

# Changing Architecture and Construction Practices in the Gilgit Baltistan Region, Pakistan: Case of Hotel and Tourism Industry

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## Abstract

*The tourism and hotel industry is rapidly causing the alteration of the architectural and construction practices in the Gilgit-Baltistan region as more and more people have become associated with the industry including both the locals as well as outsiders. This paper presents an overview of the changing scenario of architecture and construction practices in the Gilgit-Baltistan region and the preferences of the local population. It aims to do so by highlighting the architectural and construction practices of the past and present specifically in the hotel and tourism industry of the region, outlining the type of construction and their techniques while also inquiring the locals regarding their preferences pertaining to architecture and construction. The secondary data giving an overview of the region, and the architectural and construction practices; is gathered from the relevant newspaper articles, reports, websites and, journal articles while the primary data is gathered from the site visits to the region along with questionnaire surveys conducted from the local population. An assessment of hotels developed during different timelines presenting case studies employing either vernacular or modern or even a combination of both techniques is carried out in terms of their use of materials, architectural features, and structure/construction typology. Conclusively, the research tries to put forth the trends in architecture and construction practices especially in the case of hotel buildings in the region as while an increase in tourism has caused a boost in the construction of hotels in the region, it has raised many other concerns such as disconnect from local culture, use of alienated building materials making the buildings poor in terms of thermal comfort, dying cultural heritage.*

**Index Terms:** Architecture, Construction, Gilgit-Baltistan, Hotel Industry, Modern/Vernacular Techniques.

## I. INTRODUCTION

Gilgit-Baltistan (GB), with a population of 1,301,000, covering an area of over 72,971 km<sup>2</sup> (28,174 miles) borders Pakistan's Khyber Pakhtunkhwa Province to the west, Pakistani-administered Azad Kashmir to the south, China's Xinjiang to the northeast, Ladakh and Indian territory Jammu and Kashmir to the southeast, while a portion of the Wakhan Corridor of Afghanistan to the north [1]. There are three divisions and 11 districts such as Astore, Diamir, Ganache, Ghizer, Gilgit, Hunza, Gupis-Yasi, Hunza, Nagar, Shigar, Kharmang, and Skardu [2]. The region has global importance due to the presence of more than 700 peaks reaching more than 6000 meters in height while 150 peaks rise above 7000 meters. With being home to 8611 meters K-2 (second highest peak in the world), Nanga Parbat (8126m) and the hidden Mountain Gasherbrum 1, 2, and 3 (8086 m, 8047 m, and 8035 m respectively), three of the world's longest glaciers outside the Polar Regions are found in Gilgit-Baltistan: The Biafo Glacier, the Baltoro Glacier, and the Batura Glacier [3]. There are, in addition, several high-altitude lakes in Gilgit-Baltistan, and is amongst the oldest of regions evidenced by the presence of historical monuments such as the Altit and Baltit Fort [1]. Due to its rich cultural history, heritage buildings, highest peaks, and glaciers, the area has

remained an important tourist destination and its popularity has increased further in recent years. As a result of this, many locals and outsiders are investing in the hospitality industry by way of constructing hotels and resorts. Tourism is nothing but a "double-edged sword" as it can both create opportunities in the form of revenue generation and can also affect the local people and the ecology of an area [4]. Also, the opening of diverse routes to the region and access to mountains by the global market has led the immigrants and outsiders from different regions of Pakistan [5]. (See figure I)

The demographic composition of Gilgit-Baltistan is quite interesting as it is a mixture of different immigrants who came from the surrounding neighborhoods either for trade or exploration. This includes the Turks, Kashmiris, Pathans, and Mongols who then settled in the region and gained permanent residence. Each ethnic group retained its identity over the period of time and never adopted a common culture or way of life [1] (See figure II, and figure III).

The study thus establishes through research, the trends in the hotel and tourism sector in terms of architecture and construction practices and the preferences of the locals in this regard. The study, in this regard, first gives an overview of the vernacular and modern architecture and construction practices as seen in the region to establish a



comparison of the past with the present. It then gives details of the selected case studies and assesses them on the basis of the use of materials, architecture and construction type, owner, and the year of construction to present the

trends in coherence with the objective of this research. To add the perspective of locals and to unravel the reasons behind this change, a questionnaire survey was also carried out by the locals.

