means about twenty thousand new dwellings per day are needed **(**UN-Habitat, 2010**).**

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One of the important determinants related to the development and socio-economic stability of a country is housing affordability. Housing affordability intends to make certain that housing provided to every income household is affordable (Suhaidab et. al., 2011; Baqutaya, et. al., 2015).

In developing countries with rapid urban growth, governments need to tackle two issues, upgrading the housing quality in existing slums and squatter settlements and provision for land and housing to the homeless at affordable cost (Bredenord and Lindert, 2010). The present housing sector does not have the capacity to meet the housing demand. This gap between supply and demand pushes the construction of in-efficient and costly solutions and informal dwellings. Affordable housing provides opportunities for economic growth, environmental improvement and social equity **(**UN-Habitat, 2011**).** "Affordable housing is broadly defined as that which is adequate in quality and location and does not cost so much that it prohibits its occupants meeting other basic living costs or threatens their enjoyment of basic human rights **(**UN-Habitat, 2011**).** There are three determinants to assess the ability of a household to purchase a house. In 2009, estimated housing backlog was 7.57 million units in Pakistan, of which 2.5 million of these were in urban areas, and the total national housing stock was 20.5 million and about six million of total housing deficit was among middle and low income groups. About two thirds of the population cannot manage to pay for any housing without financial grant and support. Typically affordable housing is defined as not being above a specified proportion of household expenditure, mostly thirty per cent.

The lifetime investment for affordable housing demands extra benefits in the shape of quality, comfort and durability, and focuses on social factors also. For housing affordability assessment, in addition to income and house price factors, there are other factors, like education level, occupation types, number of households that work, number of children, monthly house installment and housing subsidies (Suhaidab et. al., 2011). The purpose of affordable housing is not only to provide essential shelter needs, but to comply with planning and building regulations, fulfilling household requirements, for example amenities, size, location and fulfilling affordability factors (Zuo, Arman and Wilson, 2009).

The shortage of such housing is about 4.5 million units (UN-Habitat, 2011). Affordable housing deficit has promoted the unimpeded expansion of *katchi abadis*, squatter settlements and encroachment of state and vacant land (consisting of fifty percent of urban population) coupled with inadequate water and sanitation, affecting mostly well being of the poor (Zaman, 2011). On the other hand private sector housing projects are meant for higher profits and target only higher and higher-middle income groups.

In developing countries, the well being of millions of people is being affected by the substandard, inadequate, overcrowded housing condition in densely populated urban areas (Sengupta, 2010; UN-Habitat, 2011). The affordability, availability, quality and quantity of housing plays a major part in national economic development and socio-economic uplift of moderate to low income households. The households migrating to cities from rural areas in search of better living standard anticipate to get a decent and safe house at affordable cost. So the provision of affordable quality housing is directly related to the social cohesion of the households (Earnest and Young, 2012). Many socio-economic issues are the result of poor quality housing and lack affordability (Parilo, 2002; Baqutaya, et. al., 2015). From social point of view, in addition to shelter, affordable housing provides security, relief from stress enhance the well being, self-esteem and provides opportunities for better education (Arman, et. al., 2009; Wallbaum, et. al., 2012). From economic point of view housing is the largest lifetime investment for a household and affects to a great extent the socio-economic well being (Baqutaya, et. al., 2015; Bujang, et. al., 2010, Bujang, 2006; Wallbaum, 2012).

Efficient land use planning provides equal accessibility to housing, facilities and transport for various socio-economic groups and marginal household in a society. This enhances the social environment by upgrading the living conditions and improving community social cohesion (Butterworth, 2000). Land use decision regarding housing, transport and economic progress are main determinants of households living choice (Hugh, 2009). If the incomes are lower as compared to high unit prices, with poorly managed housing and land supply, it results in rising social segregation in housing markets (Barker 2004; Hugh, 2009). In addition to population and urbanization trends, planners must consider affordability level of household in planning affordable housing keeping in view, household income, capacity to pay, choice/criteria for price and location, and selection regarding tenure, type and quality of housing (Bujang, et. al., 2010). Limited affordable housing provision prohibits the capacity of an area to offer housing in sufficient quantity and quality for the needy. While a steady supply of affordable housing guarantees the community social cohesion (Roween and Almaden, 2014).

A family‘s social status and socio-economic factors include age, household size, gender, education, income and

employment, unit cost location, occupation, earning members and transportation cost affecting the housing requirements and choice. All these factors impact the household configuration and therefore are major determinants of housing demand, supply and affordability (Rosen-1974; Bujang, 2006; Rossi, 1955; Lowry, 1974; Suhaidab, et. al., 2011).

The ownership of housing has many social and economic benefits for the households and the overall community. House ownership enhances the living environment, self esteem, satisfaction level and is regarded as a vital gain in a lifetime (Tan, 2009 and 2012; Rohe, et. al., 2001). Household's life cycle is highly associated with marital status and HH size. An increase in household size will lead to high ownership rate and will impact the housing demand and affordability (Coulson, 1999; Goodman, 1990; Haurin and Kamara, 1992; Tan, 2012). Married households highly impact the housing ownership/ affordability and male household heads are also likely to affect the ownership of house with more income as compared to females (Coulson, 1999; Tan, 2012).

Larger household sizes need to spend more on housing and non-housing expenses as compared to small size household. Adult earning children living with parents help in additional income of household. Women household heads face more housing cost liabilities (Salleh et, al., 2014).

Affordable housing can enhance the educational status of households also overcrowded housing conditions, leading to stress among children and women. It also affects the educational outcomes of children living in such condition, as compared to those living in better quality housing (Roween and Alamden 2014; Braconi, 2001; Spencer, 2010; Bratt, 2002). There is significant positive relationship between affordable housing and benefits in health and education level in a community.

House affordability is where a household has the capacity to save part of their income for house construction/ improvement as well as to pay other non housing expenses during their life time (Bujang, et. al., 2010; Roween and Almaden, 2014).

The lower incomes group have low and irregular incomes, so they cannot afford to avail the finance in the current terms (Wallbaum, et. al., 2012). Rising income and job insecurity is highly related to affordable housing (Berry, 2003; Rohe and Stevert, 1996). Low to moderate income household should spend thirty percent or less for affordable housing. Stone (2006) describes as housing being beyond the poor's reach, after meeting the basic non-housing expenses. A household's well being is severely affected if the major part of income is reserved for housing, resulting in reduced saving for meeting the basic non-housing expenses i.e, for food, clothing, health, transport, education and recreation (Stone, 2006).

LAND COST AND LOCATIONAL ACCESSIBILITY

High housing price is associated with socio-economic factors (Bujang, et. al., 2010; Quan and Hill, 2008). Affordability level is essential for a family to purchase and own a unit (Bujang, 2006). The initial construction cost is the major factor for most of the household with low income. So the low income of poor household should be taken in account as the key constraint, while planning should be done for construction technologies and techniques (Tan, 2011a). Affordable housing considers those households who have insufficient income to own adequate housing without financial help (Roween and Almaden, 2014).

If the cost of purchasing/ constructing a decent quality house is more than the disposable income of what households can afford, then households face issues of affordability (Stone, 2006). Housing cost is directly related to households well being. Households that hardly meet their housing and non-housing expenses may face health issues and are prone to stress conditions (Bratt, 2002). Poor households use sub-standard/cheap construction materials that reduces house durability and its resistance to humidity and hazards increase the repair and maintenance cost (Wallbaum, et. al., 2012).

Location of housing type and socio-economics determines the affordability and housing demand (Bujang, et, al., 2010). Lack of access to school, health and park can lead to adverse social impacts and well being of households (Hugh, 2009). Availability of commercial area, health services and parks at walking distance has a strong relation to the well being and affordability and enhances social cohesion (Hugh, 2009). While constructing/buying or renting a house/plot, households consider aspects of location, cost and living environment and amenities (Tan, 2012 and 2009). House/plot purchase criteria of household is highly dependent on location determinants i-e, distance to school, employment, shopping, health, parks and public transport at walking distance (Tan, 2012). Reduced distance to employment saves time, cost of transport, enhances job security and efficiency (Tan, 2012).

A good housing location consists of accessible public facilities (i-e education, health, park) proximity to workplace, public

transport, and a healthy living environment. Whereby due to high cost of housing the poor get pushed to find housing in suburb of cities away, from workplace/social network, lacking public facilities, mostly slums/informal settlements (Salleh, et. al., 2014).

RESEARCH METHODOLOGY

Simple random sampling technique was used to select the sample population and area under study (Murree city). Based upon the current population and number of household in Murree city, about one hundred thirty households were surveyed. The city was divided into four sample zones for household survey namely Sunny Bank, Lower Bazaar, Jhika Gali and adjoining areas. About twenty five percent of the survey sample was conducted in Lower Bazaar, nineteen percent in Sunny Bank, eighteen percent in Jhika Gali and thirty eight in other adjoining areas. Apart from that, secondary data about the population of the city, present housing stock and requirements, and cost of land was collected from various government departments, population census and TMA office Murree.

INTRODUCTION TO THE CASE STUDY

Murree is becoming overcrowded with the influx of tourists, specially during the summer season, who opt to live in multistory apartments or hotels. Many shopping areas, hotels and recreational facilities have developed to accommodate the tourists. The quantity of housing required has increased over time, because of population growth and investment on part of the government and private and developers. Many of these are seasonally occupied. Tourist population have increased manifold due to the development of roads and infrastructure. An estimated eleven thousand tourists visit and stay there during the peak season and holidays. Murree has witnessed an increase in real estate development activities, which includes many housing projects spreading from Murree hills to the periphery of Islamabad. However, there is lack of adequate and affordable housing.

RESULTS

Housing Demand and Supply in Murree City

The population of Murree city has increased from fourteen thousand persons in 1998 to about twenty seven thousand persons in 2013 (Punjab Statistical Report, 2013). The average household size is about 6.2. The total housing units in Tehsil Municipal Authority (TMA) limits of Muree are five thousand units as of June, 2015, which were two thousand and eighty eight units in 1998 as per 1998 census. The major urban settlements are Lower bazar, Kashmir point, Jhika Gali, Motor Agency, Sunny Bank, Kuldana road, Pindi point and other adjoining areas. The housing situation in areas like Sunny Bank and Lower Bazaar is in poor condition and they have become densely populated. Overall there is a shortage of twenty thousand and seventy housing units in Murree.

Social Determinants

Socio-Economic Status of Households

The average household size in Lower Bazar is 6.52, with average 3.76 males and 2.76 females. Median age of the household head is between 40-60 years, while the median education level is matriculation. In the Sunny Bank area, the average household size is 8.17, with 4.36 males and 3.77 females, median age is 40-60 years and median education level is bachelors/university. In Jhika Gali area, the average household size is 6.09 with 3 males and 3.25 females, median age is 40-60 years and median education is secondary level.

In other adjoining areas, the average household size is 5.96 with 3.07 males and 2.76 females and 40-60 years is the median age, while median education is secondary level. In Murree city, about 8.5% of the respondents were unemployed, while 2.3% retired from government or private departments and majority (89.2%) were employed in various fields. About one third (35.4%) were working in private sector, one fourth (23.1%) in government departments and 22.3% were self-employed. 7.7 % were working on daily wages.

Table 1 shows the income range for various households in Murree. Most of the respondents are working in private sector or self employed, either in hospitality or related businesses. The respondents were reluctant to disclose their actual household income due to many reasons. It was evident from the survey results that about half (45%) of the households were earning less than Rs.25000/- (US$ 159) per month and only one third (33%) were earning more than Rs.30000/- (US$ 191) per month. While one fifth (21.5%) of the household income ranged from Rs.2500/- (US$ 159) to (US$ 191) per month. 3.1% of the respondents were earning Rs.8000/- (US$ 51) or lesser per month and 6.9% of the household's monthly income ranged from Rs.8000/- (US$ 51) to Rs.13000/- (US$ 83) per month. The 11.5% of household's monthly income ranged from Rs.13000/- (US$ 83) to Rs.18000/- (US$ 114) per month. It can be seen from Table 1 that the average monthly non-housing expenses that the households had to meet were their daily living needs.

Table 1: Socioecomic Characteristics of Respondents

Items		Sunny Bank (%)	Jhika Gali (%)	Lower Bazar N(%)	Adjoining Areas N(%)	Average
Sample Size (N)		25	23	33	49	-
Household Size (N)		8.04	6.09	6.52	5.96	6.52
	Male	4.32	2.91	3.76	3.10	3.47
	Femal	3.72	3.17	2.76	2.78	3.02
Age of Respondent	25-40	24.0	39.1	30.3	36.7	33.1
	40-60	60.0	47.8	51.5	51.0	52.3
	60 and above	16.0	13.0	18.2	12.2	14.3
Median Education (Year)		14	08	10	08	12
Occupation (%)	Self Employed	3.8	3.1	6.9	8.5	22.3
	Private	5.4	10.0	7.7	12.3	35.4
	UnEmployed	2.3	0.0	3.1	3.1	8.5
	Government Employee	5.4	3.1	3.8	10.8	23.1
	Retired	.8	0.0	.8	.8	2.3
	Daily Wages	.8	1.5	3.1	2.3	7.7
	Othres	.8	0.0	0.0	0.0	.8
Income (Rupees)	8000 or less	0.0	0.0	1.5	1.5	3.1
	8000 - 13000	0.0	1.5	2.3	3.1	6.9
	13000 - 18000	1.5	3.8	4.6	1.5	11.5
	18000 - 25000	3.8	4.6	2.3	13.1	23.8
	25000 - 30000	4.6	5.4	4.6	6.9	21.5
	30000 and above	9.2	2.3	10.0	11.5	33.1
Non-Housing Expenditure (Thousand Rupees)	Food	21.26	14.43	16.29	15.16	16.49
	Clothing	2.28	1.63	1.08	3.04	2.10
	Health	1.78	1.19	.81	1.40	1.28
	Education	5.04	2.89	2.92	2.40	3.13
	Utility Bills	5.43	2.25	3.25	2.83	3.33
	Repair	2.06	.74	1.02	.78	1.11
	Transport	2.89	1.35	1.21	1.84	1.79

Non-housing expenses included the expenses incurred on food/ kitchen items, clothing, healthcare, education, utility bills, general repair and maintenance and costs associated with travelling for availing various daily activities i.e, health, shopping, education, job recreation. Average food/kitchen expenses of household in the lower bazar area was about Rs.16000/- (US$ 102)per month, about Rs.1300/- (US$ 8) for clothing, Rs.1000/- (US$ 6) for healthcare, Rs.4700 (US$ 299) for education and Rs.3800 (US$ 24) for utility bills, Rs.1500/- (US$ 9) for repair/maintenance and Rs.1600/- (US$ 10) for transportation.

So the total monthly non-housing expenses were Rs.30000/- (US$ 191) for a household family. The total of such expenses for households in Sunny Bank area were Rs.41000/- (US$ 261) per month, with Rs.21000/- (US$ 6) for food/kitchen items and Rs.5000/- (US$ 32) and Rs.5400/- (US$ 34) per month for education and utility bills respectively. The total expenses of households in Jhika Gali area were Rs.25000/- per (US$ 159) month with Rs.13000/- (US$ 83) for food/kitchen alone, and Rs.3300/- (US$ 21) and Rs.2800/- (US$ 18) per month for education and utility bills. In the adjoining areas the total expenses incurred by the households for these activities were Rs.28000/- (US$ 178) including Rs.15000/- (US$ 95) for kitchen/food items.

Housing Conditions

The ownership status of the households survey revealed that more than half (57.4%) of the households were owners of their dwellings, One fourth (26.4%) of the respondents were tenants, while 7.8% lived in inherited houses, and 7% living with parents (Table 2). Lower Bazar was a high density area, with poor condition of housing and infrastructure. The average age of the building is 43.50 years old, while the houses in Sunny Bank Area were fourteen years old on average. Sunny Bank was also a low income area with poor construction and infrastructure facilities. The respondents of Jhika Gali informed that their houses were thirteen years old on average.

The houses/units in adjoining areas were 18.65 years old. While the type of dwellings survey should that 15.4% of the units were detached houses and 84.6% were semi-detached. About half (45%) of the housing units consisted of two to three bedrooms, 5.2% had one bedroom, while one third of the dwelling were pacca (35%) had four to five bedrooms. Rest of the units had more than five bedrooms (Table 2).

As reflected in Table 2, majority (about 74%) of the respondents were living in eighteen hundred square feet house or less (about 6.5marla and less-based on two seventy two square feet for one Marla). Out of that about one fourth (22.7%) were living in seven hundred or less area, (about 2.5 marla) while one third (32.8%) were living in houses/units with areas ranging from eight one to thousand two hundred square feet and one fifth (18.8%) of the respondents were living in units with area range of one thousand three hundred to one thousand eight hundred square feet. The households of Lower Bazar had to travel 5.23 km to their work place, their children travelled 1.83 km to attend school either by walking or via public transport. For health facilities they traveled 2.65 km, for shopping 1.45km and for any recreational activities 3.20 km (Table 2). The households of Sunny Bank traveled 2.10 km for their jobs, 1.21 km for school, 1.87 for health and 1.49 km for shopping and 0.61 km for recreational activity. While the repondents of *Jhika Gali* said, they had to travel 10.41 km for jobs, school facility was at 3.12 km, for health 3.59 km, for shopping 3.07 km and 2.34 km for recreation. Similarly the households of adjoining areas described that on average they traveled 5.06 km for job, their children travel 2.38 km to attend school, for health 3.33km, for shopping 2.84 km and for recreation 1.78 km.

Table 2: Housing Conditions in Muree

Items		Sunny Bank (%)	Jhika Gali (%)	Lower Bazar N(%)	Adjoining Areas N(%)	Average
Sample Size		19.2	17.7	25.4	37.7	100
Ownership Status	Tenant	10.0	10.0	11.5	11.5	43.1
	Owner	9.2	7.7	13.8	26.2	56.9
	Other	0	0	0	0	0
Housing Type	Pacca	13.1	12.3	20.3	25.4	70.8
	Semi Pacca	6.2	5.4	5.4	12.3	29.2
Dwelling Type	Detached	3.8	5.4	1.5	4.6	15.4
	Semi Detached	15.4	12.3	23.8	33.1	84.6
Age of Building (Years)		14.00	13.01	43.50	18.65	23.85
Plot/Unit Size (Sq.ft)	700 or less	3.1	4.6	10.0	4.6	22.3
	800 - 1200	4.6	6.2	6.9	14.6	32.3
	1300 - 1800	3.1	2.3	6.2	6.9	18.5
	1900 - 2500	3.1	.8	1.5	2.3	7.7
	2600 - 3200	1.5	2.3	0.0	5.4	9.2
	3300 - 4500	3.8	.8	0.0	3.1	7.7
	Othres	0.0	.8	.8	.8	2.3
Average Distance Traveled to Avail Facilities (km)	Employment	2.10	10.41	5.23	5.06	5.55
	Health	1.87	3.59	2.65	3.33	2.92
	School	1.21	3.12	1.83	2.38	2.15
	Recreation	61	2.34	3.20	1.78	1.99
	Shopping	1.49	3.07	1.45	2.84	2.27

Annual Rent in Thousand Rupees	Annual Rent in Thousand Rupees
20 and Below	6.5
21- 45	16.1
45 - 70	16.4
71 - 95	19.4
96 - 120	25.8
121 - 150	12.9
121 - 150	3.2
Total Tenants (31)	100

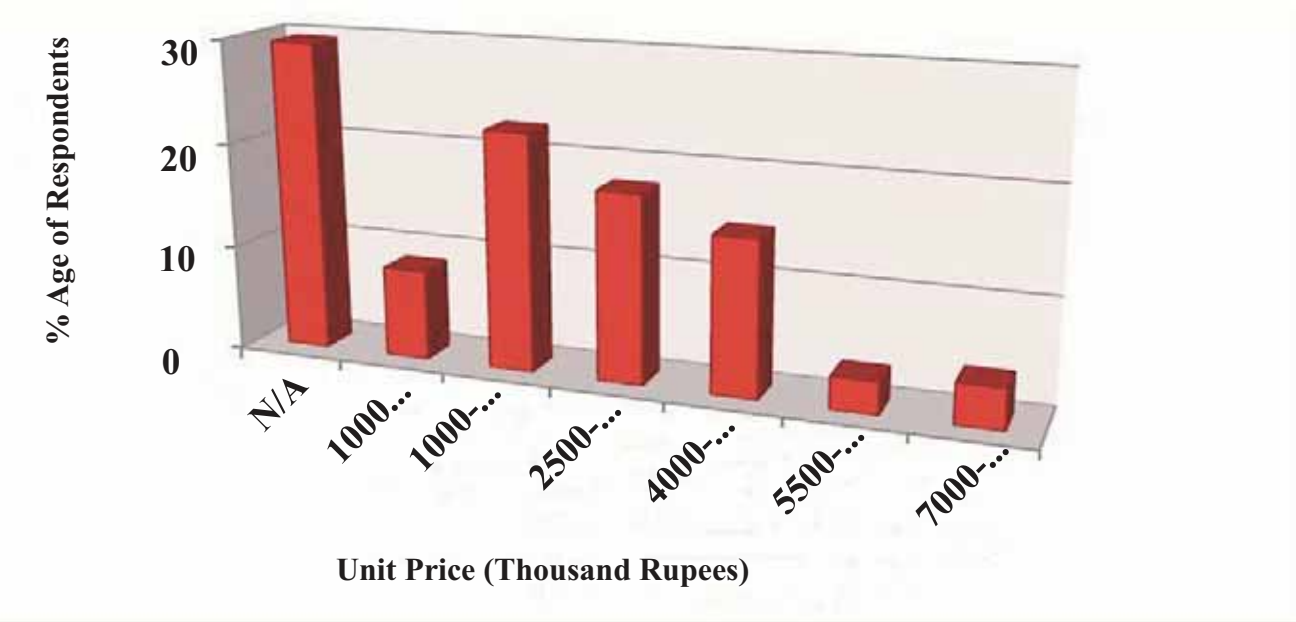

Figure 1: Realationship between age of respondents and house prices

Cost of the Unit/House and Plot

Overall analysis of the survey shows that the market rate of new units/house was too high to be afforded by the low income group. About 8.1% of the respondents described the market rate of their unit is 10 Lac Rupees (US$ 6,542) or below, while one fourth (22.5%) said that the market rate of the unit ranged from 10-25 Lac Rupees (US$ 6,542-16,352). Nearly 17.8% described it in the range of 25-40 Lac Rupees (US$ 16,352-26,162) and 14.7% said that market cost of the unit lied between 40-55 Lac Rupees (US$ 26,162-35,973). About 1/3rd (29.4%) did not know about the market cost of the unit/house (Figure 1).

Discussion

The analysis of data shows that average HH size is 6.5 in all the residential areas of Murree city, while it is highest (8.1) in Sunny Bank and its adjoining areas including Motor Agency and Kuldana Road. HH size has a direct relationship with housing affordability in many aspects. On one hand the increase in HH size tends to increase the earning members, (Salleh et al, 2014) which in turn adds to the income of household leading to rise in affordability and increases the housing and non-housing expense, which tend to lower the affordability (Stone, 2006). Increase in HH size raises the housing demand and desire for house ownership and need for extra housing.

In line with research of Tan (2012) higher HH size demands more housing on ownership basis as witnessed in the present research. Analysis shows that majority (62%) of the respondents were married, and as per Coulsen's (1999) research, which supplements the analysis that married couples desire to own a house to have more privacy and healthy living for their children, thereby affecting the ownership rates. Higher HH size indicates overcrowding, especially in smaller units particularly in Sunny Bank and Lower Bazaar areas. A separate room or even new housing facility is arranged when a male household member is getting married, which requires additional money for housing. According to the local people they usually manage the additional money through borrowing from relatives and close friends. On the other hand, research of education level shows that residents of Sunny Bank and its adjoining areas were highly educated with median education status of Bachelor/University level. The median education level of Jhika Gali and adjoining areas, including Kashmir Point and MIT colony was secondary level. The lowest level of education was found among the respondents of Lower Bazar Area, which represents the oldest living areas of Murree. One of the reasons as stated by previous studies (Roween, et. al., 2014; Braconi, 2001; Spencer, 2010; Bratt, 2002), of low level education is related to the poor quality and overcrowded housing conditions, that tends to create stress and leads to lower education outcomes and low paid jobs. Thus more affordability problems are faced by these households as compared to those living in better housing conditions with good education status (Saleh, et. al., 2014). Research results also elaborate that higher education status

in particular areas leads to enhanced living conditions and increased demand for affordable housing which affects ownership rate (Tan, 2012; Clark, 2006). Highly educated households have more chances of getting good paid jobs and avail these on priority, and in turn meet their housing and non-housing expenses.

The findings also revealed that more than half of the respondents (57.4%) were house owners and one fourth (26.4%) of households were tenants due to various reasons, i.e. lacking finances to by a property. The reasons also cited for living in rental property were accessibility to job and other facilities. In owned properties people incrementally improve and add space horizontally or vertically to the houses. In Sunny Bank and Jhika Gali the average age of housing unit was thirteen-fourteen years, that included new constructions (2008-09) in MIT colony and Motor agency, and Kashmir point.

The size/area of majority (55.5%) of the housing units was below twelve hundred square feet. The research by Saleh, et. al., (2014) resonates the findings as high density areas comprise mostly low quality, small size houses and old age units resulting in overcrowding, low education, low paid jobs and safety issues. The results indicate that the households are forced to live in congested living environment, due to low income, high land and construction cost. Due to housing deficit and tourist influx, the rents of units have increased enormously, further creating affordability issues for medium to lower income households. In Murree most of the housing located along the valleys and hillside slopes face land sliding hazards due to heavy rainfall, therefore households have to spend most of their income on repair and maintenance. Land sliding damages the housing, infrastructure and livelihoods, which in turn affects the safety of life and property (Khan, 2001).

Due to hilly and undulating terrain of the city, it is easier to walk than to move by transport within the city's adjoining areas, as narrated by the respondents. Most households prefer locations near social network, apart from other factors. Apart from Jhika Gali, all the respondents from other areas have job and other facilities like, school, shopping, health at accessible locations. As per Tan (2012) job distances have positive significant relationship with affordability, if the house is located in proximity to employment. This way household affordability increases. The respondents complained about the lack of parks/playgrounds, that affect their wellbeing, which is important for relaxing, playing and social cohesion, as argued by Hugh (2009). Stone's (2006) research argues and the case study shows that household incomes and non- housing/housing expense are correlated and it is extremely difficult for most of the families to meet their daily non-housing/housing needs within these incomes.

About three fourth (67%) of the respondents were earning US $ 191 or less per month and monthly income of nearly one fourth (21%) of households was below US$ 115. On the other hand the household's major share of income was spent on food/kitchen expenses, apart from other non-housing expenses, which averaged to US$ 96 per month for majority of the households. It became extremely challenging for poor and middle income households to save for housing improvement or expansion. So mortgage finance becomes important to assist such families to have adequate housing. In line with Stone's (2006), research it has been observed that higher the income level, higher will be the affordability, as the non-housing expenses will almost be the same for higher and lower income families. In addition, due to higher HH size, more income is spent on non-housing expenses. Higher education increases the income level and affordability, and also increases the living standards, and when living standards are raised it reduces affordability. With increased income, the higher priced unit can be purchased or constructed, and larger loan can be availed. In accordance with the research of Wallbaum, et. al., (2012) the lower income households not only have lower incomes but it is irregular, as most of them are employed in tourism related jobs, which leads to regular income in peak season and irregular in off-peak season. Moreover incomes of most of the lower strata has not increased as compared to the rising prices of food items, education and other utilities. So our findings are in line with previous research of Stone (2006), as majority of the households are unable to save for housing, while spending for basic non-housing needs, and face affordability problems. Research by Roween, et. al., (2014) show that due to ban on construction, households involved in construction activitie remain jobless, further aggravating their financial problems in addition to affordability problems of house ownership.

Conclusions

This paper has highlighted that housing affordability is related to social and economic determinants. The findings suggest that supply of affordable housing should meet the needs of all households belonging to various socio-economic group. The important social and economic determinants that have a strong relationship to affordability are household size, education status, location, unit/plot size, household income, housing and non-housing expenses, savings, and finally the house construction cost including land/material

cost. The construction cost of the house is on rise along with cost of availing facilities, i.e, education, health, utilities, transport, whereas income remains dormant and irregular for most of the middle to low- income households. This makes it difficult to own a house. The variables of the study show that location determinants i.e, distance to school, shopping, job, health, have significant relationship to affordability. In hilly areas like Murree, it would be difficult to avail such facilities if not in proximity.

Most of the respondent of households are willing to improve their housing condition, but lack finances due to low income and higher non-housing expenses. While higher household size and low education in Lower Bazaar area has also highly affected the housing affordability with low savings. Most of the households in such areas are living in overcrowded living conditions, with substandard infrastructure impacting their health, education, income levels and productivity. Findings show that the main constraint in meeting housing requirement is the low income of economically weaker segments of urban community. Reduced and irregular incomes are related to low education and low job skills, due to ban on construction, and especially during off-peak season of tourism.

It is advisable to provide decent and affordable housing with healthy living environment in close proximity to employment and amenities with well-planned infrastructure. The government of Pakistan and private developers should join hands to assist the households in reducing the land and construction cost, with free education and health facilities, and support income generating activities for middle to low income groups. Furthermore, there should be well conceived and comprehensive master plan with well-planned infrastructure and amenities focusing on middle to low income group.

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IDENTIFYING MUGHAL AND SIKH ARCHITECTURAL FEATURES IN A HISTORIC MONUMENT; A CASE STUDY OF HADUWRI BAGH BARHDARI LAHORE

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ABSTRACT

A country is mainly identified by its cultural heritage. Built form is a means of expressing this heritage in a tangible form Haduwri Bagh *barhdari* is a magnificent monument of its times. The paper aims to study the architectural features of the *barhdari* to better understand the architecture of the monument. The objective is to identify and differentiate the elements of Mughal and Sikh Architecture through a case study analysis.

Haduwri Bagh *barhdari,* is located on the west of Alamgiri Gate of Lahore Fort and east of Badshahi Mosque entrance gateway. The *barhdari* occupies a central position of the Haduwri Bagh making it a perfect symmetrical structure which is in no way dissonant with respect to its context. Even being constructed in Sikh period, *barhdari* features typical Mughal architectural elements making it doubtful that in which era it was constructed. The paper focuses on the study and analysis of architectural features and materials of the Monument which lies in the midst of Haduwri Bagh, Lahore Fort. This paper is an effort to highlight the fact that despite of being constructed in the Sikh period, the *barhdari* features typical Mughal architectural elements speaking of cross fertilization of architectural elements.

Keywords: Haduwri Bagh *barhdari,* Sikh Architecture, Monument, Mughal Architecture, Lahore.

INTRODUCTION

"*Barhdari"* is a combination of two words belonging to the Urdu language. *Bara* means twelve and *dari* which is a synonym of *dari* means door. So, *barhdari* is a twelve doored pavilion, rectangular or nearly square in shape with a tripartite arcade or colonnade on each of its side. In general, it can be called a "summer house" (Figure 1 and 2).

The Haduwri Bagh *barhdari* was constructed in 1818 A.D. by Maharajha Ranjit Singh, the founder and ruler of Sikh Rule in the Province of Punjab (Chaudry, 2000). Ranjit Singh remained emperor from 1799-1839. Ranjit Singh was born in Gujranwala on November 13, 1780. Mahan Singh, his father named him Ranjit Singh. The Sikh Maharajha battled his first battle, when he was roughly ten years old. It was Sahib Singh Bhangi of Gujarat (a town in Punjab, now Pakistan) who declined to pay homage to Mahan Singh and his empire was assaulted by him. Sahib Singh locked himself up in the Fort of Sodhran, and the ceasefire of the Fort was hammered. Ranjit Singh assisted Mahan Singh. The siege went on for several months (Baqir, 1984).

Mahan Singh, Ranjit Singh's father died in the year 1792. At the time of his death, Ranjit Singh was only twelve years old. He was too young to handle the complicated affairs of the estate. After the death of his father, his mother, Raj Kaur, was his ultimate guardian. Diwan Lakhpat Rai also extended his support to the Maharajha. Raj Kaur had complete faith

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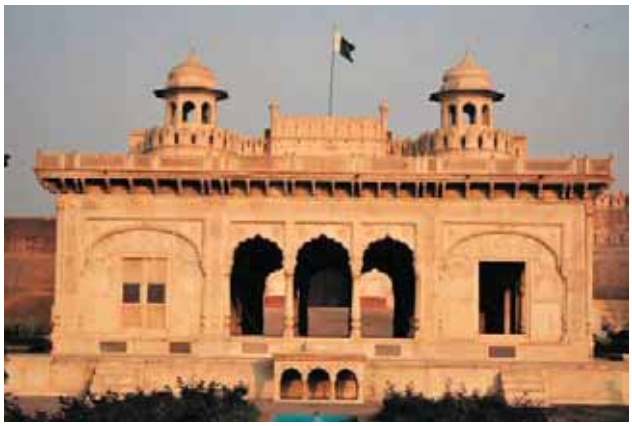

Figure 1: View of Haduwri Bagh *barhdari* from West side

in Diwan's honesty and integrity, but her brother, Dal Singh, did not really like his involvement in the administrative matters of the empire. So, Dal Singh formed an alliance with Sada Kaur, mother-in-law of Ranjît Singh, who had a lot of influence over him. Thus, two groups were formed, Diwan and Raj Kaur on one side, Sada Kaur and Dal Singh on the other. The maneuverings and counter-maneuverings soon made Maharajha tired of both of the groups (Chaudhry, 2000).

Ranjit Singh learned to ride, shoot, and began drinking at a very young age. Drinking was not deemed evil in those times, so more one drank, the more reverence he showed to the sardars. It was seen as a source of dignity (Chishti, 1864).

Despite spending years in indulgence and dissipation, he was more drawn to the typical vices common to the nobles in those times. During his prime, though, Ranjit was exceptionally successful and outstanding horseman and well trained in all relevant to military feats (Lal, 1984).