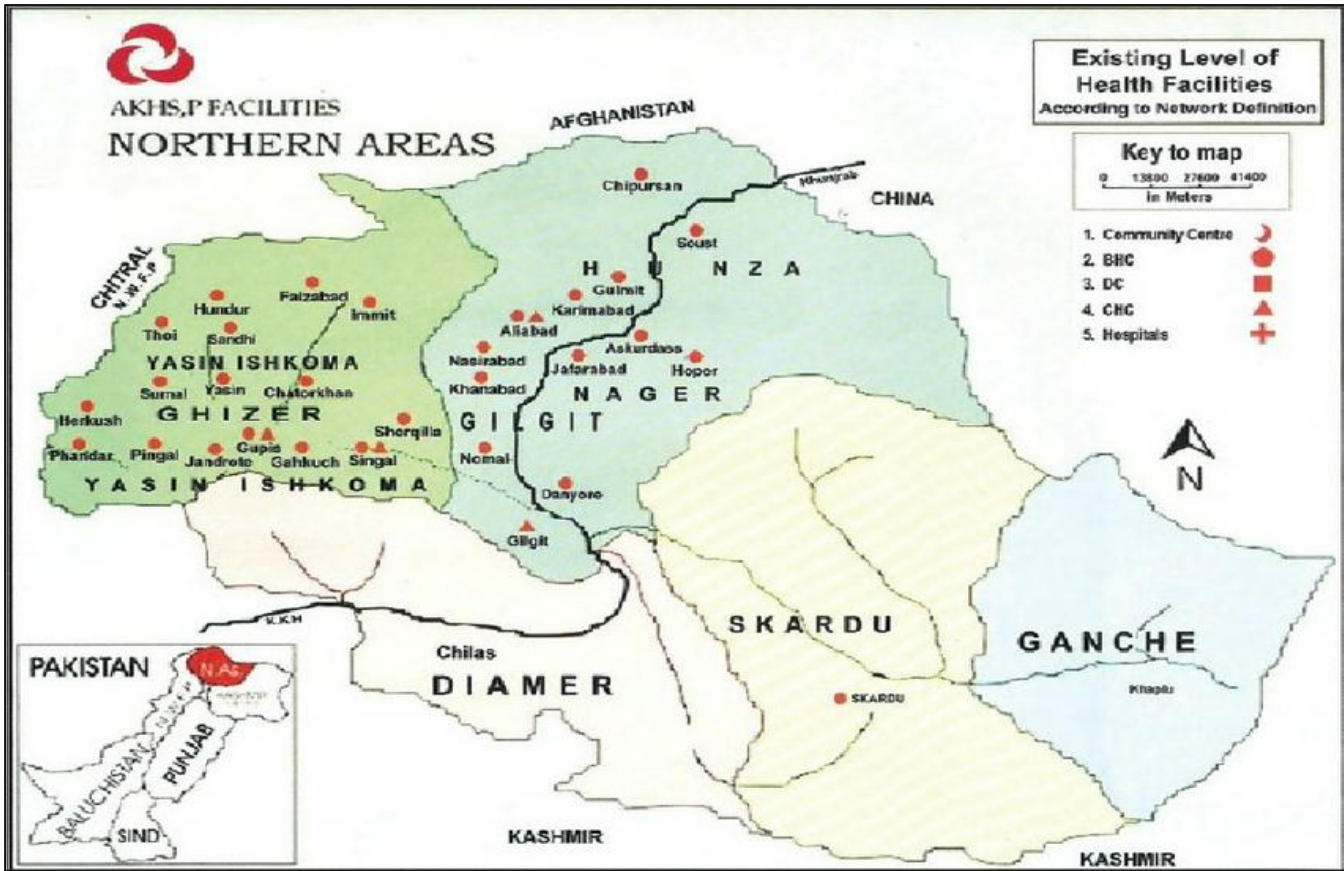


Figure I: Administrative Map of Pakistan (Source: Agha Khan Planning and Building Services)

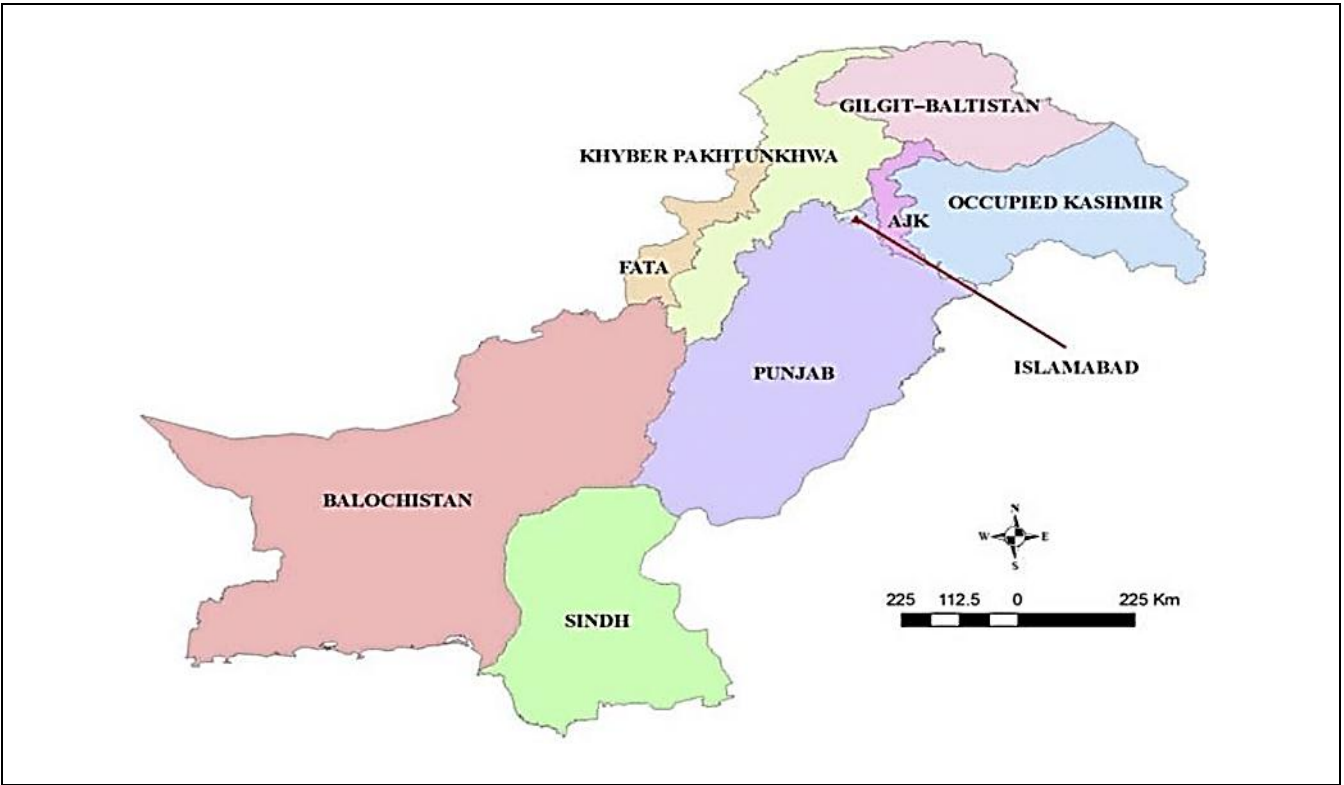


Figure II: Map of Gilgit Baltistan (Source: Survey of Pakistan)



Figure III: 3-Districts and Tehsil Map of Gilgit-Baltistan [6]

## II. BACKGROUND OF THE PROBLEM

The opening up of remote regions in the high mountains for motorized traffic with the development of road networks has led worldwide to multiple threats as a result of the penetration of outsiders in the form of businessmen, tourists, and migrants [7]. The region of Gilgit Baltistan has seen rapid changes concerning architecture and construction practices as it has transitioned from vernacular approaches to modern techniques. This trend has become more evident in the hotel and tourism buildings as the region has become increasingly popular among the tourists leading to a surge in hotel buildings in the region.

The issues concerning this trend are multifold as on one hand it is affecting the ecology of the area, affecting the culture and the livelihoods of the locals, etc. on the macro-level while at the micro-level, it is causing lifestyle changes and making the indoor space inhabitable due to the inability to control indoor temperature and in general, these changes are caused due to many factors such as:

- The intervention of outsiders for profit-making through the tourism industry.
- Climate change and natural disasters.
- Threat to local culture and heritage.
- Globalization.

Gilgit-Baltistan (GB), has become a popular hub among private investors in the hotel and tourism industry with the recent growth in tourism in the area. The increased tourism on the one hand can help transform the socio-economic conditions of the underprivileged, on the other hand, it becomes a burden when it is exploited by the privileged for profit-making at the expense of extracting the local resources. Also, the local population involved in the tourism business is of the view that the alienated form of

the hospitality industry in the absence of any policy framework is not only threatening the indigenous entrepreneurs but also the fragile ecology of the region. The hospitality sector in the region has been witnessed to grow like a concrete jungle without taking into consideration the environmental, social, and cultural aspects which are considered to be the most sensitive attributes in such contexts. This deceptive profit-making is also seen in the case of Hunza Valley where haphazard construction and exploitation of local assets and resources such as water, wood for fuel, and local labor is destroying the natural habitat, biodiversity, and the breathtaking landscape to feed the hunger of the rich. This is nonetheless putting the fragile ecology of the region under adversity due to rising temperatures, climate change, and increasing floods due to the melting of glaciers destroying lives and livelihoods of the communities inhabiting the lower riparian zone while threatening the other side with droughts due to rapid depletion of the frozen water [8]. Besides this, the region has also been prone to seasonal damages and destruction as a result of natural disasters including earthquakes, cloud bursts, flash floods, avalanches, and landslides.