Ranjit Singh was committed to Mehtab Kaur of Kanhaiya at the age of sixteen. This marriage pulled together two powerful estates. Then, in 1798, he married again the daughter of Khazan Singh Nakai, strengthening his power. Mehtab Kaur and Sada Kaur were irritated by Ranjit's second marriage. Mehtab Kaur moved to Batala and just visited Gujrawala on special occasions (Latif, 1916).

Until this time, Diwan Lakhpat Rai had been handling the operations of the estate. He had faith in Sardar Mahan Singh. Diwan was assassinated in Dhanni region for acquiring major revenue central of the empire. It offered Ranjit Singh a chance to take over control of empire's administrative affairs (Latif, 1916).

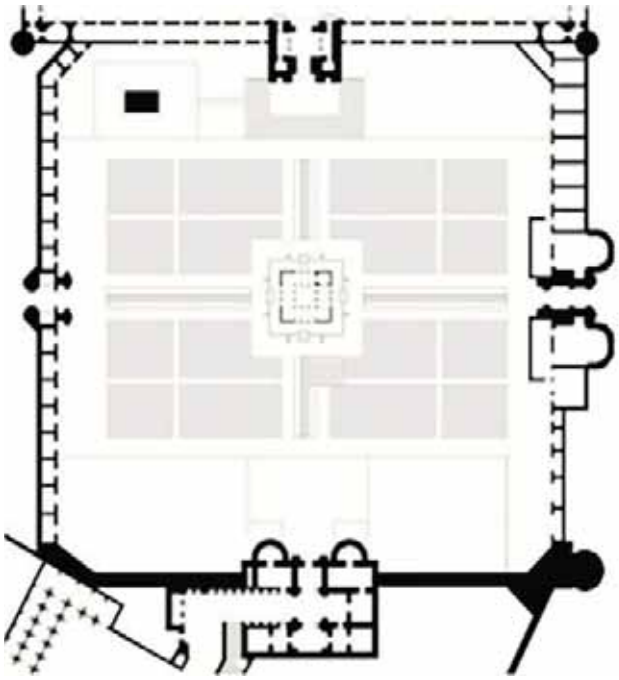

Figure 2: Location plan of Haduwri Bagh *barhdar*

Therefore, at the age of eighteen Ranjit Singh inherited the powers directly. Sada Kaur manipulated the status of Ranjit Singh, and she was the ladder though which Ranjit Singh attained the pinnacle of his strength. The artificial imagination of the little child was influenced by men and women with whom he had no strong theological and moral values to emulate. He was brought up more or less as a privileged boy (Baqir, 1984).

MATERIALS AND METHOD

Information on the revered architectural structure of the Haduwri Bagh *barhdari* was gathered from primary and secondary sources of historical literature. The collected information was also confirmed by an on-site review of the heritage monument. Various visits and detailed observations were carried out for close examination of architectural features. The information collected was examined with respect to its architectural arrangement of horizontal as well as vertical configurations and embellishments in its exteriors as well as interiors. The sources and origins of adornments and architectural decoration were mostly identified by historical literature (Baqir, 1984, Chisti, 1864: Lal, 1984) and also through contrasting with specific structures constructed during the Mughal and Sikh period.

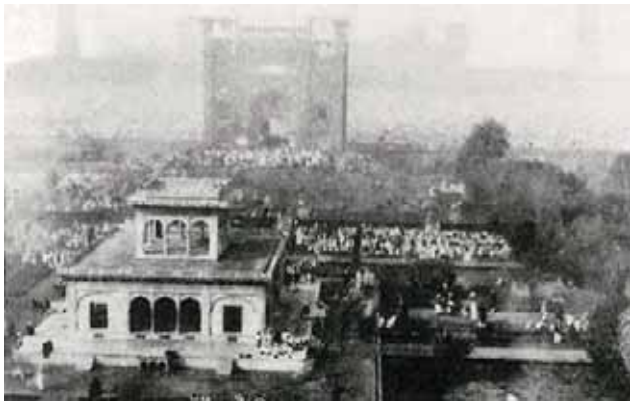

Figure 3: Haduwri Bagh (*barhdari*) Arial View East Side Before 1932
Source:Department of Archeology, Government of Punjab

Figure 4: Haduwri Bagh (*barhdari*) West Side View Before 1932
Source: Department of Archaology, Government of Punjab

Figure 5: Haduwri Bagh (*barhdari*) West Side View Before 1932
Source: Department of Archeology, Government of Punjab

Figure 6: Haduwri Bagh (*barhdari*) West Side View Before 1932
Source: Department of Archeology, Government of Punjab

RESULTS AND DISCUSSION

Construction of Haduwri Bagh *Barhdari*

The construction of Haduwri Bagh was in accordance with the orders of Ranit Singh and was done under the supervision of Faqir Azizuddin. The *barhdari* had been constructed on Jamadar Khushal Singh's suggestion to mark a monument of the Sikh era which was of great historic value (Figures 3-6).

Ranjit Singh ordered the plantation of the Haduwri Bagh to celebrate the capture of the renowned Koh-e-Noor diamond from ruler Shah Shuja of Kabul, Afghanistan on 1st June 1813. He was keen to erect right in the middle of the garden, a *barhdari* which would subsequently acquire the status of a magnificent monument. Since at that time many tombs and shrines of muslim elite were present just outside the city and these were adorned with marble, a similar trend was to be followed for this monument. Thus it was ordered to deprive the muslims of the stone and affix it to the *barhdari (*Hina, 2013*)*. Hence, the Tomb of Zibunisa' was the first victim whose marble was taken off for this purpose. Next it was the Tomb of Shah Sharif located in front of Bhatti gate which met with a similar fate. In short, marble from innumerous tombs was taken off to complete this building. Even then, there was a shortage of stone and consequently limestone was relied upon as the last resort (Lal, 1984).

During his lifetime, the pavilion remained a favorite resort of Ranjit Singh for pleasure and to conduct other businesses, including all official matters. The peaceful days of the marble *barhdari* ended with his death, which immediately commenced the long period of civil and military strife and confusion, usually called the Great Anarchy. During these days, the pavilion stood serene in the midst of war, murder, assassination and plunder (Tufail, 1962; Singh, 1999).

Figure 7: A View of *barhdari* from North-West Side

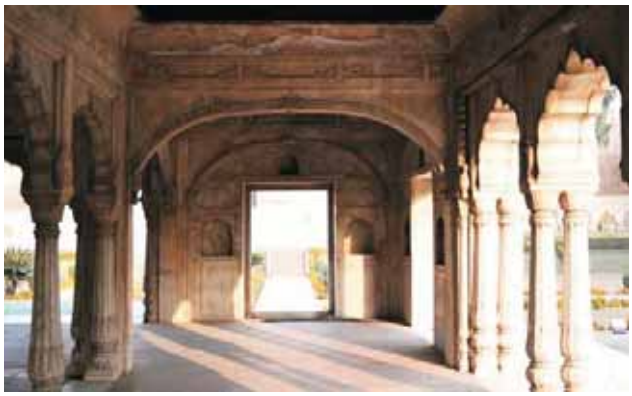

Figure 8: Interior View of Ground Floor

Figure 9: Interior View of Ceiling Stucco Work with Decorated Concave Mirror

Figure 10: Red Stone Floor (Interior View)

Description of the Building

At the time of construction, it consisted of a basement, a sub-basement and two stories (ground floor and first floor). Although the *barhdari* was constructed in the Sikh era, it clearly portrays late Mughal architecture. It is almost a square shaped building with each of its side an imitation of the other (Figure 7).

Ground Floor

The ground floor is built on a raised platform which is accessed by staircases on each side. This podium approximately sixty five feet by sixty five feet, encloses the *barhdari* on all four sides and is three feet high from the ground. In the center of each side of the platform is an extended platform which has three cusped arches and a height of three feet and seven inches approximately. These extended platforms are also known as "Shah Nasheen" as the Emperor Ranjit Singh used to sit on them. The podium and platform floor are made of marble with inlay of colored stones in different patterns, arranged in haphazard manner. *Sang e Badal* and *Sang e Aabri* are used in the flooring of the podium, which has now lost its polish. Moreover, fish design was used for the marble inlay work on the east and west floor of the podium. Some of the floor patterns are now missing or severely damaged. Various types of marble pieces are used in the monument; whereby some of the pieces in the facade are bulging outwards. Identical to these are three more enlarged archways on the entrance of *barhdari* with a pair of doorways on either side. One can also see the ventilators of the basement opening into the ground floor. The central room of the *barhdari* can be accessed via three cusped arches from the podium. The ceiling of this room is decorated with stucco tracery inlaid with convex mirrors. The curved border of the ceiling is also decorated with mirrors. The ceiling of the surrounding corridors is now made of deodar wood. In the past it also had a mirror ceiling, similar to the central room (Figures 8-11).

Figure 11: Podium /Platform Floor is of Marble With Inlay of Colored Stones

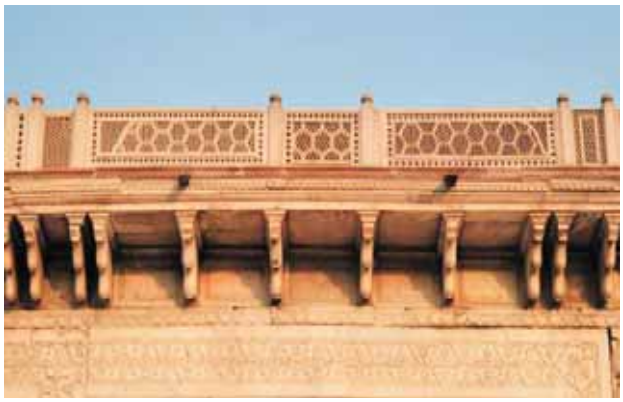

Figure 12: Marble Screen Supported by Marble Brackets

Figure 13: View of Basement Showing Typical Sikh Style of Architecture

Figure 14: View of Basement and Sub-Basement

Roof Top

The roof top is approached by a "L" shaped white marble sixteen stepped staircase having a tread of ten and a half inches. The staircase leading to the roof top has stone inlay work on one of the steps. The landing of the staircase indicates earlier plundering and it is shows stone inlay work in trefoil arch pattern with flowers at spandrels.

At the center of the roof top, there is an approximately twenty feet by twenty feet square platform with a twenty inch plinth. The sides of the roof top platform have been covered with red sandstone slabs, which were originally part of the dado that must have been removed from some other monument, as there are line inlay work with black and yellow stone. This is a typical feature of dado used in monuments of Mughal period (Figure 12).

The roof top has a parapet made in white marble. The parapet has beautiful marble screen supported by marble brackets. The marble *jali* (screen) has prominent hexagonal patterns arranged in various manners. The parapet is one feet nine inches high and projects one feet six inches outwards, forming a cantilever (*chhajja*). The parapet is out of plumb and some of the marble post/ crown of the *muttakas* are missing. For lighting the *barhdari* on special occasions, lights hung from marble screens of the parapet.

This depicts that the structure, a replica of the ground floor, which stood before the *barhdari* was struck by lightning in 1932. The platform is made of red sandstone bordered by white marble, while the rest of the floor has a layer of concrete. The first floor provides a good view of the vicinity of the *barhdari*.

Basement

The lower level (basement) is accessed by a flight of fifteen steps. The staircase is made up of red sandstone. Ensuing the stairs, there is a level which is used as a foyer and has a threshold on three sides made up of marble (Figure 13).

The basements are constructed entirely of brickwork with lime mortar finishing. Under-burnt bricks are used in some

Figure 15: West Side Elevation Showing a Single Massive Composition

Figure 16: The Central Part, Based on Typical Three Openings of *barhdari*

Figure 17: Shah Nasheen with Same Detail as in Elevation

Figure 18: Detail of Column in Marble Carving

places. Burnt clay bricks have been used throughout in the stretcher-bond, characteristic of the Mughal period. These bricks had slightly concave faces; hence the gap formed between two bricks laid was filled with the binding material. Sub hydraulic lime mortar was used as a binding material, finished with glazed lime plaster.

In the middle of this basement there is another level with twelve openings, three openings on each of the four sides. Furthermore, in each direction there runs a corridor which gest light via ventilators in the level above.

Sub-Basement

The sub-basement has two parts, led by stairs from the basement. The ceiling of the room of the sub-basement has collapsed. The adjoining room's entrance is through three archways and the second room has decorative patterns of arches embossed on the walls, with three arches on each wall (Figure 14).

Elevation description

The elevation of the building is a flat mass with embossed detail and projected parapet resting on marble brackets. The central part has three openings covered with multifold arches based on decorated pillars. There are two doorways on either side of the opening with flat beam, thus the whole mass is divided in three parts with border of floral motifs carved in marble. The central part is based on typical three openings of *barhdari*, the spandrel of each arch is three inches depressed from the main mass with embossed floral motifs on each spandrel. The central opening has even more decorative spandrels with floral bunch instead of a single flower. Each spandrel has a decorative border. The multifold arches of the three openings have decorative border with central arch again having more decorative motif. These arches rest on decorative pillars (Figures 15-16).

The whole pillar is carved in marble and its base rests at the plinth level of the main *barhdari.* This kind of construction could be found in the era of the Mughal emperor Jahangir.

Table 1: Segregation of Sikh and Mughal Architectural Features of Haduwri Bagh barhdari

Sr. No.	ARCHITECTURAL FEATURES OF MUGHAL ERA	ARCHITECTURAL FEATURES OF SIKH ERA
1.	The monument is based on the plan form of existing Mughal Tombs and monuments.	Some motifs used in the monument shows the Sikh influence with respect to Architecture. Examples are Peacock with a necklace in beak, Jar of Wine (drinking wine was a pride in Sikh Period)  
2.	Plan is symmetrical (square), and proportion is the same as in Mughal monuments.	Motifs of Sikh Era 
3.	Marble was chosen to make the monument. Reason being the Mughal monuments were customarily adorned with the marble. This monument was completed by taking the marble from existing Mughal tombs and other monuments.	The most prominent penal showing Sikh Architectural detail with a long curve at the top. 
4.	The embossed decorative patterns laid in marble present on faces and floor of the monument are the characteristic of Mughal Architecture.	Top of a column embellished with lotus flower is a characteristic feature of Sikh Architecture. 
5.	The side of the raised platform on the roof is covered with red sandstone. These red sandstone slabs appear to be a part of dado ornamentation which is characteristic of Mughal Period as these stones are laid in with black and yellow stones.	Motifs used on base of column is also a characteristic feature of Sikh Architecture 

Figure 19: Detail of Impost and Springer in Marble Carving Related to Jehangir's Period.

The base of the pillar starts with a square shape and turns into a round with inverted floral motifs. It finally forms a neck, than a dilt, than again a neck, that leads to the shaft, which starts from a lotus flower detail and narrow downs as it rises above. Then again there is a neck shape design which leads to the capital of the pillar, which also has the leaf carving detail. The impost of the arch is also very decorative with rich carving detail. The central arch rest on two pillars, whereas arches on either sides rest on pilasters (Figures 17 - 19).

On either side of the two openings, there is a door way with similar detail. The doors are surrounded by a depressed square mass with pilaster on both sides, which is covered with engraved depressed semicircular arch. The spandrel of the arch has single floral motif on either side. The internal area of the arch has engraved paneling with carving of food items and birds (Figure 20).

Segregation of Mughal and Sikh Architectural Features

A discussion about the identification of Sikh and Mughal architectural features of the monument is necessary, to relate the monument to a time period and to attain the objective of the study. The different types of features have already been discussed in the section above. A table has been formulated in order to have a clarity and highlight the distinction between the architectural features related to Mughal period and Sikh periods (Table 1).

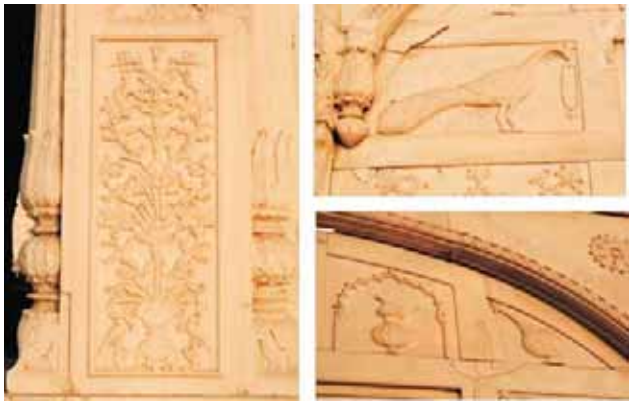

Figure 20: Detail of Engraved Panels Showing Vine Ports and Birds Related to Sikh Cultural and Floral Motifs

CONCLUSION

Haduwri Bagh appeared on a horizon having the historical insight. The reflection of Haduwri Bagh in the history has a very key role, because of its location and its historical linkage. The sandwiched raised structure is the prime character of the area that lies between the Fort and Badshahi Mosque. This *barhdari* appeared on the same spirit as the Mughals perceived their asthetics. It had the royal appeal of construction and it was perceived that this whole structure might have been migrated from another site as the elements used in the *barhdari* do not reflect the architectural elements of Sikh architecture.

Although the use of the Sikh elements can be seen in the basement and the lower basement of the *barhdari,* but their proportions and their massiveness compare to the Mughal architecture. This speculation proves that the *barhdari* which was constructed by Maharajha Ranjit Singh was not the vision of the Maharaja.