## III. METHODOLOGY OF RESEARCH

The research first dwells upon newspaper articles, journal articles, books, and reports for secondary data collection, giving an overview of the vernacular and modern approaches to architecture and construction. The primary data is collected by gathering firsthand information from the site assessing hotel buildings in Gilgit Baltistan and interviewing the locals. In this regard, seven (07) case studies are selected such that one (01) case study is that of a historic fort that was later converted into a hotel and museum employing vernacular techniques while the other two (02) are that of hotels developed recently but using vernacular techniques. However other four (04) case studies are examples of modern construction covering both



the proper and poorly designed and constructed facilities. The selected case studies are analyzed on the basis of their use of materials, structure/construction techniques, architectural design as well as the interior by way of physical documentation in the form of plans and pictures, and inquiring the hotel management or owner (see figure IV). Also, the perspective of the local population is carried out through a questionnaire survey to inquire about their preferences for building style along with the exploration of reasons behind the changing architecture and construction practices.



**Figure IV:** The Map showing the Distance in Kilometers of the Selected Hotels from Skardu Airport (Source: Drawn by the Author)

#### IV. BRIEF ACCOUNT OF ARCHITECTURE AND BUILDING CONSTRUCTION PRACTICES IN THE GB REGION

### A. Vernacular Architecture

The vernacular architecture of the region is exhibited in the historic forts and villages, tombs, palaces, and religious buildings (i.e., mosques and tombs of saintly people, locally termed, as ‘Astana’). The surviving magnificent old forts include the Baltit and Altit Forts and the fortified village of Ganish. Many of these old palaces and forts were demolished or in some cases were completely eradicated during the British military era. However, the historic villages include the cluster housing ‘core’ equipped with other functions such as farms, animal barns, stores/simple shops, mosques, or any other religious building [9].

### B. Materials Used

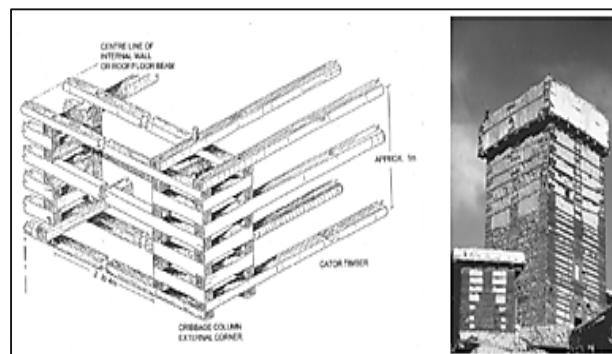
The traditional buildings make use of locally available materials i.e., timber (of deciduous hardwood), ‘adobe’ blocks; rubble, and dressed stone. Since soil is naturally available, the use of adobe blocks, rammed earth, and wattle and daub are made in the traditional buildings. For stability purposes, the use of chopped straw and oils was also made. However, from the 1920s onwards use of lime renders and mortars is seen on prestigious buildings [10].

### C. Structure/Construction Techniques

a) Cator and Cribbage Construction:

Historically, the local construction technique used in the region is “Cator and Cribbage” (locally termed, as ‘Kator or Thater’ technique) which has the ability to resist earthquakes due to the tensile and elastic properties of timber. The technique employs timber lacing which is much

stronger in contrast to the traditional stone walls [10] (see figure V).



**Figure V:** Cribbage' Cage in the Wall Corners; 'Cator and Cribbage' use in Altit Fort [11]

b) **Stone Construction:**

The use of local stone is witnessed in the case of domestic structures in the rural context such that stone rubble is haphazardly placed on top of each other while the gaps are filled with irregular mud mortar to add strength [10] (See figure VI).



**Figure VI: Stone Masonry Building with Thatched Roof [12]**

c) Architectural Style:

The vernacular architecture of the region can be prominently seen in the case of traditional housing such that it is not more than one storey due to the slender wall construction to avoid wall deformation.

d) Topography:

Starting with the topography, houses that lie on steep slopes are usually terraced, following the natural contours allowing for stepped, cascading verandas over the roof of each house. The summer houses situated higher up in the mountain pastures differ from those of the valleys, as they are single-spacing round huts loosely clustered and built using low loose rubble walls with a conical thatched roof atop.

e) Insulation:

For the purpose of insulation, houses tend to be ground-hugging preventing exposure to winter winds. Besides this, clustering of individual houses, sealing up of exposed openings, keeping animal barns/pens and hay storage above or next to the house, or use of pitched roofs help with insulation by forming a cavity for storage purposes. Building thick walls or rendering wall surfaces using soil in the traditional architecture of the region helped improve

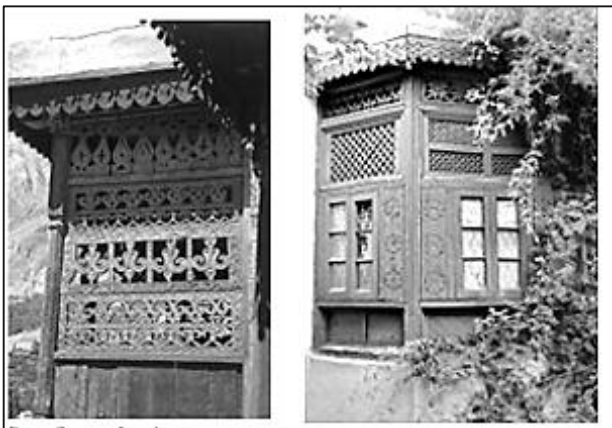
thermal efficiency due to the good thermal performance of soil [10].

f) Roofing:

In the southern valley of Gilgit, pitched roofs are built using timber planks to allow for a reduction in the accumulation of snow alongside enabling thermal insulation and storage space due to the large cavity formed above the ceiling. The houses mostly exhibit flat roofs covered with compact soil making the structure simple and possible to use the rooftop for outdoor activities during summers. However, the earlier colonial buildings have made use of gently pitched roofs with soil cover. They are larger where flat space is available and small when built in clusters or on steep manmade terraces or natural rock slopes [10].

g) Decorative Elements:

Related to architecture are the decorative features of the buildings which make up the traditional architecture of the region. This includes extensive use of carvings, floral and geometric patterns, decorative wooden niches, open lattice work/open timberwork, with geometric patterns in wood (commonly called, as 'Jali' or 'Panjiras'). In the affluent houses, verandas, arcades, columns and capitals, door frames, storage containers, cabinets, jali-screens, wall shelves, and even furniture exhibited rich carving which varied from stylized floral ornaments to geometric forms and traditional ornamental motifs or patterns [11] (See figure VII).