The Haduwri Bagh *barhdari* reflects Mughal taste and vision. In the mature asthetic outcome, it is observed that the *barhdari* being the social interaction space unfolds its meaning and narrates a certain history.

Acknowledgement:

All pictures are credited to the author, except where otherwise mentioned.

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AN ASSESSMENT OF STUDENT'S COMFORT IN HIGHER EDUCATION BUILDING OF PAKISTAN

*Hassam Bin Waseem**
*Mir Aftab Hussain Talpur ***

ABSTRACT

Comfort assessment, as defined in the literature, is an evaluation of the quality of indoor building environments through user perception. Considering its criticality in the educational institutes, this study was aimed to assess the students' comfort level in the universities of Pakistan, so that proper measures can be carried out to upgrade the classroom's environment. Mehran University of Engineering and Technology, Jamshoro, Pakistan was selected as the study area. Two departments, namely the Architecture Department and City and Regional Planning (CRP) Department were randomly selected. With an interval of ten, a sample of twenty-seven students was selected using Systematic Sampling Technique. The data was analyzed using frequency distribution and Likert-scale index score method. Results showed strong satisfaction with the seating and acoustic quality, whereas dissatisfaction with the visual, ventilation and thermal qualities were observed. Classrooms of the Architecture Department with moderate room temperature had minimal access to sunlight and air. While the classrooms of the CRP Department had extreme temperature gain with excess sunlight and glare both during summer and winter season. Thus, it was proposed that the problematic conditions in these two Departments should be addressed at the earliest to improve the comfort level. Findings, also proposed the necessity to include such variables in the annual student's feedback. Likewise, it was argued that a similar approach could be adopted for other institutes to make the classrooms comfortable.

Keywords: Comfort Assessment, Higher Education, University, Likert-scale, Frequency Distribution.

INTRODUCTION

Comfort assessment is the process of examining the mental state that articulates satisfaction with the indoor building environment, as defined by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (Ashrae, 2009). The assessment is done by evaluating Indoor Environmental Quality (IEQ), Indoor Air Quality (IAQ), thermal, visual, seating, and acoustic comfort (Akande and Adebamowo, 2010). However, satisfying the comfort of every user in a building is a difficult task as the physiological and psychological condition of each person is different. Still, comfort assessment is considered among the most influential factors impacting ecology and building sustainability (Nasrollahi, et. al., 2008).

Providing comfort is fundamental, but ensuring its provision has become tough due to global climate change and global warming (Akande and Adebamowo, 2010). According to the literature, buildings, especially educational buildings, are the highest energy-consuming segment of the urban environment as they consume forty percent of the total generated energy. This makes educational buildings a prime focus of energy-saving policies and procedures. Furthermore, the increasing concentration towards human livability indicates an escalating emphasis on the true meaning and evaluation of urban heat island prerequisites. These days, users' comfort about the Indoor Environmental Quality (IEQ) that incorporates ventilation, thermal, visual, lighting, acoustic and seating comfort is thought of as a critical measure to define the structure efficiency and is closely interrelated to energy performance (Akande and Adebamowo, 2010). Perceived from this point of view, the overall functionality

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and improvement of any structure are as crucial as its designing due to the interlinkages between structure functionality, energy efficiency and comfort. These can be assessed through comfort assessment (Akande and Adebamowo, 2010).

Academic buildings are considered exceptional case due to their uniqueness in terms of users, actions and building use patterns (Allab et al., 2016). Realizing that students spend about a quarter of a day at educational institutes, they are the areas of concern, regarding environmental quality (comfort) for the betterment of students. The information regarding the degree of comfort is essential to ensure quality in the indoor building environment of educational buildings, especially in developing countries. In the educational buildings of developing countries, such as Pakistan, priority is given to the physical aspects only. The building quality is usually evaluated on its aesthetics and structural design. Thus, factors affecting the user's comfort are not generally considered. As a result, the structures lack proper ventilation and have other associated issues. Such situations are mainly observed in the planning and design of educational buildings, where differentiating an educational building from a residential building seems a difficult task.

Like other campuses and educational institutes around the globe, the students of Pakistani universities face several problems regarding thermal, ventilation, lighting, visual, seating and acoustic comfort in their classrooms. These problems adversely affect their concentration and interest during lectures and other academic activities. In the past years, the literature showed achievements of on-site evaluations to determine the weak points of a structure and to propose optimum recommendations. Hence, the literature emphasizes to conduct building audit of academic institutes. A number of projects and programs, such as Renewschool, and Alliance K-12 are being observed worldwide which contributes towards comfort assessment (ASE, 2019, Renew-School, 2019). Similarly, year-wise feedback is conducted in almost all universities in Pakistan, but it does not include the students' comfort aspect. Without the evaluation of students' comfort, it is impossible to make the departmental buildings comfortable, energy-efficient and sustainable. Therefore, an exercise involving evaluation of the students' comfortability in higher education institutes of Pakistan was carried out for this research so that proper measures could be outlined for betterment in the classroom environment. The study, thus, highlighted the factors affecting students' comfort by evaluating their level of satisfaction with their respective departmental buildings.

LITERATURE REVIEW

Heracleous and Michael (2018) investigated the indoor and outdoor comfortability in the high school classrooms, by investigating temperature and humidity in association with the carbon dioxide emission levels. Investigation showed exceeding values of temperature and humidity. They proposed variations in ventilation and opening patterns to improve air quality and minimize heat loss.

Responding to the shortcomings of classroom comfort data, Rodriguez et al. (2019) improved post-occupancy surveys by proposing the inclusion of physical, environmental, physiological and psychological parameters with variables like environment, layout, amount of habitation and social backgrounds to make the survey more comprehensive. De Angelis et al. (2017) introduced a less complicated method for bioclimatic design strategies, by comparing the examined simulations with the characteristics of ideal well-being to assess the capability of structure technologies. Using questionnaire survey and instrumentation data, Papazoglou et al. (2019) applied projected average value and proportion of disappointed indexes for evaluating the user's opinion regarding thermal comfort. They suggested that understanding the perception of building users is the first and foremost element to save electricity consumption and for reducing carbon dioxide production. As perception regarding the users comfort of our study area is unavailable to date, this study attempted to provide such information with an intention to protect urban microclimate and air quality. Zomorodian et al. (2016) reviewed the results of comfort field surveys in Iran's educational buildings of last fifty years to determine the optimum methodologies and evaluate results based on the methodology. They found that majority of the studies showed students dissatisfaction with the ventilation, temperature and indoor air, for which serious efforts are needed.

El-Darwish and El-Gendy (2018) used questionnaires for capturing the students' opinions about the thermal comfort of higher educational buildings in Egypt. The study found a disparity in results as indoor building environments were uncomfortable and unresponsive to the students' needs. With a sample of thirty two buildings and a five-and-seven point Likert scale questionnaire, Kumar et al. (2016) examined the thermal comfort in India. Variables like wind temperature, comparative moisture and wind speed were used. In the end, they suggested managing wind speed to enhance thermal comfort. Bortolini and Forcada (2019) introduced a statistical approach as a means of examining to evaluate the sustainability of structures in Spain. In a comfort assessment

study of Singapore, Shan et al. (2018) adopted a seven-point Likert scale to examine the impacts of indoor thermal quality and air quality on the wellbeing of students. Then, the performance was compared with metrics of other structures via the life cycle costing case study. The results emphasized improvements in the thermal quality and air quality as it could enhance the wellbeing and performance of the students during their academic hours. To fill up the gap between scientific literature and practical applications, Hellwig et al. (2019) suggested the application of adjustable thermal comfort rules in the layout and functionality of structures (especially educational institutes) to enhance energy efficiency.

On a university campus of France, Allab et al. (2017) conducted energy and thermal comfort assessment for constructing and developing an energy appraisal procedure. They introduced a transverse approach by combining the questionnaire responses, observations and physical measurements that could assist in understanding the indoor building environment. Another study of France described an approach for building audits by investigating energy consumption and indoor air quality levels . Also, Likert-scale based questionnaire survey was used to record subjective measurements. Both approaches could be used to suggest the most optimum recommendations to improve the comfortability of indoor building environment. To examine the thermal comfort in universities of Brazil, De Abreu-Harbich et al. (2018) analyzed the architectural design, conducted field surveys, recorded the response of students and applied simulation. In a sample of two hundred users, they found dissatisfaction with natural ventilation, evaporative cooling and air conditioning as the obtained values did not meet the prescribed regulations.

Determinants of Comfort Assessment

Visual / Lighting Comfort

Unlike other variables of comfort assessment, visual comfort is considered a prominent factor in determining the efficiency of educational buildings. Using a questionnaire survey based on a Likert scale, Korsavi et al. (2016) investigated the visual comfort in sunlight and non-sunlight classroom areas, of a high school in Iran. Results declared neutral response of pupils in both areas as they did not sense open sunlight and glare. A study of the United Kingdom investigated the impact of thermal and visual comfort on power utilization by monitoring the temperature and lighting levels of academic institutes. The outcome showed greater use of energy in hours when the requirements of thermal and visual comfort were not met. In Cyprus, Michael and Heracleous (2017) examined the performance of natural lighting in schools using a Likert-scale based questionnaire survey with a sample of four hundred students. Glare issues were observed in the classrooms of east-west orientation. To resolve the problem, the application of static louvers and internal blinds were suggested. A similar case was observed in Pakistani universities where a number of fans and electric lights were installed in each classroom. These appliances remained in use during the academic hours and consumed an unignorable amount of electricity. This made the assessment of students' comfort level in universities an important gap to cover.

Thermal / Ventilation Comfort

Climate change in regions like Europe and Asia is taking place at a very fast pace. Hence, buildings (particularly, schools, colleges, and universities) have become exposed to the effects of global variations in weather. Heracleous and Michael (2018) used simulation software to determine the risks of climate change in educational buildings. Results showed that the educational buildings are mostly incapable to deliver thermal comfort. This discomfort is severely impacting the environmental, socioeconomic interaction of users and buildings. Similarly, the buildings of Pakistani universities are usually ineffective to deliver adequate thermal comfort. In addition to the schools or departmental buildings, the universities accompany several administrative buildings; whose comfort level is also unknown. The comfortability of both, the departments and offices are crucial for better operation of the institute. Likewise, an effort was made by García et al. (2019) by conducting a comfort assessment in naturally located offices in Colombia. It involved data collection from eight randomly selected offices and seventy respondents using a seven-point Likert scale. Results showed a thermal acceptance of 96.58%.

Acoustic Comfort

Acoustic comfort is another important factor that significantly affects the comfortability of students in educational buildings. The absence of acoustic considerations in the planning and design of classrooms results in inaudibility in most portions of the classrooms. Thus, it should be incorporated with other comfort factors while carrying out comfort assessment surveys (Puglisi et al., 2015). It was found in the study of a high school in Italy that due to noise distortion the teacher had to put extreme vocal effort to convey the lectures in a loud and clear way. Hence, the intensity of vocal effort was found related to classroom acoustics. Several studies examined the acoustic conditions of classrooms in primary,

secondary and higher secondary institutes (Buratti et al., 2018, Schneider, 2003, Winterbottom and Wilkins, 2009).

The placement of windows is very critical in increasing or decreasing acoustic comfort. Research showed that children are more impaired than adults by background sounds from the windows (Klatte et al., 2010). Other acoustic problems, like excessive reverberation, low speech levels and noisy ventilation systems were also observed in a study in United Kingdom . They also developed a five-point Likert scale questionnaire to record the opinion. and found dissatisfaction students with the acoustic quality of classrooms. Another study found intermittent background noises and an increase of intelligibility scores with the increase in reverberation (Meresi, 2016, Michael and Heracleous, 2017).

Seating Comfort

Seating quality is a critical physical element in achieving comfortability in the classrooms. Its purpose is to support learning and ensure the provision of comfortable and less stressed environment design. One of the main negative impacts of poor seating design and quality is the bad classroom seating posture (Dianat et al., 2013). Fasulo et al. (2019) adopted a questionnaire survey with a five-point Likert scale to analyze the student's perception regarding seating comfort/discomforts. Likewise, fixed-type furniture and side-mounted chairs are usually present in classrooms of Pakistani universities They are preferred due to their cost-effectiveness (Straker et al., 2006). But it might induce constrained postures that cause muscle tension and risks health and comfort (Fasulo et al., 2019). In addition, it was found that good seating quality leads to good grades (Koskelo et al., 2007). Hence, assessing the seating comfort becomes necessary to improve students' attention and comfort level during lectures.

Several studies were found that evaluated all variables of comfort assessment simultaneously. To determine the perception of students regarding thermal, acoustic, visual and lighting comfort, Ricciardi and Buratti (2018) used a seven-and-thirteen-point Likert scale. The questionnaire survey was carried out in seven classrooms. Results portrayed the influence of illuminance on lighting comfort, the effect of glares on visual comfort and the effect of background noises on acoustic comfort. Another study in Brazil assessed the thermal, visual, acoustic and ergonomic comfort levels of the classroom and followed a similar methodology (Krüger and Zannin, 2004). In conclusion, a combined evaluation of thermal, ventilation, acoustic, lighting, visual and seating comfort emerged as the most viable option to unfold the student's perception regarding the comfortability of their educational buildings (Xue et al., 2016). Several studies on the comfort assessment of academic institutes in countries like Cyprus, Brazil, India, Greece, Iran, Italy and Colombia were found. But no such study was found in Pakistan's context. Thus, this study fills the gap by assessing the students' comfort level in universities. Moreover, for subjective measurements like student's perception, the literature suggested the adoption of a questionnaire survey based on a Likert scale. A five-point scale was found as the most preferred option in case of satisfaction studies. Also, probability sampling techniques, like simple random sampling, and systematic random sampling were found as optimum procedures to finalize the area of interest. Hence, following the footprints of the literature, the study adopted a similar methodology that is discoursed henceforth.

RESEARCH METHODOLOGY

Study Area

For this study, Mehran University of Engineering and Technology (MUET), Jamshoro, Sindh, Pakistan was selected as the study area (Figure 1) (MUET, 2019). It is a public research university located in district Jamshoro near Indus Highway (N-55/M-9) in Sindh province. Jamshoro falls in the hot and dry climatic region, having an average maximum temperature of 44°C and an average minimum temperature of 14°C. Most of the year, the temperature remains hot with maximum sun hours and UV index of nine validates a strong sunlight. The area receives rainfalls from June to September. Thus, comfortability in the classrooms and institutes, where students are supposed to spend twenty five percent of their daytime, becomes an important aspect to achieve. To collect the data, two Departments, including, Department of Architecture and CRP Department were selected using simple random sampling and the respondents were selected using systematic sampling with an interval of ten (Shaharon and Jalaludin, 2012, Dianat et al., 2013, Winterbottom and Wilkins, 2009, Zomorodian et al., 2016, Korsavi et al., 2016, García et al., 2019). Being a distinguished institute, a huge influx of students enroll here annually. As each student has their own comfort requirements in the classroom, the assessment survey conducted here unfolded unique dimensions that could help the administrative bodies to make the departmental buildings more comfortable, energy-efficient and sustainable.

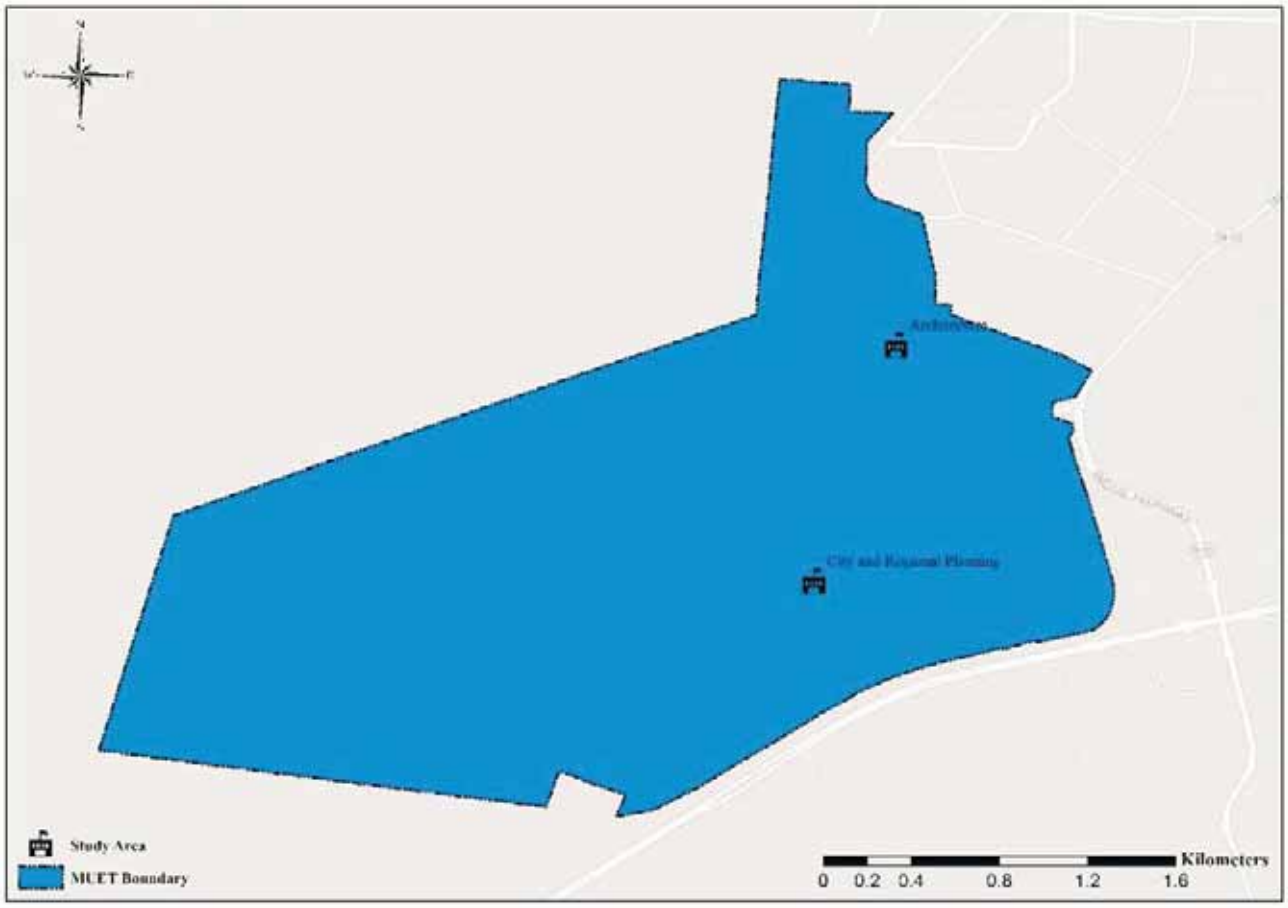

Figure 1: Arial View of MUET Jamshoro

Study Variables

To perform a comprehensive and subjective comfort assessment survey, a combination of six variables, i.e. lighting quality, thermal quality, ventilation quality, seating quality, visual quality and acoustic quality was found in the literature. Several studies used these variables to assess the comfortability of educational buildings as illustrated in Table 1. Hence, a questionnaire comprising of questions regarding these variables was used to collect the responses of the students regarding their comfort level in the classrooms.

Study Design

For this study, a pilot observation was conducted in the classrooms of the two Departments. Due to the unavailability of data regarding the study, a questionnaire survey technique was opted for (Daghigh et al., 2012, Alajmi et al., 2015, Allab et al., 2016, Akande and Adebamowo, 2010, Wong and Khoo, 2003, Shaharon and Jalaludin, 2012, Andamon, 2014, Simons et al., 2014, Allab et al., 2017, Zannin and Marcon, 2007, Fasulo et al., 2019, Korsavi et al., 2016, Kumar and Singh, 2019, Shan et al., 2018, García et al., 2019). The questionnaire was divided into three sections. The first section comprised of items related to the general information about students including age, gender and department. Section two had classroom characteristics including classroom ventilation, classroom reliance on electricity and classroom performance in the absence of electricity. Lastly, section three was aimed towards recording the satisfaction level of students towards their classrooms' comfort. A five-point Likert-scale ranging from one (strongly satisfied) to five (strongly dissatisfied) assisted in capturing the responses. A questionnaire was drafted in line with the predefined variables of comfort assessment. A pilot survey was performed to validate the questionnaire and its outcome. After modification, the questionnaire survey was performed in the selected study area. For data analysis, frequency distribution and Likert-scale index score methods were used.

Table 1: Study Variables as Derived from the Literature Review

Variables	Empirical Evidence
Lighting Quality	(Buratti et al., 2018, Osterreichera and Geisslerb, 2016, Holopainen et al., 2014, Lee and Schiavon, 2014, Allab et al., 2017, Pazhoohesh et al., 2015, Xue et al., 2016, Koskelo et al., 2007, Krüger and Zannin, 2004, Mishra et al., 2017, Korsavi et al., 2016, Zomorodian and Tahsildoost, 2017, Michael and Heracleous, 2017, Barbosa et al., 2020, Kumar et al., 2016, De Angelis et al., 2017, Subhashini and Thirumaran, 2018, Barbhuiya and Barbhuiya, 2013, García et al., 2019, Winterbottom and Wilkins, 2009, Ricciardi and Buratti, 2018)
Thermal Quality	(Krüger and Zannin, 2004, Mishra et al., 2017, Papazoglou et al., 2019, Ali and Al-Hashlamun, 2019, Simons et al., 2014, Merabtine et al., 2018, Rodriguez et al., 2019, Holopainen et al., 2014, Kumar et al., 2019, Ricciardi and Buratti, 2018, de Abreu-Harbich et al., 2018, Heracleous and Michael, 2019, Kumar and Singh, 2019, Hellwig et al., 2019, Akande and Adebamowo, 2010, Lee and Schiavon, 2014, Pazhoohesh et al., 2015, Buratti et al., 2018, Subhashini and Thirumaran, 2018, El-Darwish and El-Gendy, 2018, De Angelis et al., 2017, Astolfi and Pellerey, 2008, Barbhuiya and Barbhuiya, 2013, Güngör, 2015, Kumar et al., 2016, García et al., 2019, Alajmi et al., 2015, Shaharon and Jalaludin, 2012, Wong and Khoo, 2003, Zomorodian et al., 2016, Andamon, 2014, Allab et al., 2016, Nasrollahi et al., 2008)
Ventilation Quality	(Heracleous and Michael, 2018, Heracleous and Michael, 2019, Allab et al., 2016, Daghigh et al., 2012, Alajmi et al., 2015, Österreichera and Geisslerb, 2016, Akande and Adebamowo, 2010, Wong and Khoo, 2003, Simons et al., 2014, Buratti et al., 2018, Xue et al., 2016, Krüger and Zannin, 2004, Kumar et al., 2019, Kumar and Singh, 2019, Kumar et al., 2016, García et al., 2019, Barbosa et al., 2020, De Angelis et al., 2017, Merabtine et al., 2018)
Seating Quality	(Dianat et al., 2013, Fasulo et al., 2019, Pijls et al., 2019, Bistafa and Bradley, 2000, Mishra et al., 2017, Ricciardi and Buratti, 2018, Zomorodian and Tahsildoost, 2017, Subhashini and Thirumaran, 2018, Merabtine et al., 2018)
Visual Quality	(Michael and Heracleous, 2017, Buratti et al., 2018, Astolfi and Pellerey, 2008, Korsavi et al., 2016, Ricciardi and Buratti, 2018, Barbhuiya and Barbhuiya, 2013, Shan et al., 2018, Heracleous and Michael, 2018, Pijls et al., 2019)
Acoustic Quality	(Puglisi et al., 2015, Krüger and Zannin, 2004, Knecht et al., 2002, Ricciardi and Buratti, 2018, Sato and Bradley, 2008, Buratti et al., 2018, Zannin and Marcon, 2007, Bistafa and Bradley, 2000, Astolfi and Pellerey, 2008)

Sampling Plan

In order to keep the research valid and unbiased, a sample survey was carried out to collect primary data with precision and reliability. A thorough literature review was performed before selecting the sample size and optimum sampling technique. A systematic random sample was used with an interval of ten. The first student was randomly chosen in each classroom and then the questionnaire was distributed with an interval of ten (Hamdan et al., 2014). A total sample of twenty seven was selected, which was further subdivided as seventeen for the Architecture Department and ten for the CRP Department (Table 2).

RESULTS

For a better understanding of results, this section shows the outcomes of data analysis in tabular, descriptive and graphical form. Data was firstly structured and then analyzed using frequency distribution and Likert-scale index scoring method. Fifty-four students recorded their views/opinions in the survey, i.e. no sampling error was found. As the study is focused on students' comfort, 59.2% of students were aged between 21-30 years While 40.7% aged between 16-20 years. Of the forty four respondents, 66.6% were males and 33.3% were females. Lastly, as per the decided sampling plan, 62.9% of respondents were from the Architecture Department and 37.0% were from the CRP Department (Table 3).

Table 2: Sampling Plan

S. No.	Departments	Number of Students	Sample Size (n=10)
1.	Architecture	166	17
2.	CRP	98	10
Total			27

Table 3: Respondent's General Information

Student's Characteristics		Frequency	Percentage
Age	16-20 Year	11	40.7
	21-30 Year	16	59.2
Gender	Male	18	66.6
	Female	09	33.3
Department	Architecture	17	62.9
	CRP	10	37.0

Classroom Characteristics

Table 4 illustrates the characteristics of the classrooms in both the Departments. Of the twenty seven students, 25.9% of the CRP department responded that their classrooms had proper ventilation. The main sources of ventilation found in the CRP Department were the doors and windows. Moreover, 37.0% of the Architecture students answered no proper ventilation in their classrooms existed. This showed that the classrooms of the Department of Architecture were not properly ventilated. 37.0% students of the CRP Department and 22.2% students of the Architecture Department responded that their classrooms relied on mechanized sources of light and ventilation. This meant that the classrooms could not function well in the absence of electricity. Thus, it was inferred that the classrooms of both the Departments were not energy efficient as they relied on mechanized sources. A partial response, i.e. 18.5% was observed from the students of the CRP Department. whereas, 33.3% of the Architecture students responded no to this question. The high negative response from the students of the Architecture Department showed that the classrooms had minimal access to natural light and air in the absence of electricity.

Classroom Comfort Satisfaction in Perception of Students

Table 5 illustrates the students' level of satisfaction with the comfortability of the classrooms. The students of the CRP Department were strongly satisfied with the seating (+0.14) and acoustic (+0.33) quality of the classrooms. It meant that the furniture of the CRP Department was well maintained, spacious and quite comfortable. Also, the classrooms were designed by considering the classroom acoustics standards. Due to the improper orientation of the Department, excessive sunlight glares fell on the whiteboards that created visual discomfort. This discomfort increased with the rise in seating levels. Thus, students were found uncomfortable and strongly dissatisfied with the visual (-0.14) and lighting (-0.11) quality. In addition, as the classrooms remained extremely hot in summers and vice-versa, the students were found dissatisfied with the thermal (-0.11) and ventilation (-0.037) quality. This discomfort increased in the summers because extremely high temperatures were recorded in Jamshoro. Collectively, these discomforts affected the students' attention and interest in the lectures that could severely decrease the student's output.

The students of the Architecture Department were found strongly satisfied with the lighting (+0.11), acoustic (+0.14) and seating (+0.074) quality of the classrooms. The results showed that the furniture in the Architecture Department was also well maintained, spacious and comfortable. Moreover, the classrooms were designed by considering the classroom's acoustics and lighting standards. The students were however strongly dissatisfied with the visual (-0.18) and ventilation (-0.11) quality of the classrooms. Indeed, the orientation considerations were properly applied. But the classrooms were in an area having minimal access to sunlight and air. Hence, the classrooms remained dark and suffocated, that eventually created visual and ventilation discomfort. Furthermore, the thermal quality (0) of the classrooms was found satisfactory.

Table 4: Classroom Characteristics

Classroom Characteristics	Student's Perception	Architecture		CRP	
		Frequency	%	Frequency	%
Dose the classroom have proper ventilation	Yes	7	25.9	7	25.9
		10	37.0	3	11.1
Dose the classroom rely on an electronic source of light and ventilation?	Yes	10	37.0	6	22.2
		7	25.9	4	14.8
Dose the classroom have proper ventilation	Yes	8	29.6	5	18.5
		9	33.3	5	18.5

Table 5: Satisfaction Level of Students

Department	Variables	Likert-Scale Scores					Weighed Total	Satisfaction Index
		-2	**-1**	**0**	**+1**	**+2**		
		Strongly Dissatisfied	**Dissatisfied**	**Satisfactory**	**Satisfied**	**Strongly Satisfied**		
CRP	Lighting Quality	-4	-2	0	+3	0	-3	-0.11
	Thermal Quality	-4	-3	0	+4	0	-3	-0.11
	Ventilation Quality	-4	-2	0	+3	+2	-1	-0.037
	Seating Quality	-2	-1	0	+5	+2	+4	+0.14
	Visual Quality	-6	-2	0	+2	+2	-4	-0.14
	Acoustic Quality	0	-1	0	+4	+6	+9	+0.33
Architecture	Lighting Quality	-2	-4	0	+3	+6	+3	+0.11
	Thermal Quality	0	-5	0	+3	+2	0	0
	Ventilation Quality	-3	-2	0	+4	0	-3	-0.11
	Seating Quality	-2	-4	0	+6	+2	+2	+0.074
	Visual Quality	0	-10	0	+5	0	-5	-0.18
	Acoustic Quality	0	-6	0	+6	+4	+4	+0.14

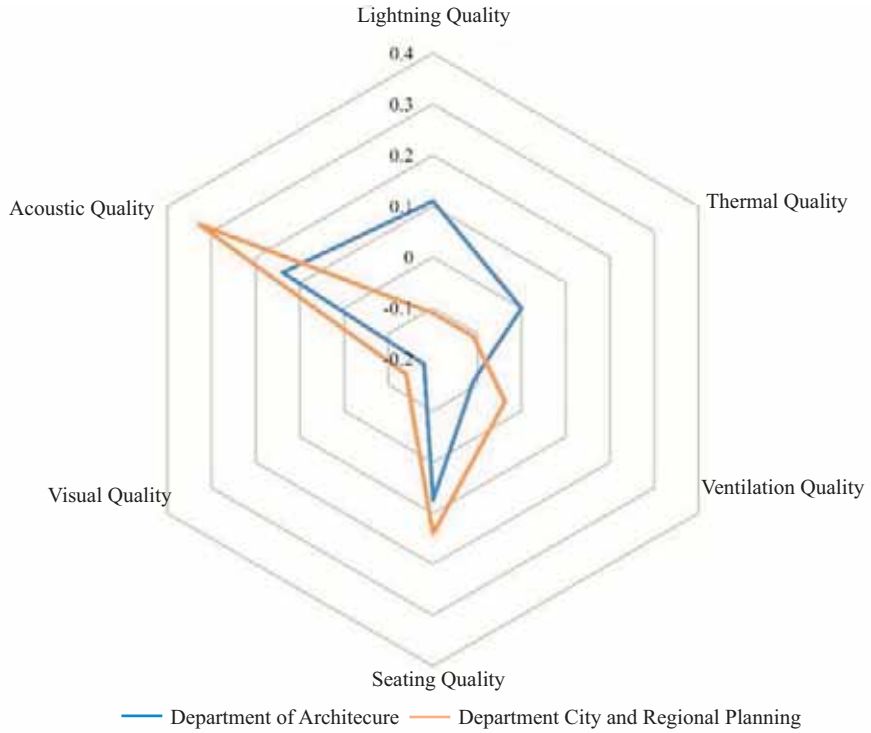

Figure 2: Satisfaction Levels of the Students

DISCUSSION

From the results, it was found that the Department of Architecture had poor ventilation as compared to the CRP Department. The classrooms of both the Departments were not found to be energy efficient because dependency on a huge number of fans and lights was required to make them comfortable. Unlike the results of Brazilian Schools, wherein noise generated and the voice of the teacher in neighbouring classrooms emerged as the root causes of acoustic discomfort, the students of both the departments were found strongly satisfied with the seating and acoustic quality as the furniture was regularly maintained and acoustic considerations were properly followed (Krüger and Zannin, 2004). The lighting quality of the classrooms of the Architecture Department was found better as compared to the classrooms of the CRP department. But both departments lacked visual comfort. Surprisingly, the students reported absence of sunlight in the classrooms of Architecture Department, whereas excess sunlight glare was reported as the cause of visual discomfort for the CRP Department. The orientation of buildings was found as the key factor behind variation in the causes of visual comfort. Compared to the CRP Department, the thermal quality of the Architecture Department was found satisfactory as the location of Architecture Department was somehow in accordance with the prevailing wind direction and sun orientation. A similar case was observed in the thermal comfort assessment conducted in the University of Pavia, Italy, wherein the influence of illuminance on lighting comfort and the effect of glare on visual comfort were found as the major causes for visual discomfort (Ricciardi and Buratti, 2018).

These findings assisted in understanding the causes of variation in the comfortability of students of both departments. This further leads to an inference that the comfortability can vary even within the buildings of an institute. Hence, the factors like thermal visual, acoustic, seating, and ventilation qualities require serious consideration during the planning and design of a building, as the efficiency and sustainability of a building relies on these factors. Thus, to make the classrooms comfortable, measures regarding these variables are needed that might positively impact on the students' interest and learning outcome. This discourse is summarized in Figure 2.

The study should also discuss its limitations. For this study, only three classroom characteristics and only six comfort assessment variables were used. Future studies could incorporate more classroom characteristics and comfort assessment variables to make the assessment more

comprehensive and detailed. The aim of the study was to assess the students' comfort level in the universities of Pakistan, for which only one higher education institute and its two departmental buildings were selected. Though, the study is not representative of all educational institutes in Pakistan, yet it is a steppingstone to initiate a practice of regularly conducting thermal comfort assessment studies in all institutes to make the educational institutes energy efficient and comfortable.

CONCLUSIONS

Considering the criticality of an indoor building environment in improving students' interest in studies, this study aimed to assess the students' comfort level in the universities of Pakistan. The study intended to quantify the satisfaction level of the students with the comfortability variables to explain the factors influencing the student's comfort the most. After collecting the data, findings were derived which had many implications. The study, therefore, found that most of the students in the CRP and Architecture Departments were facing comfort issues particularly with reference to visual, lighting and thermal quality. Whereas satisfaction with the acoustic and seating quality was observed. Hence, measures are required to improve the indoor building environments so that the students could perform their academic activities in a comfortable manner. By highlighting the areas of improvement, the study has established a baseline so that necessary measures could be taken to upgrade comfortability. Likewise, similar studies could be conducted in other universities, colleges and schools to ensure the availability of a comfortable classroom environment for the well-being of the students.