**Figure VII:** Wooden Carving on Balcony in Baltit Fort; Wooden Lattice Work [11]

*D. Modern/Current Practices*

The buildings developed in the region concerning the architecture and construction of buildings at the regional reveal that the traditional techniques are rapidly being replaced by new architectural styles and structures which are adopted mostly from other major cities demonstrating inefficient engineering and architecture giving no regard to the craftsmanship. A major reason behind this disregard for the vernacular techniques can be the issue with the transferring of knowledge from previous vernacular craftsmen to the later generations; the decaying of historic buildings and monuments which may otherwise be the source of knowledge for the techniques [10] and also other factors i.e., adoption of styles from neighboring cities, influx of outsiders intervening in the area with no knowledge of the local culture and techniques, cost and

time factor, and also the education and training backgrounds of the practitioners.

a) Use of Material:

Concrete blocks, steel, Galvanized Iron (GI) sheets, cement sand mortar, metal, and glass are majorly used in modern buildings.

b) Structure/Construction Techniques:

In terms of structure, there exist varieties whereby concrete frame structure (RC), concrete block load-bearing structure, stone masonry, or a combination of different options of roofing are used. In some cases, cement concrete blocks are used for the construction of walls, whereas the roof consists of a flat corrugated GI sheet roof, sloping corrugated GI sheet roof, thatched roof, or precast RC plank roof. The flat GI sheets are supported over wooden joists placed at regular intervals while in the case of sloping GI roofs, timber trusses are used for supporting the GI sheets. The thatched roof (constructed using a mud layer) wherever used, is placed on the top of a plastic sheet (for water/moisture proofing) which is spread over a wooden floor made up of planks resting on the layer of wooden joists. Wherever the blocks are used, they are bonded together using cement, sand, and mortar. Reinforced Cement (RC) buildings consisting of frame structures employing RC columns and beams and block masonry as infill, also exist in the region but are limited in number (See figure VIII).



**Figure VIII:** Concrete Masonry (CM) Building with Flat Corrugated Roof; Concrete Masonry (CM) Building with Corrugated Pitched Roof; Reinforced Cement Concrete Building [11]

However, the use of stone masonry is also made in cases where stone is readily available and depicts a higher economic status as it is costly to construct. Stone masonry buildings employ both the dressed and the rubble stone units with similar options of roofing (i.e., flat or sloping corrugated GI sheet, thatched roof, and RC roof) as that of concrete block masonry buildings. In some cases, Confined Masonry (CM) buildings are also witnessed which use both cement and stone block masonry walls while Reinforced Cement (RC) tie beams and columns are used to confine the masonry [12].

c) Architectural Technique:

Modern architecture being practiced in the region shows a variety of approaches as on one hand we see the absence of,



or lack of transference of indigenous skill set regarding building construction and ornamentation while on the other, we see rapid adoption of foreign styles and techniques of construction the reasons of which are aforementioned. Modern style of architecture is not sensitive to the local culture, climate, materials, and ecology of the region.

## V. TRENDS IN THE HOTEL BUILDING INDUSTRY IN THE GB REGION

There exist multiple trends concerning the architecture and construction techniques of the buildings in the Gilgit Baltistan region.

On the one hand, the historic traditional buildings are preserved and being utilized for hotel and tourism purposes alongside the locals who have affiliation with the traditional

techniques and are making use of the techniques to promote the techniques. On the other hand, the rapid use of concrete structures is gaining popularity in the region giving no regard to the local culture, climate, and ecology. This includes both poorly designed and constructed buildings by both the locals and outsiders as well as properly designed buildings by architects or engineers trained in different cities whose work is nothing but a replication of modern style of buildings which are devoid of the sensitivity concerning design and construction in the region (See table I).

Keeping in view of the abovementioned trends, hotel buildings that are relevant to these trends are presented as case studies below:

**Table I:** Details of Hotel Buildings Selected as Case Study

S. No.	Hotel Name	Year Established	Owner Local/ Outsider	Designed/ Constructed by	Location	Use of Material	Architecture and Construction Typology
1.	Shigar Fort/ Serena Hotel	1636; Restored in 1999-2004 by AKCSP - Museum and Luxury Hotel operated by Serena Hotel	Raja Azam Khan of Shigar	Raja of Shigar's Amacha Dynasty, Local Artisans/ Craftsmen	Shigar	Stone, Mud, and Wood	Traditional 'Thater' Construction
2.	Mashabrum Hotel	1996	Multi owner (Haji Raza, Zarqa Abbas and Muhammad Raza)	Ar. Fida Hussain	Skardu City	Cement, Blocks, Reinforcement, Wood and Glass	Concrete Frame Structure
3.	Tibet Hotel	2007-8	Haji Akber Khan Late	Local Engineers and Contractors	Kachura, Skardu	Cement, Reinforcement, Steel, Wood, and Glass	Concrete frame Structure
4.	Hotel Byarsa:	2008	Outsider	Outsider	Kachura, Skardu	Cement, Reinforcement, Steel, Wood, and Glass	Concrete frame Structure
5.	Mondoq Palace	2016	Hasnain Mondoq	Contractor Hasnain Mondoq	Kachura, Skardu	Cement, Mud, Wood, and Stone	Traditional 'Thater' Construction
6.	Space Hotel	2018	Jaffar Ali	Contractor Jaffar Ali	Shigar	Cement Mixed Mud, Wood, and Glass	Hybrid, a combination of both Traditional and Modern Techniques
7.	Royal Guest House	2021	Muhammad Naseem	Muhammad Naseem	Skardu City	Cement, Reinforcement, Steel, Wood, and Glass	Concrete Frame Structure

## VI. UNDERSTANDING DEVELOPMENT PROCESSES ON ARCHITECTURAL AND CONSTRUCTION METHODS ADOPTED FOR HOTELS IN THE GB REGION

The following discussion consists of the hotels that were analyzed with respect to art and architectural features, structure/construction techniques, and their planning attributes.

### A. Shigar Fort

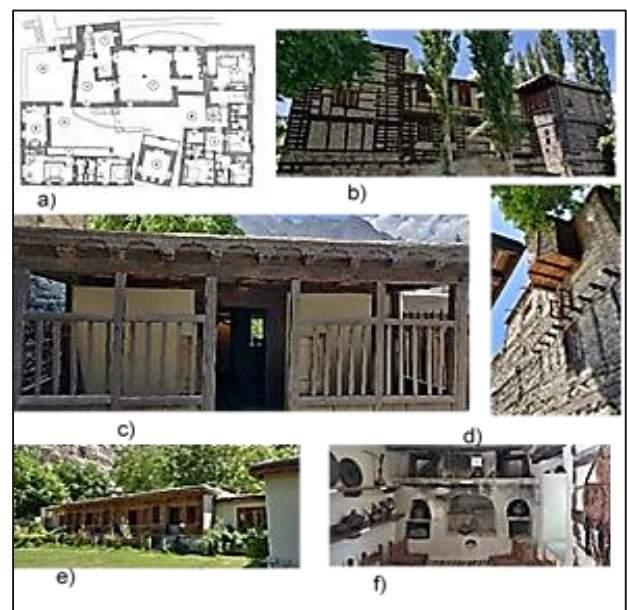
#### a) Art and Architectural Features:

Shigar Fort is a fort converted into a hotel and museum such that the hotel contains 40 rooms, with facilities such as a kitchen, bedside, family mosques, and a Baradari. Wherever wood is used, it exhibits detailed woodwork featuring: animal figurines, the floral and geometric designs (influenced by Cashmere and Tibet). Decorative features include wooden lattice-work, carving on wooden jharokas, decorative wooden frieze, and niches in the interior spaces (see figure IX c, d, e, and f) [17].

#### b) Structure and Construction Techniques:

The structure is built using the traditional 'Cator and Cribbage', technique. Catons are the beams horizontally strapped with the walls. The Cribbage construction method

is applied to the solid pillar-like frames making up the corner columns (see figure IX a, and b). Stone masonry is used with mud plaster on top [13].



**Figure IX:** (a) Floor-Plan of Serena Hotel (formerly known as Shigar Fort) [13], (b) Exterior Façade showing use of 'Cator and Cribbage'

Technique, (c) Shows Traditional Balcony (Veranda) with Wooden detail, (d) Façade showing Wooden Jharoka and projecting Wooden Frieze, (e) Picture showing detailed Wooden Lattice-Work (Panjiras), (f) Picture of interior Kitchen exhibiting the use of Niches (Source: Captured by the Author)

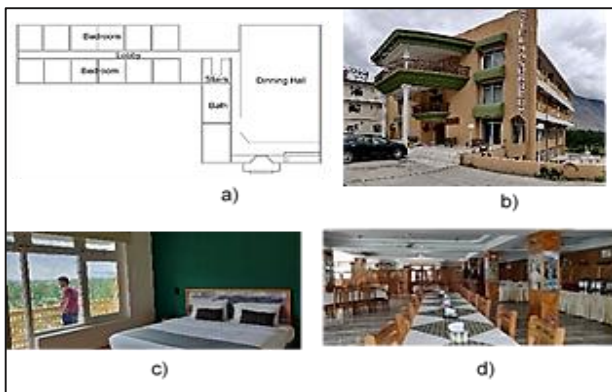
### B. Mashabrum Hotel

#### a) Art and Architectural Features:

In terms of architecture, the building adopts a modern style showing no relevance to the local culture, climate, or context. Both the exterior and the interior are modern in style. No trace of traditional spaces is seen in the building (see figure X a, c, and d). The exterior is devoid of any embellishment or decorative features while in the interior space, columns are clad in decorative wooden panels.

#### b) Structure and Construction Techniques:

The structure is entirely made up of reinforced cement concrete with a flat R.C. roof (see figure X b).



**Figure X:** (a) Floor-Plan of Mashabrum Hotel, (b) Exterior of Mashabrum Hotel, (c) Interior of a Hotel Room, (d) Interior of a Dining Hall with Columns Clad in Traditional Woodwork (Source: Captured by the Author)

### C. Tibet Hotel

#### a) Art and Architectural Features:

The hotel is designed using a modern architectural style exhibited both on the exterior as well as in the interior.



**Figure XI:** (a) Exterior view of Tibet Hotel, (b) Exterior View exhibiting Jali Screens, (c) Exterior view showing Full Length Glass Window, (d, e, and f) Interior views of the Facility (Source: Captured by Author)

The structure uses materials such as concrete, glass, granite/ marble, and wood. The use of large size glass windows makes the building poorly insulated, especially during the winters (see figure XI d, e, and f). However, the use of wooden screening is made both in the exterior as well as in the interior but in less proportion.

#### b) Structure and Construction Techniques:

The hotel is another example of reinforced cement concrete building which allows for multi-storey construction. The flat roof is also made up of R.C. (see figure XI a, b, and c).

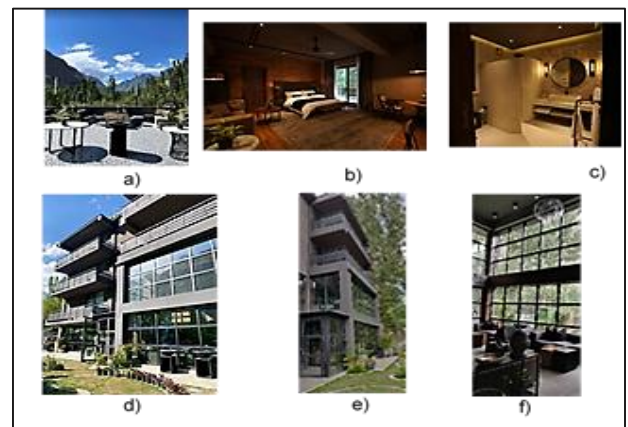
### D. Hotel Byarsa

#### a) Art and Architectural Features:

Byarsa Hotel (meaning 'A Place of Summer' in the local Balti language) is an example of an up-scale luxurious hotel in Skardu. It has open terraces with horizontal iron grills and glass detail facades (See figure XII a, b, c, and f).

#### b) Structure and Construction Techniques:

The hotel makes use of reinforced cement concrete with a flat roof in a similar structure (see figure XII d, and e).



**Figure XII:** (a) View from the Pent-House to the Mountains, (b) Interior view of a Hotel Room at Byarsa Hotel, (c) Interior view of a Toilet at Byarsa Hotel, (d, and e) Exterior view of the Façade showing, (f) Interior view of the Dining at Byarsa, Hotel [Source: (a) [14]; (b, and c) [15]; (d, e, and f) Captured by Author]

### E. Mondoq Palace

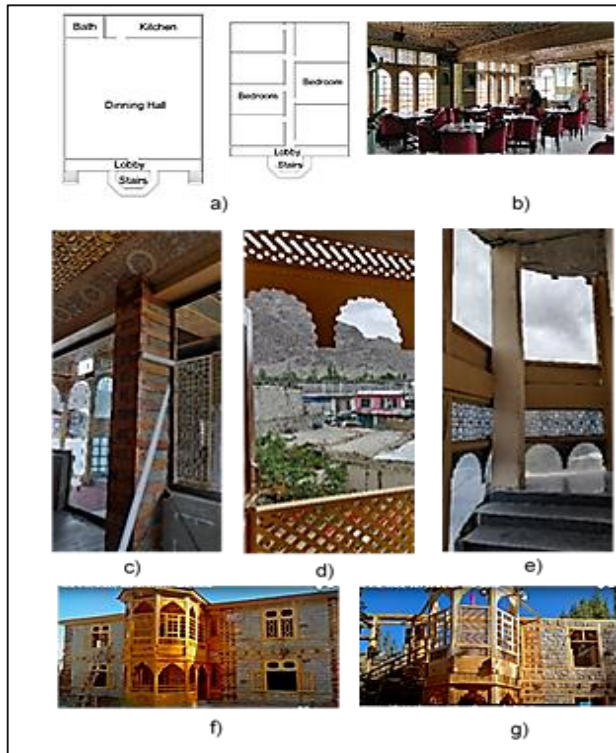
#### a) Art and Architectural Features:

The 'Mondoq Palace' is an attempt to revive the traditional building techniques in the modern era such that the building makes use of traditional elements and translates into the case of a hotel building. The projected wooden octagonal element was used as a seating space traditionally known as 'Otaq' or 'Baithak' but includes a staircase in the case of this hotel. However, intricate wood carving and latticework are used extensively in the project (see figure XIII a, b, d, f, and g).

#### b) Structure and Construction Techniques:

The same 'Cator and Cribbage' technique is used to make the structure with a flat corrugated GI Sheet on the top of the roof (figure XIII c, and g).