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Young Scholar's Contribution

BAHRIA TOWN KARACHI: A CASE STUDY IN URBAN DEVELOPMENT

*Humaira Nazir**
*Muhammad Shahzad Yousuf***

ABSTRACT

In recent years, many urban housing related projects have been completed in Karachi. This research aims to investigate Bahria Town as a housing development in Karachi. It also studies the impacts of Bahria projects that are constructed in the name of urban development for Karachi and its dwellers. The study demonstrates how these developments are affecting the city suburbs, including demographical changes and impacts of urban sprawl.

Combined methods of research, based on case study and qualitative interviews are used to collect the primary data. This included observational tactics, interviews with the stakeholders, mainly the real estate developers, investors and the residents along with collection of information from secondary sources like newspapers, magazines and articles.

The research concluded that Bahria's urban development does not address the urban realities of Karachi and is a gated housing development that has middle to high income groups as target users, without aiming to have any impact on the housing shortage in the city.

Key words: Urban Development, Bahria Town, Real Estate, Karachi

INTRODUCTION

The urban problems of Pakistan and specifically in mega cities like Karachi are increasing day by day. Resources are being wasted and housing shortage is accelerating with time. About one fourth of urban population is living in squatter settlements, and in spite of upgrading them, the residents are being forced to either leave the place or else are treated badly to leave the land, so that some profitable works in the name of development can be carried out (Haq, 2014). When there is a scenario where urban and rural spaces are parceled together and are part of the same political jurisdiction, the dynamics of land management, usage and social and cultural integration are factors that result in presenting a complex set of problems and challenges. The present study tries to understand this relationship and the associated challenges that are present on the fringes of the city of Karachi. Inside Karachi, land acquisition has been a common issue for many decades, but now this phenomena is being experienced towards the fringes of the city, mainly along the Super Highway. This land is easily available for land grabbers without any obstructions and they eventually became the owners of the disputed land (Haq, 2014). All this happens because there are big names attached to this process of land grabbing.

Land ownership in Karachi is divided between number of agencies in which Bahria Town is the most dominating private agency. Some other agencies like Board of Revenue and Malir Development Authority, work behind the scene to facilitate working of Bahria Town developments.

Though ninety percent of land in Karachi is owned by government entities, but when they do not utilize the resources for the right purposes then other private agencies like Bahria Town develop projects, after buying land at nominal price from the government. Bahria Town owns large tracts of vacant land in both the city center and in the remote rural areas along Super Highway. It inhabits land by creating gated communities on the urban fringes. Consequently, forests, orchards, rich farmlands and drainage systems are occupied, that can lead to possible emergence of massive ecological disaster. This is all due to the incapacity of the government to effectively meet the residential, commercial and related demands of a very rapidly growing population.

When Bahria Town was initiating their projects they stated

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that they would focus on the construction of housing scheme for the low income group, but this was not fully realised. They did introduce affordable housing units in Bahria Town Rawalpindi, named Awami Villas. The developer initially sold them for less than a million rupees, (US$ 6382) but when they received a profitable response from the people the same units were sold for two to three million rupees, (US$ 19146) making them unaffordable for the low-income households. Therefore, Bahria has been the target of dispute and it is referred to as a sign of social injustice, blamed for unauthorized encroachment of land (Ali, 2019; Hasan, 2019; Hasan, 2004).

This research evaluates the socio economic, political and environment challenges, recent land based legislations and the consequent forms of development taking place in the city that now threatens the sustainability of Karachi's rural land, environment and the livelihood of the rural farming population. The case under study is that of Bahria Town in Karachi. This research has also taken into account the relevant policy and strategic development interventions within an understanding of the prevailing situation, therefore the study is not only focused on the services entitlement dynamics but also on the larger context of land acquisition, that is encroachment of rural land.

Bahria Town Karachi: An Introdeuction

Malik Riaz is the founder and chairperson of Bahria development and it is the largest private real estate development company in Asia. They began their journey in Pakistan by announcing the housing projects in the northern part of the country emphasizing on three major cities of Islamabad, Rawalpindi and Lahore. Subsequently after a good response from the community, entrepreneurs and real estate developers, he lay stone in southeast part of the country. Bahria initially announced projects in interior Sindh mostly in Nawabshah and Sukkur and also focused on Karachi (Shaheen, 2016).

The role of real estate development is an important and growing sector for the economy of Pakistan. Pakistan spends US $ 5.2 Billion on construction in a year. Bahria promotes real estate development business in Pakistan. Since the announcement of Bahria projects in Pakistan the growth of the private real estate sector has been revitalized. All the private real estate developers across the country have fascination with Bahria projects, and they are interested towards buying and selling products of Bahria developers comparable to the other construction projects (Ali, 2016). The reasons behind this are the incentives given by Bahria developers to real estate agents. It has been noticed that many times the bookings are officially closed but private real estate developers have no issue in selling the properties, because they usually buy the files from the seller. Then afterwards they sell those property files according to values, making immense profits (Ali, 2016).

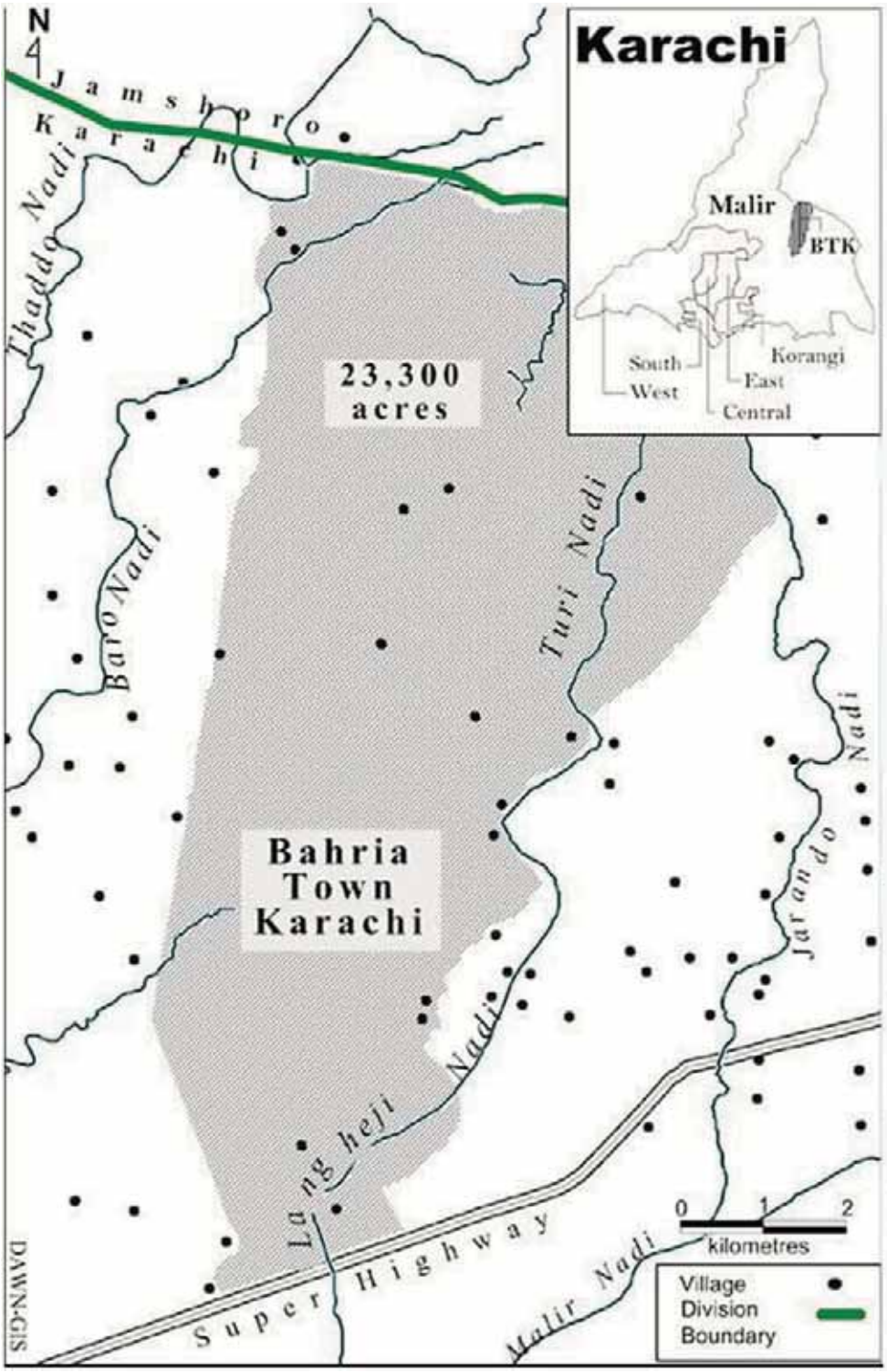
Bahria Town is located in Karachi at the edge of the city, nine kilometers away from Super Highway Toll Plaza. It is under construction and has been facilitated with all the basic amenities such as residential, commercial, and health care and includes houses/villas, apartments, shopping mall, grand Jamia Mosque and a mosque for each sector, schools, university, hospital, cricket stadium and indoor/outdoor sports facilities, five start hotel, golf course, cinema, theme park and a mini zoo.

Bahria Town - Highlighting the Backdrop

The land on which BTK sits is under the authority of Malir district; however, with the help of powerful actions it is being urged to convert this land into the ownership of Bahria. The covered area for BTK is twenty three thousand acres that is under construction, though the target is to grab forty three thousand acres of land for this project. Activities beyond the boundaries have started and there are some eight to nine existing villages that have been demolished (Ali, 2016). It is estimated that eventually forty five villages around BTK will be affected (Figure 1).

According to architect and planner Arif Hassan,

"This land was purchased through political influence, and the villagers owned much of it for centuries. Most were herdsmen, and their pastureland was this land. By occupying, threatening, arresting, harassing and bulldozing their homes, BTK has forced these villagers (residing in nearly 45 villages) to leave their property. All this was done with police backing. In addition to bulldozing poor villages, BTK has also bulldozed several historic sites, such as shrines, temples and a nearby Buddhist stupa. This was achieved largely with the help of the Malir Development Authority (MDA) by violating its laws by passing modifications that breach certain parts of the law, namely; the 2006 Disposal of Plots Rules passed under the MDA Act. Section 17 of the 1912 Colonization Act was violated as well. The construction of BTK also encroaches upon Karachi's water supply. The above-mentioned evictions create a new housing crisis, and the project causes a major environmental crisis" (Hasan, 2019).



Villages (directly or indirectly affected)

Nasherwan
Hayat
Paripo
Rozi
Badi Khan
Mir Khan
Rabu
Paripo
Larkhmir
Ishaq Baloch
Ali Nawaz Gondar
Radh
Juma
Ali Daud
Haji Achar
Mir Bakhsh
Miro Bakhsh
Bajar
Karim Bakhsh
Nabi Bakhsh
Jalab
Murado Gabol
Hasan Ali Gabol
Allah Rakhio
Ghulam Mustafa
Isa
Banzo
Gohram
Imam Bakhah
Azim
Pahlwan Kamal
Wajid Ibrahim
Ali Muhammad
Kathore
Haji Gul Hassan
Safar
Ismail
Radho
Muhammad Sharif
Siraj Ahmed
Depar
Ali M. Gabol
Alidad
Lal Faqir
Amir Bukhsh
Abdullah
Darya Khan
Sanasi Gabol
Phuto Gabol
Baimen Faqir
Nawaz Ali Gondar
Mario Faqir
Haji Muhammad
Ghulam Qadir
Faiz Muhammad
Amir Bakhsh
Hadi Bakhsh

Figure 1: Goths Effected by the Construction.
Map data Source: Bahria Town Karachi; www.bahriatown.com

Role of the Law Enforcement Agencies, Development Authorities and Revenue Boards

In the research it was witnessed that indigenous poor people are being wiped off from the outskirts of the city. In the process police is playing a major role in harassing the poor and forcing them to leave their land. The Malir Development Authority (MDA). BTK and Board of Revenue (BoR) are assisting these law enforcement agencies (Siddiqui, 2016). Although the role of the land *sardars* (land lords) is quite important, but they are silenced because they are being bought against huge sums of money (Haq, 2014).

According to historian and chronicler Gul Hassan;

"The Sardars are so powerful and if they did not want any development then there would have been no Bahria Town." He also states, "Malik Riaz did not own even an inch of land at the time of announcing the Bahria Town project and yet he collected billions through bookings. The land came later thanks to some big bribes for politicians" (Hasan, 2019).

The officials from the BoR, the district administration and police have all colluded with Bahria in various ways to authorize the government land to Bahria. BoR Sindh is the original custodian of all land in the province. Besides collecting revenue and maintaining land records, it is also responsible for allotment of land to individuals, societies and various institutions and development agencies, such as the Karachi Development Authority, Defence Housing Authority Karachi, etc. BoR allotted the land to MDA, but MDA sold the land to private land developers. Although, according to the legal documentation it is clear that the land can only be used for the socio-economic upliftment for the poor people of that area, but this is not the reality.

In 2012, Sindh High Court issued an order banning the Sindh government from issuing any further lease, or effecting any allotment, transfer of government land. A few days later, on Dec 26, 2013, the BoR issued a notification through which forty three *dehs* clusters (of villages) came under the authority of MDA. It was stated that for the purpose of physical survey and preparation of road network the land would be used for development. However, MDA did not get any notice and they kept on selling the land to private developers, even though the land was not allotted by the Sindh Government. In March 2015, the BoR reserved fourteen thousand six hundred seventeen acres of land for MDA.

This was an initial step towards allotment (Ali, 2019a). A senior member of BoR stated that unfortunately, in the notification he neglected to mention that the preservation of the selected area, that the land over nine different *dehs* was only for the purpose of developing low-cost housing schemes, with plots not exceeding one hundred twenty square yards. Soon after through a notification announcement, MDA also claimed that they paid BoR nearly rupees two billion as twenty five percent of the market price as fixed by the latter for incremental housing, as payment for the above reserved land. Substantially, the political parties already involved and taking advantage of the situation with the help of MDA, sold the land to the real estate agencies in the name of BTK development (Ali, 2016).

MDA Supports Bahria Town development

The selling of land was being done with the help of MDA even before land acquisition had been done by BTK. The MDA officials specifically favored Bahria by submitting their application for 'consolidation'. Consolidation is a legitimate course for BoR to facilitate a tiller by exchanging scattered pieces of agricultural land with a consolidated piece of land, which, according to the Colonization of Government Lands Act 1912, should not exceed sixteen acres in a nearby area. Although, as per section seventeen of the Colonization Act, it was clear that the land exchanged would be utilized for the same purpose as it was being used previously. On Dec 19, 2013 a clause was added in the Section of the Act which stated that the consolidation of land as "adjustment of plots in a scheme by way of exchange or otherwise for the purpose of the scheme" (Ali, 2016) was allowed.

DATA COLLECTION

For data collection a survey was conducted based on a questionnaire. This was filled by three main stakeholders, residents of BTK, surrounding villagers of BTK and the real estate developers.

According to the responses given by the villagers residing around BTK this development has disturbed their entire life, and BTK has grabbed their land. After a detailed survey of the villages surrounding BTK, it was observed that the villagers were being forced by BTK to leave their place. It could be seen that BTK was promoting a certain standard of living, but at the same time land acquisition was being done by force and a very small amount was paid to the villagers.

It was observed that there were forty villages effected by the development of BTK. Two main *dehs* namely Langeji and Kathore were completely ruined. In each *deh* twelve to fifteen small *goths* (villages) existed therefore, small *goths* from each *deh* were selected to visit. The *goths* visited were Usman Gabool *goth* in *deh* Langeji and Kamal Khan Jokio *goth* in *deh* Kathore, while from each of the *goths* approximately four persons, farmers and the land owners were interviewed.

These residents claimed that they were living in these *goths* since after the independence and the land belonged to their forefathers which was given to them by their ancestors. According to them most of their land was leased, while *some piece of the land was not leased. "The job of BTK development was quickly completed and the rubble hauled away while hapless villagers looked on in a daze, knowing well that there will be no justice for them," said Ameer Ali, one of the village resident.*

The villages claimed that they had all the property ownership documents but BTK and other agencies did not accept these papers. In some cases leased land was deliberately shown as illegal land. One of the victim explained that the police and other security personnels continued to threaten to vacate his eighty acres of land and he along with his sons was brought to the police station and forcefully asked to vacate the area immediately. Later, construction on his land, related to agriculture was bulldozed.

It was noticed that many of the landowners sold their land due to the pressure from BTK. One of the affected resident claimed that some poultry farms and underground wells were under his guardianship but BTK ruined them. Similarly the resident of Kamal Khan Jokio *goth* in Kathore claimed that one of his relative owned forty five acres of land to be vacated but only in a day forty five to fifty bulldozers, carrying police mobiles, bulldozed everything including the tube well and the heritage site. The land was also illegally occupied. Unfortunately, only some of the land was recovered with the help of some media officials.