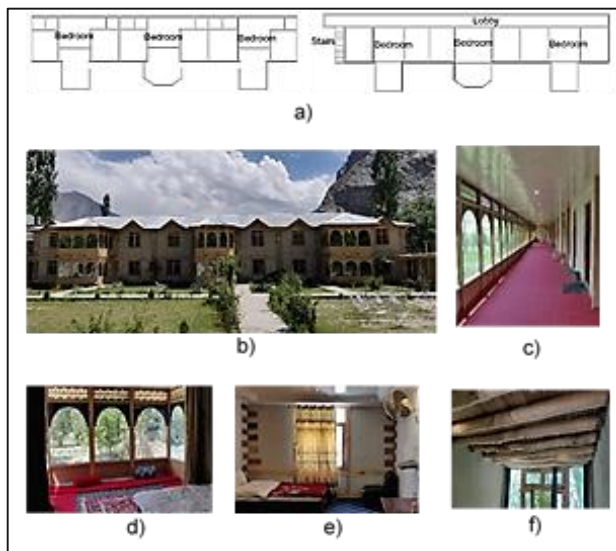


**Figure XIII:** (a) Floor-Plan of Mondoq Palace, (b) Interior view of Dining Hall, (c) Interior view showing Cribbage Column, (d, and e) Wooden Latticework on Balcony, (f, and g) Exterior view showcasing Wooden Details and 'Cator and Cribbage', (Source: (f, and g) [16]; (a-e) Captured by the Author

#### F. Space Hotel

##### a) Art and Architectural Features:

The structure exhibits hybrid techniques of construction such that use of both traditional i.e., in terms of structure and wooden decorative elements, while the use of modern techniques is exhibited in terms of the use of modern elements or materials such as corrugated G.I sheets, glass and the indoors finishes.



**Figure XIV:** (a) Floor-Plan of Space Hotel, (b) Exterior showing the use of 'Cator and Cribbage' with Pitched G.I roof, (c) Interior Corridor with Wooden Wall Decorated with Carving and Latticework, (d) Interior of a Room showing Otaq/Baithak Space with Wooden details, (e) Interior of a Room showing 'Cator and Cribbage', (f) Wooden Roofing resting on Wooden Logs resting on Joists (Source: Captured by the Author)

In terms of decorative features, the use of wooden lattice (locally termed as, Panjiras) (see figure XIV c), is also made with a few details in the interior [17].

##### b) Structure and Construction Techniques:

The structure is developed using the traditional 'Cator and Cribbage' construction technique with concrete masonry rendered using cement mud plaster. However, the roof is made up of pitched corrugated G.I sheets while the Otaq/Baithak space is developed using wood (see figure XIV a, d, e, and f). In a few places, wooden roofing is used supported on wooden joists. Overall the structure is made of concrete but the use of wood is seen in decorative elements (figure XIV b) [17].

#### G. Royal Guest House

##### a) Art and Architectural Features:

The hotel facility exhibits a modern form, not complementing with, the traditional form and structures.



**Figure XV:** (a) Floor-Plan of the Royal Guest House, (b) Exterior view of the Hotel, (c) Interior view of a Hotel Room, (d) Interior view showing Ceiling, (e, and f) Elements in the exterior of the Structure, (Source: Captured by Author)

The overall form and use of material appears to be less thoughtful as only in the exterior different types of cladding i.e., stone, gravel, and tile are used which do not complement each other. The interior space also appears to be modern in style as one may find in any other major city. The building shows no regard for the local techniques as not a single trace is witnessed (see figure XV a-f).

##### b) Structure and Construction Techniques:

The facility is also built using R.C. construction with a flat roofing system also developed in R.C.



## VII. FINDINGS OF QUANTITATIVE ANALYSIS THROUGH QUESTIONNAIRE SURVEYS IN THE GB REGION

To understand the architectural and construction preferences and dynamics, analysis through a local survey was carried out. The survey helped to document awareness of traditional construction practices, reviews on modern materials, and their opinions on construction methods adopted for hotels.

The above graphical representation shows that 12% of respondents were international tourists who wanted to stay in hotels with modern facilities, while 22% of respondents were visitors from other cities of Pakistan whereas 62% of the respondents were locals of the GB region (see figure XVI).

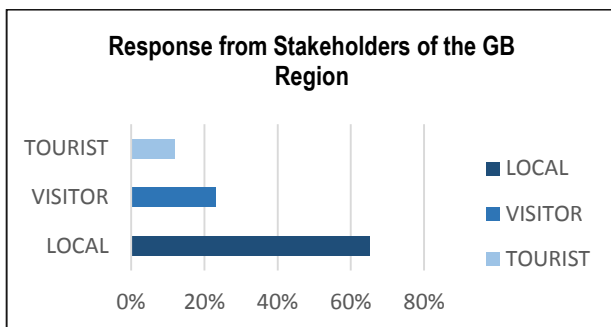


Figure XVI: Responses from Stakeholders of the GB Region

The above analysis shows that interviews conducted in the region are mostly from locals who provided insight not only on the techniques and construction methods used for the hotels in the region but also addressed the needs and requirements of the people which will be fulfilled either by modern or traditional architecture of the hotels.

When asked about the awareness of the local materials, 70% of the respondents mentioned that the being locals of the region they know the construction and techniques with local materials, while 20% stated that they know some of the traditional techniques but as these methods take time they are comfortable with the modern building systems (see figure XVII).

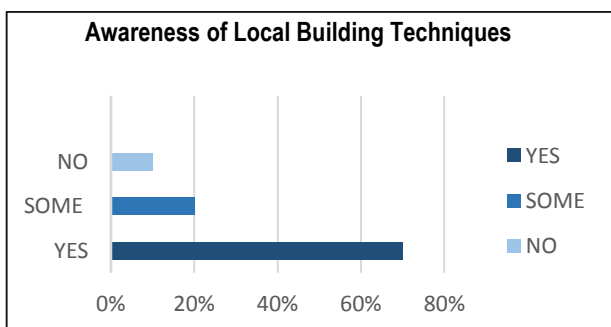


Figure XVII: Responses on Awareness on Local Building Techniques

10% stated that they have no knowledge of such techniques. These answers were mostly from investors from other cities like Lahore and Karachi. These stakeholders construct modern hotel facilities for the visitors in the region. The findings indicated that 50% of people prefer modern techniques because of safety, comfort, and modern style. 40% of people prefer local because these are more suitable and favorable due to the

natural environment and climatic conditions of those areas. 10% prefer hybrid construction techniques since in such structures they can control their budget and have a cultural ambiance that attracts tourists (see figure XVIII). The use of local techniques helps to combat harsh weather either in summers or winters.

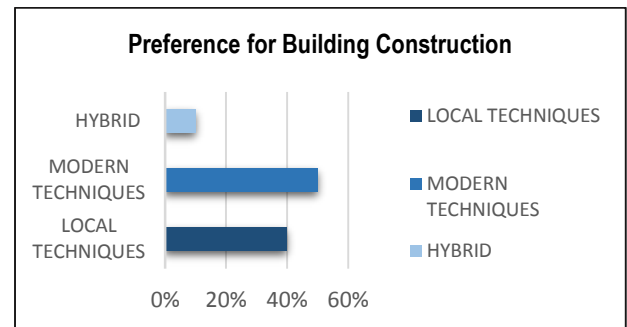


Figure XVIII: Responses on Preference of Building Construction

During the interviews, it was observed that many people were in favor of modern construction rather than local materials. According to them, modern techniques save time and money and it is easily available whereas local materials are not certainly accessible. Due to advances in social media and tourism shift; modern practices provide a new paradigm that causes changes in social and cultural patterns of the region which abruptly replaces the local traditions.

While conducting interviews, a debate on the positive and negative aspects of modern and local building techniques and impacts on the natural environment has also been taken into account.

55% of people were eager to construct hotel buildings with modern materials whereas 45% were concerned about environmental degradation and wanted to safeguard the cultural identity which intact the community regionally (see figure XIX and figure XX).

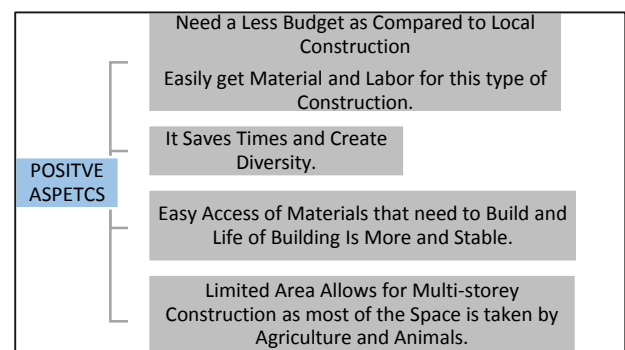


Figure XIX: Responses on Positive Aspects of Modern Construction

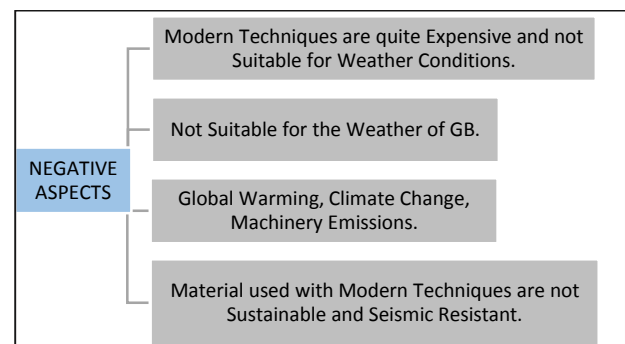


Figure XX: Responses on Negative Aspects of Modern Construction

The question of who is building these modern buildings was also asked. Locals as well as outsiders are investing in the construction of modern buildings because now Gilgit-Baltistan has become a famous tourist place and year by year visit of tourists is increasing (see figure XXI and figure XXII). For the purpose of their accommodation, people are building modern hotels according to modern needs and facilities.

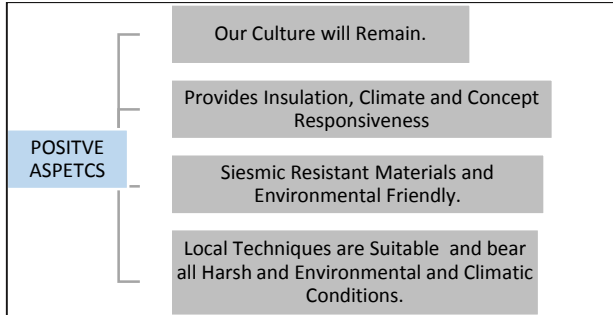


Figure XXI: Responses on Positive Aspects of Traditional Construction

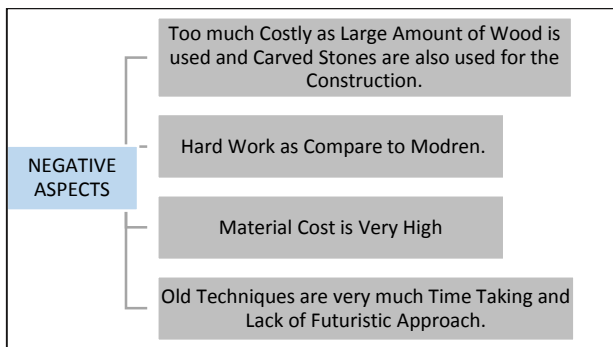


Figure XXII: Responses on Negative Aspects of Modern Construction

When asked about the construction pattern of the modern hotels in the region and whether they reflect local culture and environmental pressures, 65% of locals said that these structures are mainly concrete blocks and are not reflective of the traditional construction which affects the cultural hierarchy and environment (see figure XXIII). Whereas 35% said that the architecture and interior reflect the tradition of the GB region.

For the past few years, people have been mixing the techniques of local and modern, therefore many of the new generation having trouble and lack of understanding about local building techniques. Local techniques such as Kath Kunni, Dhajji Dewari, Taaq system, stone, mud, and timber constructions are alive only among the old generations. Diverse cultures and the modern construction boom also replaced these traditional practices (see figure XXIV).

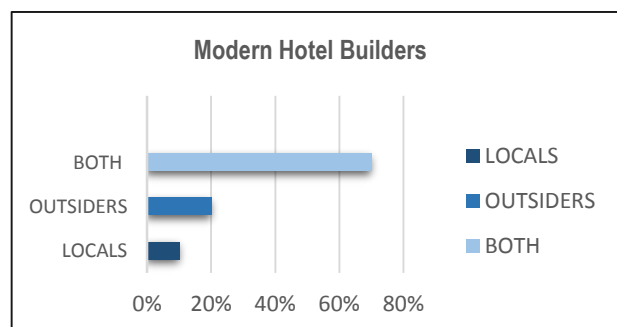


Figure XXIII: Responses on the Builders of the Modern Hotels

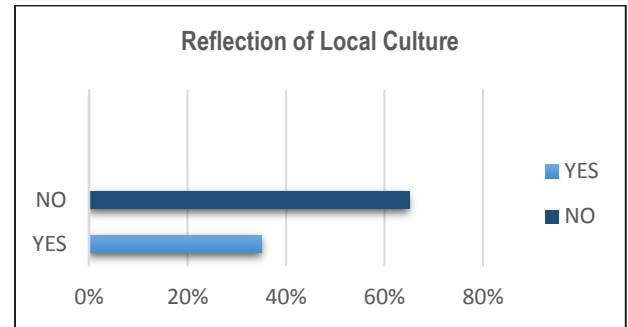


Figure XXIV: Responses on Cultural Reflection through Modern Materials

It is also observed that local construction practices are towards extinction. The factors affecting its decay are due to scarcity of local materials, cost, and intricate and time-consuming methods opted for building construction (see figure XXV).