The affected people mostly highlighted the names of some political leaders, MPAs and higher officials of Bahria. Furthermore, it was also observed that Bahria's boundary limits kept on expanding and they continued to bulldoze small goths of *deh* Kathore just to make a road inside their periphery, that will lead to the development of BTK farm houses.

The result of the survey analysis from the surrounding villages and some pictures were taken from these *goths* (Figures 3-7).

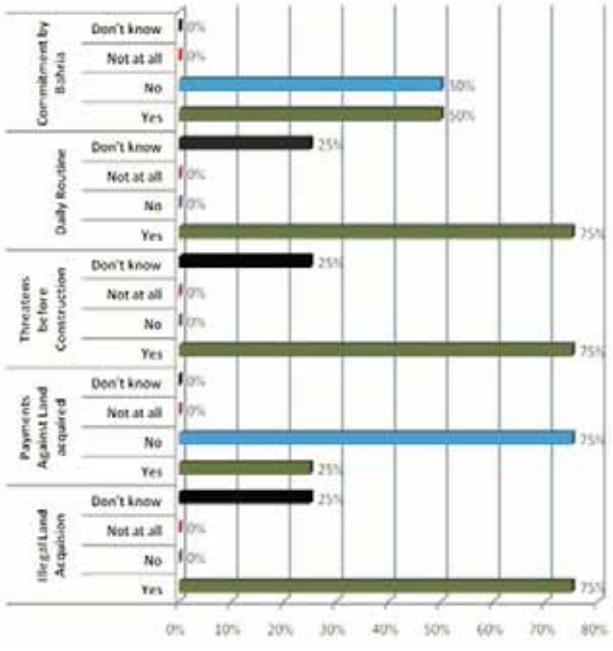


Figure 2: Qualitative Research in Surounding Villages of BTK

Figure 3: Langeji Usman Gabool *goth*

Figure 4: Road Constructed by Bahria Leading to Langeji Usman Gabool *goth*

Figure 5 - 7: Bahria Town Boundary Wall goth

Figures 8 - 16: Kathore Khan Jokio *goth* and Demolished Heritage Tomb

These pictures clearly indicate how BTK is demolishing some heritage site to alter their project boundaries (Figures 8-16).

A group of four persons were interviewed between the ages of twenty five to forty years of age in BTK. The questionnaire answered by those residents gave clear evidence that they were proud to be residents of BTK and for them this was the best living place that comprised of all the required amenities. Additionally, for them there was large housing supply gap in Karachi and BTK filled this gap. Living in Bahria relieved them of stress frustrations, noise, pollution and provided a high standard of living that positively impacted their health, physical wellbeing and productivity. These residents were least bothered about the land acquisition process. They also seemed least bothered about issues being faced by the rural villagers around them because to them they bought the properties from Bahria and they considered it a successful development (Figures 17-19).

The third category of interviews were done with real estate developers of BTK. A brief questionnaire was prepared for them and the findings were gathered after interviewing them and are presented in Figures 20-21.

The questionnaire answered by the real estate developers gave clear evidence that they were proud to be a part of team that is working under the umbrella of Bahria. According to them, all the Bahria Town developments are legal because for every acre of land hefty amount of money is being given to the landowners. They believed that Bahria had good past development record so they were not worried about buying and selling with BTK. On questioning one real estate agent regarding the main

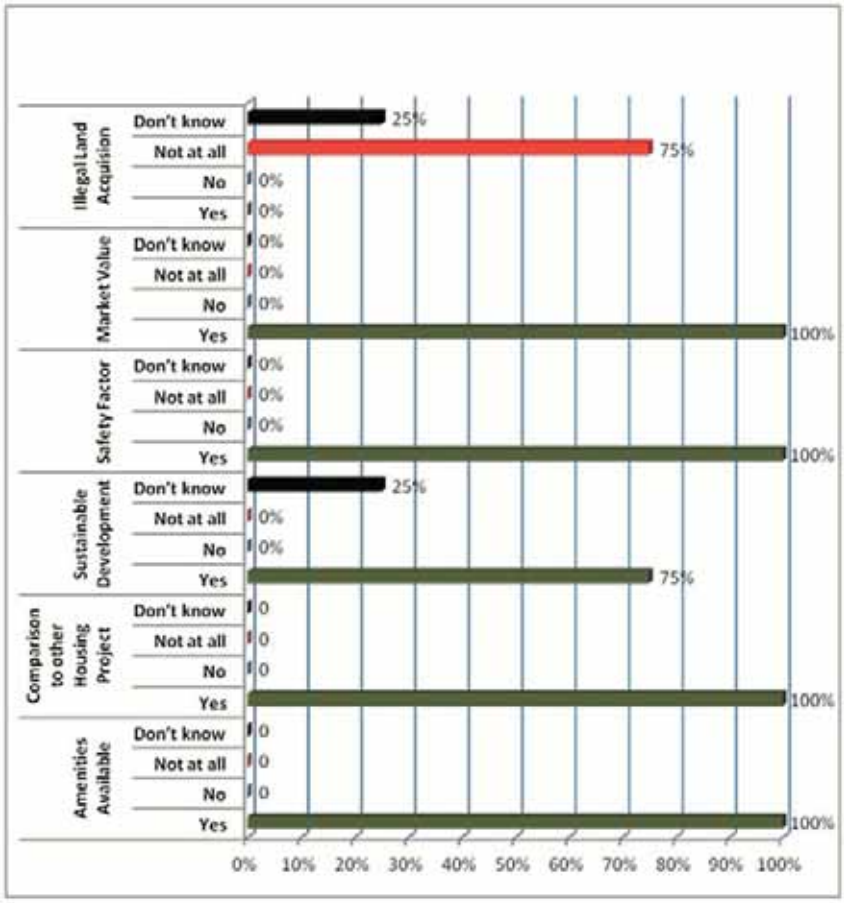


Figure 17: Qualitataive Research within BTK

Figure 18: Images of Finished Project in BTK

Figure 19: More Images of Finished Projects in BTK

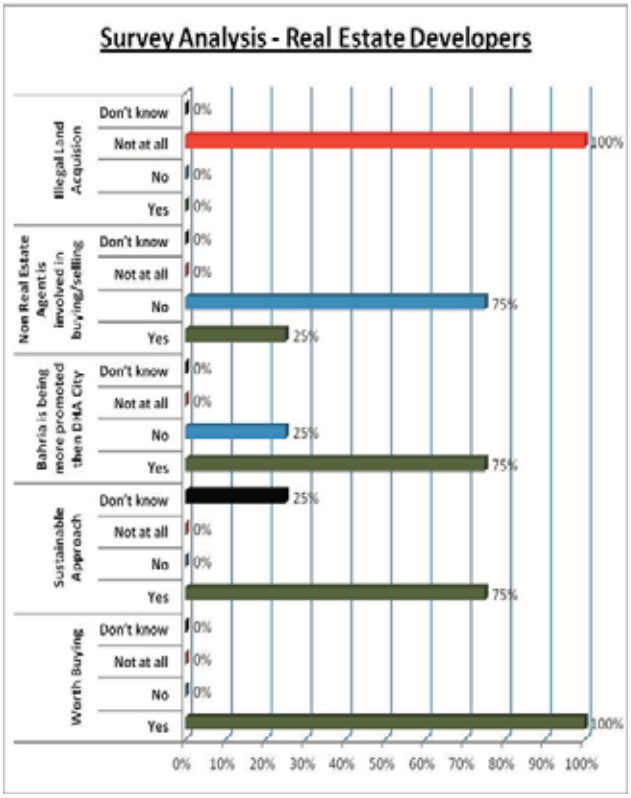


Figure 20: Survey of Real Estate Developers
Source: Author

Prices of Residential Plots and Payment Plan:

4 Year Installment Plan					
Size	125 Sq. Yards	250 Sq. Yards	500 Sq. Yards	1000 Sq. Yards	2000 Sq. Yards
Token	150,000/-	280,000/-	350,000/-	550,000/-	960,000/-
Total Amount	17,25,000/-	29,50,000/-	46,50,000/-	86,00,000/-	18,500,000/-

Prices of Commercial Plots and Payment Plan:

5 Year Installment Plan			
Size	125 Sq. Yards	200 Sq. Yards	250 Sq. Yards
Token	25,00,000/-	36,00,000/-	46,00,000/-
Total Amount	125,00,000/-	189,00,000/-	249,00,000/-

Prices of Bahria Homes and Payment Plan:

4 Year Installment Plan		
Size	125 Sq. Yards	200 Sq. Yards
Token	420,000/-	590,000/-
Total Amount	42,00,000/-	49,00,000/-

Prices Bahria Apartments and Payment Plan:

4 Year Installment Plan			
Size	2 Bed (950 sqft)	3 Bed (2250 sqft)	4 Bed (2950 sqft)
Token	266,000/-	630,000/-	826,000/-
Total Amount	2,660,000/-	6,300,000/-	8,260,000/-

Figure 21: Booking Prices and Installments Plan for BTK
Source: Tristar Real Estate Developers

reasons behind the promotion of BTK, the name familiarization with the previous record was quoted.

A real estate agent from Tristar Real Estate Developers, said, *"this is the best project for investment, it is a common trend that people are taking the ownership of properties and after doubling the price of this property they sell it and buy another property, in this way a number of investors become billionaires*". Another real estate agent said that land acquisition was being done by Bahria Town and *"there is not a single property of Bahria that is illegal, all land is properly purchased by the Bahria management".* Further he added that Bahria has given the claimed amount to the villagers but when they saw that the construction is going at peak and the price value is increasing day by day the villagers claim that Bahria has not paid them accordingly. He further added that initially the master plan comprised of thirty one precincts but now more than fifty precincts are under construction and all precincts are in different phases of construction. He emphasized that this is all because the trust of people in Bahria projects is so strong".

ANALYSIS

Considering Bahria Town development in Karachi, from an overall planning point of view of the city, this kind of development has never been done before in Pakistan. Moreover, this land upon which the development is done was never organized or designated for urban development in any of the master plans. Hence, this project is one of a kind.

Besides, this development was probably a blessing for the real estate developers and entrepreneurs, as the projects of BTK were based on speculative grounds and the purpose was to create market hype and to expand the market of real estate. The officials of BTK were not sure about the area allocated for this development, since they were waiting for the response of the hype created and kept expanding on that basis. The people investing in projects like BTK are the ones who have spare money and no other options to invest in real estate. This has been a trend in Pakistan for a long time that the people, in particular overseas Pakistani, who have undeclared/spare money invest in real estate. This creates a demand for such projects and BTK took advantage of this situation.

However, there are certain observations regarding the development of BTK, out of which one is the blatant transformation of the land use. The allotted land was for pasturing purposes and for livestock grazing. There was no existence of proper farming on this land due to it being semi-arid land, but the importance of the land lies in the fact that it contains a riverine due to the topography. This connects with the city's natural overflows like Lyari and Malir Rivers. The development of BTK has contaminated this natural flow of water.

Additionally, BTK is making money at the cost of quality and standard of design and construction. According to Architect and Planner Arif Hasan, BTK development has impacted negatively on the lives of people who lived in these land because at the time of the launch of the scheme and the opening of the booking procedures to the public, BTK had no land and they acquired land forcefully by pressurizing people. This was against the rules and ethics of a free society, but the government refused to take any action because this was a nexus between political structure and the developer, which resulted in the failure of the state (Hasan, 2016).

The other drawback of this development includes the demolition of protected heritage and the physical environment. The data collected indicates that the residents and real estate developers have an interest in the illegal development that is being done by BTK. The initial land approved for Bahria was twenty three thousand acres, but now it being been pushed to more than forty five thousand acres of land. Thus agricultural reserves are wasted due to this type of development. The environment of the city is continuously being degraded and the pollution in air and water has increased. Although urban planning is institutionalized and development plans are being produced, but it seems that they are not achieving sustainable urban development goals. Indifferent to the environmental needs of the area, once called the "green belt", the builder mafia is busy violating all the laws including those enacted for protecting the wildlife, as some parts of the project fall in internationally recognized Hub National Park and Khirthar National Park. Moreover, the archeological sites of the area, like ancient graveyards, remains of the Buddhist era, were under threat, as the project erased the historic sites and removed any traces of history. Unfortunately, none of the national and international organizations have taken notice of the ensuing catastrophe at the hands of the builder mafia in the name of development (Malik and Wahid, 2014; NewsDesk, 2019; Shaheen, 2016).

The infrastructure department plans to provide power plants for electricity generation for BTK, which will be extremely costly and deteriorate the environment further. It will also become a huge source of pollution, affecting the surroundings adversely and will decrease the land value around the neighborhood. It is predicted that in the future a large informal settlement will spring around the neighborhood to provide domestic services to residents of BTK. Distance between places in BTK itself makes it a suburb which is going to be highly dependent on vehicular transport. The internationally rising trend of more sustainable cities friendly towards pedestrians and cyclists has been completely neglected here. Hence Bahria will add to levels of pollution as it is a car dependent development (Siddiqui, 2016; Taylor, 2008; Thomas, 2001).

In order to predict the future of BTK it is important to understand the existing and legal reality, which still remains an unanswered question. There is no official document which states that the pasture land was given to BTK for urban development or the transformation of the land use was allowed. According to current regulation the government of Sindh should provide ninety nine years lease to its allottees, but there have been no such arrangement in this case.

Therefore, it is necessary to investigate the development as per Land Acquisition Act. Currently the Board of Revenue Act is violating and breaking many byelaws of MDA and SBCA. The Sindh Gothabad Housing Scheme Act was formed in 1987. However, this practice was then banned because of open misuse of the Act, such as handing out of money to private landowners. This act should be reformed and indigenous people alliance should be formed for the local people so they have a voice.

CONCLUSION

Bahria Town claimed that their respective projects would be master-planned with world class infrastructure and facilities, but BTK neglected all the ethical, legal and environmental norms.

BTK did not undertake the study of environmental hazards the project might cause to the wildlife, agriculture, fauna and flora of the area before launching of the mega project. This project would certainly destroy the eco-system, as it has blocked the rain water channels which are major source of raising the ground water level. Similarly, sandstone is being dug from the rivers for construction purpose, which again affects the subsoil water level and would bring only

drought and calamity for rural areas surrounding Karachi.

With time BTK will become a drag on Karachi's resources. BTK might try its best to make this development a successful one and in order to do so the limited resources of Karachi will suffer especially public resources of water, electricity, water supply, gas and sanitation, connectivity and communication links. These resources are already constrained, especially water. It is very important to increase the quota of resources to create an overall balance so that the existing population does not suffer as a result of this development.

After a thorough research, it has been noticed that in the name of urban development, the rights of poor people are being suppressed and indigenous community has always been ignored in our society, despite the fact that the value of their land is like a gold mine for the investor. Mega-projects such as BTK and many of similar projects have progressively overtaken the planning of the city and are taking up space from low-income groups via a gentrification process. These projects will completely dominate over plans for the near future. Given this fact, the criteria for judging projects has to be redefined. What is identified in the study is that projects should not affect the environment of the area in which they are situated; land use should be assessed on the basis of sociological and environmental factors and not land value alone. Development should meet the needs of the majority of the population, specially those who belong to low and low middle income groups; and it should respect the tangible and intangible cultural heritage of the area.

It is suggested that the Land Acquisition Act, Board of Revenue Act, MDA, SBCA, Law Enforcement Agencies and NAB should address the needs of the locals and develop proper strategies related to land use. The government should ensure that proper investigation is made related to the land ownnership document because there is no such official document that exists. This means that BTK is required on behalf of the government of Sindh to provide ninety nine years lease to its allottees, but there has been no such arrangements.

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BOOK REVIEW

THE SIKH HERITAGE BEYOND BORDERS

Authored by Dalvir S. Pannu

Reviewed by Dr. Rabela Junejo*

With the mass exodus, began the 100 miles journey to cross Radcliffe demarcation line separating millions of people into two nations." Pg. 10.

These words from the author Dalvir Pannu are what that makes this book a significant piece of writing. For those who are unaware of the Radcliffe line, it divides present day India, Pakistan and Bangladesh (formerly East Pakistan). The line became an official border between the two countries on the night of 14th and 15th August 1947. The fateful night and the division of Indian subcontinent into two separate nations was never a straightforward political event, the horrors of it still resonate with those who had to migrate on either side of the border leaving everything behind – their homes, belongings, friends and sometimes families and their rich built heritage, religious and/or otherwise. This book is about such religious heritage and the mass migration or more aptly, diaspora of Sikh population of West Punjab to East Punjab, since it was Punjab and not India or Pakistan. The excerpt quoted above and the introduction of the book provides a minor peek into what ensued when thousands of people left their homes of many years, mostly on foot with cattle and measly belongings, as much as they could manage, fearing for their lives constantly, because the British decided to leave the subcontinent forever, dividing the large geography into two nations.

The divide was never on the land, it was, due to the events that followed, forever etched in the minds of people. It transcended the age old associations and neighborly love that were independent of one's religious following and somehow managed to, in the wake of independence, breed a rancor that resurfaces every now and then. This is perhaps because the cost of independence is such and when the seeds of discord are sown they are meant to grow into something more than pure hatred or animosity.

The book is also about nostalgia and longing for the home that once was, and the author narrates several stories of the Sikh comminutes that lived and in many instances were the first people to nurture those agriculture lands that are today part of Punjab Pakistan, the people of the soil. Almost eighty plus Gurdwaras are photographically documented and discussed in the book and there are mentions of many that are perhaps lost, the number is telling of a thriving Sikh community that dotted the landscape of Lahore, Sheikhupura, Kasur and Nankana Sahib etc. that are now lost. The book, then, also becomes a story of loss – loss of ethno - communal ties, loss of diversity, religious – ethnic – socio-cultural and architectural, and the loss of Sikh population that had to move due to their religious difference, since the land they inhabited for centuries was no longer safe for them – diametrically opposite to the promises made on both sides of the border by the leaders. Although the author's narration focuses on Sikh community and Punjab in particular the story was no different for multiple ethno religious groups that had to migrate.

The contents of the book are sorted geographically, discussing major and minor Gurdwara sites in every region. The first of them is Nanakana Sahib Region, of which fourteen monuments are presented in the book. The most important of those being Gurdwara Janam Asthan Sahib, opening the enlistments in this four hundred page undertaking. It was a decade long endeavor for the author since the relations between the two nations oscillated from being semi cordial to outright hostile after Aug. 1947. Stories of Guru Nanak's birth and his growing up years in Nankana Sahib are narrated along with each Gurdwara, places where he played with his friends as a child, where he grazed the cattle with his father and where he attended schools all those sites and the Gurdwaras have a story to tell. The narration is filled with anecdotes and stories of miracles of Guru Nanak are quoted from various auspicious Sikh texts with a dash of salt.

The author is cautious and objectively cross references each narration and questions the idea of miracle association with saintly beings like Nanak Sahib. He supplements the text with similar accounts related to other saints from Muslim or Hindu community to draw parallels and also reflect as to

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how these stories of miraculous benevolence transcends the religious barriers. These were narrations in the style of hagiographies a literary genre of writing on / about the saintly figures. The subcontinent produced many such writings and their use of similar evocative writing style for Guru Nanak Sahib is comprehensible in the context these were produced. Guru himself was a proponent of intercultural and religious harmony and respect as referred by the author. The legends also have their own life and transformative quality and they live on for generations, transforming and growing and flowing from one dimension into another. The legends then perhaps are part of the land that sows and grows it and with time as different people get associated with that land the legends subsequently get associated with them.

Although not explicitly discussed in the narration of the book, the emblematic architectural features of Sikh Gurdwaras are quite discernible from the pictures. The mostly golden fluted dome with a large finial, kiosks or chattri, balconied oriel windows and porticoes are some common repeated features. It is however not a hard and fast rule that every Gurdwara temple sports these features, but they appear to be the most commonly repeated and identifiable ones. Looking at the monuments enlisted in the book it will be an injustice to reduce this architectural heritage to these elemental markers only, as they all have remarkable architecture and the narrative wall and ceiling frescoes of some of the Gurdwaras of Kasur are a sight to behold.

It is a huge undertaking to write on eighty plus monuments of varying scale spread across an array of locations from rural to urban Punjab on the other side of the border, supplementing the text with excerpts from the scriptures and making the reading viable. The author must be credited for this undertaking. The provision of locational coordinates of each monument is an added bonus in the book, not to forget the photographs that facilitate the reader. Leafing through the pages of this book is pure delight with tinge of loss of a thriving community. It is recommended to read the book with its introduction to truly appreciate the endeavors of the author and to encompass the intent with which he envisions and narrates about these places.

The Radcliff line comes with its problems and is difficult to reason with, but what appears to be rather attainable is safeguarding this heritage not only for the Sikh community but for Pakistan and its cultural multiplicity, what once was and which we are losing. If we lose these pre-independence sites to intolerance, August 1947 will forever resonate as partition.

BOOK REVIEW

ARCHITECTURE OF SIKH SHRINES AND GURDWARAS IN PAKISTAN

Authored by Samia Karamat

Reviewed by Dr. Masooma Shakir*

Samia Karamat's ***Architecture of Sikh Shrines and Gurdwaras in Pakistan*** documents the architectural legacy of the Sikh community in Pakistan, from where it originated. It is a valuable contribution to a subject that has been sporadically covered. Ms. Karamat, a graduate of the National College of Arts Lahore, practicing architect, along with experience in teaching, traces the political and religious history of the region and outlines the fundamental religious principles that influenced the form of emerging architecture and its subsequent evolution, as the faith consolidated shaping settlements and their community centers. Kartarpur, Narowal, for example, marks the place of origination of the faith, where Guru Nanak established himself and developed the various community principles and values into rituals, preaching tolerance, social equality and charity.

The monograph is spread over sixteen chapters, the first two of which chart the historical narrative of the religion and its architecture in Punjab. As some of these architectural monuments lie in ruin due to neglect and given that most of the Sikh community migrated (as a collective decision) to Indian Punjab at the time of Independence, the study is a worthwhile documentation of the community's religious architecture within Pakistan. Thirteen of its chapters present the monuments in detail, supported by precise drawings of plans, sections, along with photographic documentation of its elements and ornamentation details, motifs, materials and building crafts employed in the construction of the building.

The book spans descriptions of monuments of Sikh religion, including mostly Gurdwaras and some *samadhs,* over geographical spread from Lahore, Sialkot, Narowal, Rohtas (Jehlum), Wazirabad (Gujranwala), Hasan Abdal (Attock), Kasur, Rawalpindiwala and Okara. The monuments are not only used for religious activities but are commemorative, narrating the history of the evolution of the Sikh religion. They mark place and events of historical significance in connection with the Sikh Gurus.

The publication is supported by detailed endnotes and a list of bibliographical references that show a well-researched publication, supported by fieldwork documentation. Colorful images throughout the book of buildings, frescoes, paintings depicting history along with black and white photos of the past present a good photographic documentation of the said landmark buildings. Frescoes within the heritage narrate the belief systems as an art form.

Quoting Prof. Vandal (Preface), 'the *Gurdwara* symbolized freedom from oppression, equality among the living and encourage people to focus around that symbol of human wisdom, the Guru Granth Sahib, holiness personified'. The word *Gurdwara* is a composite word of *Guru* and *Dwar*, *Guru* meaning master or guide and *Dwar* meaning house, door or seat. It represents a place used for congregational religious or social purposes, *sangat* (communal prayer), its size depending on resources of the local community. Harimandar or the Golden Temple of Amritsar became the most significant Sikh building, built by the fifth Guru, Guru Arjan. Built on axial symmetry, the Gurdwara appears to be floating in a large water body, the *sarovar*. The temple is considered to be the 'fountainhead of the Sikh religion'. The structure became an inspiration for all the later Gurdwaras, constructed in a similar pattern. Water bodies built also as artificial lakes, became an important part of the Sikh religious architecture given its association in religion for giving sanctity and purity.

The Gurdwara is associated typically with a centralized square plan that may rise to a double storey height, sometimes with multiple stories on top with verandahs. Typically, an arcade surrounds the central space. The monuments range from complexes to single space configurations. The building vocabulary is similar to the constructions of the time. It is probable that the craftsmen who built these structures were involved to also work and ornament monuments belonging to other religions. Ms. Karamat has done a commendable documentation in several measures, of which one is the identification of the various architecture and decorative elements with the local terms. The supporting local stories

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add a layer of association to their structures.

The various buildings display use and perhaps experimentation with variety of arches, materials brick, stone and use of iron girders to support upper stories. The elements most popularly used are the fluted onion dome and tripartite divisioning of multifoil arches articulating the square, centralized plan of the Gurdwara. Singular arched openings on either side of these mark the ambulatory or verandah, locally called the *parikrama*. This would also absorb a bigger audience. The upper room with a dome and arched windows on four sides was mostly dedicated for the quiet reading of Granth Sahib.

While the ritualistic and congregational use of the spaces was defined by the belief, architecture elements like dome, arch, lintel, door show parallels with the regional practices. As the faith consolidated and spread, surface embellishments were elaborated with special focus, particularly *jharokas* and doorways, marking a celebration and blooming of the new faith.

The subsequent chapters on the monuments are organized to present the physical documentation and detail along with local stories, history, anecdotes attached to place, while the first couple of chapters are the most interesting, as these narrate the religious and political history. Chapter 1 talks about the history of the religious figures / the Gurus, their evolving practices and consolidation over the geographical terrain. The second chapter talks about the evolution of the architecture itself, in tandem with the social and political influences.

Baba Nanak grew up in the late fifteenth century, his rise paralleled the rise of the first Mughal Emperor Babar in the Indian subcontinent, while the decision of the last Guru to end the family Guruship was taken at the time of the end of Mughal rule, that were Aurangzeb and Bahadur Shah Zafar's rule. The holy book, Granth was given the status of a living Guru by the tenth Guru, dissolving the thread of the family Guruship due to rivalries between the multiple heirs. The historical account highlights the interactions and relations between the subsequent Gurus and the Mughal Emperors of the time. At some occasions, the Gurus blessed the Emperors for the expeditions, at others the rulers offered support and protection to their sprouting settlements.

The text outlines the development of religio-social and political dynamics of the Sikh faith, its struggles and finally its blooming and celebration through architectural endeavours, landmarks, formation of new cities and settlements like Kartarpur (by Guru Nanak himself), Goindwal, Amritsar (by Guru Ram Das, developed around Golden Temple Complex), and development of other Punjabi settlements/cities. Important rituals and activities of Sikh community highlighting the use of their various spaces include *sangat*, a holy fellowship in which people pray together; *langar*, a people's kitchen and refectory; *pangat*, the communal act of eating together.

The historical account is comprehensive in charting the political and social evolution of the Sikh community, highlighting the constructions and later reconstructions of some of its monumental architecture, additions, expansions, renovations and emerging significance of particular sites and cities.

The publication in all is an excellent and welcome addition to the genre of South Asian religious architecture and contributes to research knowledge on Sikh architecture. It is a noteworthy documentation of history and historical artifacts that surpasses previous published works in its detail.

The author Samia Karamat is a practicing professional and architect with much teaching experience. A graduate of the National College of Arts, Lahore, she started teaching in Karachi at the Indus Valley School in 1998 and has also taught at her graduating institution in Lahore and then at Rawalpindi Campus of NCA, with a brief teaching experience at Cardiff University in UK. In her long professional career, she has designed and supervised a variety of architectural projects ranging from hospitals and medical centers, pharmaceutical plants, factories, educational institutes and residences.

BOOK REVIEW

THE SIKH HERITAGE OF PAKISTAN: SRI GURU GRANTH SAHIB

Authored by Dr. Safdar Ali Shah
Syed Javaid A. Kazi

Reviewed by Dr. Rabela Junejo*

Book Review:

Ik Oankar	There is only one God
Sat Naam	True is His name
Kartaa Purakh	He is the Creator
Nirbhao	He is without fear
Nirvar	He is without enmity
Akaal Moorat	He is immortal
Ajoone	He is beyond births and deaths
Saibhang	He is self-existent
Gur Prasaad	He is attained by the grace of Guru

This book that takes us on the journey of selected architectural heritage of Sikh community that was part of the pre-partition Punjab and migrated to India in the wake of separation of the Indian subcontinent in August 1947. The book starts with the ***Mool Mantar*** prayers excerpted above, chanted by the Sikh religious community. The Sikhs follow the dictates of Guru Nanak Dev Ji as their spiritual guide and Sri Guru Granth Sahib as their spiritual book. What Guru Nanak achieved through his monotheistic, the prayer above is suggestive of it, spiritual teachings was a massive followership in Punjab. Over a period of almost two hundred years and nine additional Gurus, Sikhism became a religion in itself, with major following in Punjab on both sides of the current border. They garnered political domination with Raja Ranjit Singh and his control of Punjab in the early nineteeth century, with Lahore being the seat of power. The religion or spiritual path of Sikhism, as one can infer, grew incrementally, as the book also suggests. The nine additional Gurus or spiritual guides, who followed Guru Nanak played a vital role in charting out the course of Sikhism. For example the second Guru, Guru Angad Dev, compiled Guru Nanaks compositions, adding his own works in it and introducing a new script *Gurmukhi* for the task that loosely translates to *"from the mouth of the Guru"*. The last Guru, Guru Gobind Singh made Sikh community into a *Khalsa Panth* "the community of the pure", who were required to follow the prescribed ritual and communal ways that grew over time and came to a formal close with Guru Gobinds death in 1708. The ritual formalization nevertheless did not impede the communal growth of the community that gained a strong militaristic hold with Ranjit Singh. Some of the identification markers prescribed for the Sikhs in an already diverse ethno

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religious landscape of subcontinent were, men growing their hair long, wearing steel bracelet, cotton boxer shorts, keeping a wooden comb and a sword subscribing to the prescribed five K's the *Kesh, Kara, Kacha, Kangha* and *Kirpan*.

The identity markers were probably needed in the diverse ethno religious region of subcontinent, as a multitude of faiths with Hindus, Buddhist, Jain, and Muslim along with their myriad sectarian permutations and combinations, already existed and the new found faith required the followers to be identified. This however, does not eliminate the fact that overlaps were not present. These overlaps are part of the recipe that nurtures diversity where myriad faith based conceptions find a common ground for discourse and where communities can co-exist. Similar commonalities between Sikhism and Islam are spelled in the book, and going back to the prayers narrated above, it is the monotheistic inclinations of Sikh faith and its worship of the formless God that becomes the common ground for the two faiths to have co-existed. It is therefore, not implausible to find commonalities in Sikh and Mughal architecture, that makes the major part of the book, as it is about the heritage of Sikhs mainly on the Gurdwaras of holy shrines, although secular domestic architecture is also presented.

Although the basic layout of Gurdwaras appears to be rather fluid there are some permanent ritualistic features, like *darbar* or hall, where the Guru Granth Sahib (the holy book) resides on a *takht* or throne, much in likes of the *minbar* one finds in the mosque. Since the Sikhs worship the formless God and the Gurus, the revered guides being no more alive, the holy book acts as a Guru in their stead and hence is held in highest esteem enthroned in the main darbar. The ritual purification water tank or *sarovar*, the *langar khana* or communal kitchen and an inner sanctum where the holy book retires for the night, all draw attention to the similarities that the faiths share when it comes to spatially formalizing the rituals. As, for example, the *langar khana* is an important feature of Sufi shrines and the congregational character of the hall, with focus on the holy book parallels with the Muslim prayers and holy sermons. The water tank for purification is something that is akin to many faiths and is almost a universal element of the sacred spaces. Many faiths prescribe to the idea of purification with water leaving the profane world behind and cleansing themselves within the very boundaries of holy space. One recalls the water basins placed on the boundaries of Greek agora, where those entering cleansed themselves as agora was held sacred, an important feature of the Greek civic life.

Other than these ritualistic features that make up the layout, elements like domes and canopies, lotus finials, multi-foil arcades, *jalis* or screens, and *baradari* or arcaded pavilions etc. are consistent with most Gurdwaras as demonstrated in the book, both textually and pictorially. The Mughal vocabulary of architecture is fairly apparent in the makeup of elements, however there are variations. One encounters colonial language transpiring with use of Doric like pilasters in Gurdwara Darbar Sahib in Katarpur. It is safe to infer here, that the shrines borrowed from the existing architecture and transformed, as the faith itself did, over a period of time. It added elements from multiple existing vocabularies and architecture, mirroring the transformation of the faith, formalized elements that later became associated with Sikh architecture like the lotus ribbed dome mostly colored golden.

The *havelis* or residences of Lahore discussed in the secular architecture are a delightful sight, and the frescos with Sikh variants of Mughal miniature paintings appear at par with Mughal art work itself. The aesthetics were definitely shared and with Sikhs in power and the shift of patronage perhaps, provided an opportunity to the artisans to align their work as per the wishes of the new clientele and expand their artistic jargon. With the Sikh clientele, it appears that the armature of architects, masons and artist definitely expanded. All of these artistic and architectural feats are narrated via images rather than by text, and that makes the book more of pictorial documentation compared to textual one. This heavy laden pictorial journey makes the book an easy read for a layperson as well.

The general writing of the book is also unpretentious and caters to a larger audience than particularly the serious history and architecture academics. The outline is simple, giving general history of Sikhism with incremental religious and political growth of the Sikh community, stressing on the inter-communal Sikh and Muslim harmony. The recent events are also discussed, like the opening of the Kartarpur corridor to facilitate Sikh diaspora to visit their holy shrines on the other side of the border. It is discussed as a welcome and positive political initiative by Pakistan, considering the always volatile conditions with the natural neighbor. Was this celebration of the affability between Muslims and Sikhs had to be spelled out so enthusiastically is the question that must be left to the readers.

With the prayer chants of *Mool Mantar Jap* resonating in the ears and the nostalgia of a lost community, the reviewer closes this text hoping this book makes us more accepting toward interfaith commonalties rather than differences and provides us with a chance to become more tolerant and accepting, as our forefathers once were.

JOURNAL OF RESEARCH IN ARCHITECTURE AND PLANNING

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For Further Information, please write to JRAP Coordinator 2017-2018
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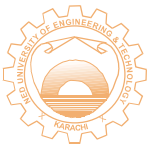

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