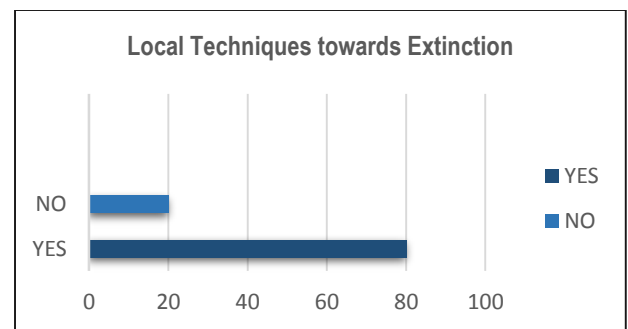


Figure XXV: Responses on Extinction of Local Building Techniques

Another factor that is observed is the non-transference of skills from one generation to another (see figure XXVI).

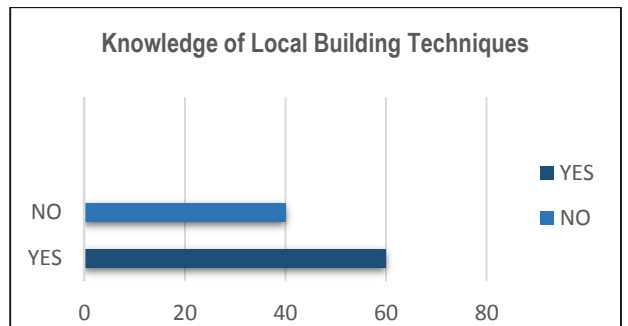


Figure XXVI: Responses on Knowledge of Local Building Materials

When it was asked if the traditional building materials were replaced by modern ones, 90% of the people did not agree and defined its importance in their culture which is already decaying. If modern materials take their place, the cultural identity would lose its integrity and authenticity (see figure XXVII).

During the survey, a discussion on the type of construction also took place for which 60% of people agreed on a hybrid type of construction whereas 25% said that purely modern buildings should be constructed.

Due to cost and less awareness of traditional construction methods, only 5% of people prefer to promote local architectural construction practices in the region (see figure XXVIII).



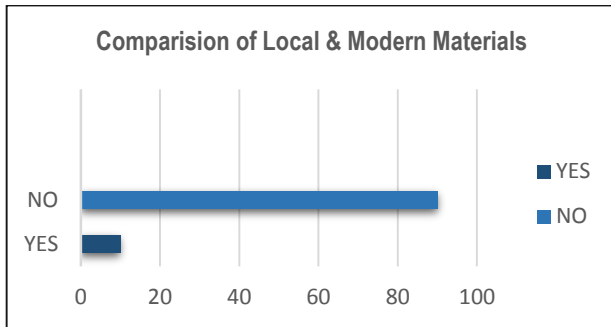


Figure XXVII: Responses on Comparison of Local and Modern Materials

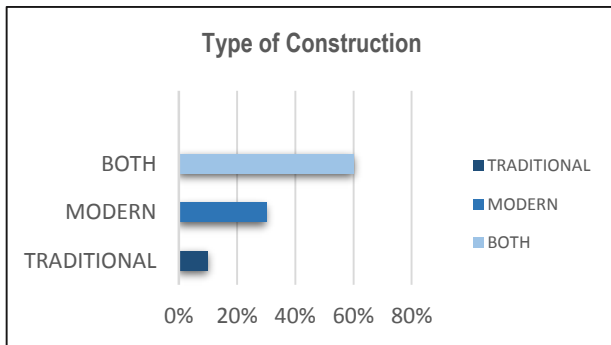


Figure XXVIII: Responses on Type of Construction

## VIII. DISCUSSIONS

Tourism even though is the biggest of global industries, can greatly influence the cultural environment and economy directly or indirectly [18]. Also, over time, tourism in our context has become more multicultural, multidimensional, and industrial due to which it plays a crucial role in supporting the economy by way of job creation, attracts local and foreign tourism, helps create a positive image of the country and promotes the services sector [19]. The services that fall under this category are motels, hotels, cafes, restaurants, and public parks industry [20]. However, not all is positive when it comes to the functioning of this industry in Pakistan as the questionnaire survey reveals that the current hotel building practices in the Gilgit-Baltistan region are more inclined towards adopting modern materials and methods of construction due to rapid construction, affordability and ease of access to modern materials; in contrast to the vernacular style of building which is quite costly, time taking, and access to local materials is no easier. The survey also reveals that in a few instances, the local population, in its endeavor to promote local architecture and construction practices while using modern techniques of construction is also adding some elements from vernacular architecture. This practice of merging the local techniques or style of building with the modern technique can be called as hybrid architecture. During the interviews, it was also revealed that with advances in social media and the influence of tourism, a greater paradigm shift has occurred whereby social and cultural patterns of the region are replacing local traditions with modern ones. Other reasons behind this paradigm shift are the scarcity of local materials, the greater cost of procuring local materials and dressing them to use for building purposes, the greater cost of intricate carving on wood, and the non-transference of local skills of building

from generation to generation. Other than this, climate change has posed another threat of natural disasters and the local population believes that modern techniques are more resilient in terms of withstanding the disasters.

## IX. WAY FORWARD AND RECOMMENDATIONS

The findings from the assessment of the trends in the hotel building industry study suggest the following:

- 1) With the dying local heritage, efforts must be made to understand, revive, and adapt to the traditional building techniques. This is required for both the new construction and the restoration purposes.
- 2) Knowledge area must be enhanced regarding limitations of the vernacular materials and building techniques and the techniques on how to overcome the threats and limitations of these techniques.
- 3) Understanding of the close linkage between people, culture, environment, and ecology must be developed.
- 4) The factors causing a change in the architecture and construction techniques in the region must be addressed and curtailed to the maximum extent possible.
- 5) The training background of architects and engineers practicing in the region must be aligned with the local needs and requirements for the preservation of local techniques.
- 6) To unravel more facts, the study should be carried out on a macro-level documenting all the newly developed buildings in the region.
- 7) For the construction of buildings, strict by-laws must be developed for the protection and preservation of the natural environment to avoid growth in a haphazard manner [21].
- 8) A comprehensive land-use planning should be developed to protect historic buildings from the threats of uncontrolled growth and unplanned densification [21].

## X. CONCLUSIONS

It is worthwhile to state that while the process of change is quite normal, its aftereffects can prove to be dangerous, as it not only threatens the local/indigenous cultures, the people, their lives, and livelihoods but also the local climate and the ecology. In the scenario of developing tourism, it becomes important to study how tourism can be promoted without threatening the traditional environment, and the ecology. This study has made an attempt to highlight how the architecture and construction practices are changing in the region, especially in the case of hotel buildings as the industry has seen a boost in recent years, in the region covering a limited number of case studies due to limitation of the study but proposes that the study should be carried out on a larger scale to bring the facts to life and to act upon. Building techniques, arts, and crafts are

reflective of how elaborate a society's heritage is, and how have the people been living and surviving in the available means and resources; dying of which may put an end to the rich cultural history of the communities who are living or who have lived here. Another important area to research will be the impact of this change in architecture and construction practices on the people, their lifestyle, and the ecology of the area.

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All the authors jointly took the responsibility of conducting this research study and their contribution was equal.

### Conflict of Interest

The authors declare no conflict of interest and confirm that this work is original and not plagiarized from any other source, i.e., electronic or print media. The information obtained from all of the sources is properly recognized and cited below.

### Data Availability Statement

The testing data is available in this paper.

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