

INVESTIGATING THE CULTURAL ECOSYSTEM OF THE SARHAD AREA OF BALUCHESTAN BASED ON HOUSING INDICATORS

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Abstract: The Sarhad area, situated within the expansive province of Sistan and Baluchestan, is bounded by Sistan to the north, Makran to the south, Pakistan to the east, and Kerman to the west. The presence of the Zagros mountain range extension in this area has contributed to distinct climatic and environmental conditions, which have significantly shaped the cultural characteristics and subsistence systems of its inhabitants. In this context, the interplay between the local lifestyle, climatic conditions, and other socio-environmental factors has given rise to diverse forms of indigenous housing, including black tents (Siah Chador), hand-dug dwellings, and stone and adobe houses. These housing types are deeply intertwined with unique cultural practices, predominantly rooted in a nomadic way of life. Consequently, an examination of the cultural ecosystem of this area through the lens of housing indicators offers valuable insights into its cultural evolution and adaptation. This study employs a multidisciplinary approach, combining field-based cultural research and oral history methodologies, to address the following research question: "How can indigenous architectural practices and their associated cultural indicators be leveraged to inform and enhance the future architectural development of the Sarhad area?" By analyzing the indigenous architectural structures of this area, it becomes possible to identify design principles and housing typologies that are not only aligned with the local culture, livelihood systems, and climatic conditions but also responsive to contemporary living requirements. Among the notable examples of indigenous architecture in Sarhad are black tents and hand-dug structures, which serve as effective models for temporary settlements and the creation of secure spaces for passive defense purposes. These traditional housing solutions demonstrate a profound understanding of environmental adaptation and resource efficiency, offering valuable lessons for sustainable architectural practices in similar contexts. This research underscores the importance of integrating indigenous knowledge and cultural heritage into modern architectural frameworks, thereby fostering a harmonious balance between tradition and innovation in the urban and rural environments.

Keywords: Cultural Ecosystem, the Sarhad area, Baluchestan, Stone Housing, Hand-dug Housing, Black Tents.

چکیده: ناحیه سرحد، واقع در استان پهناور سیستان و بلوچستان، از شمال به سیستان، از جنوب به مکران، از شرق به پاکستان و از غرب به کرمان محدود می شود. گسترش رشته کوه زاگرس به این منطقه، سبب ایجاد شرایط اقلیمی و محیطی متمایزی شده است که به طور قابل توجهی ویژگی های فرهنگی و نظام معیشتی ساکنان آن را شکل داده است. از این نظر، تأثیر متقابل میان سبک زندگی محلی، شرایط اقلیمی و سایر عوامل اجتماعی - محیطی، شکل های متنوعی از منازل بومی از جمله سیاه چادر، خانه های دست کند، سنگی و خشتی را به وجود آورده است. این نوع مسکن عمیقاً با شیوه های فرهنگی منحصر به فرد در هم آمیخته است که عمدتاً ریشه در شیوه زندگی عشایری دارد. در نتیجه، بررسی زیست بوم فرهنگی این منطقه از دریچه شاخص های مسکن، بینش های ارزشمندی را در مورد تحول و سازگاری فرهنگی در سرحد ارائه می دهد. این مطالعه از یک رویکرد چند رشته ای بهره می برد و روش های پژوهش فرهنگی میدانی و تاریخ شفاهی را ترکیب می کند تا به این سؤال پژوهشی پاسخ دهد: «چگونه می توان از شیوه های معماری بومی و شاخص های فرهنگی مرتبط با آن برای آگاهی بخشی و ارتقای توسعه معماری آینده ناحیه سرحد استفاده کرد؟» با تجزیه و تحلیل ساختارهای معماری بومی این منطقه، می توان درباره اصول طراحی و گونه شناسی مسکن به شناختی دست یافت که نه تنها با فرهنگ محلی، سیستم های معیشتی و شرایط اقلیمی همسو هستند، بلکه به الزامات زندگی معاصر نیز پاسخ می دهند. از نمونه های بارز معماری بومی در سرحد می توان به سیاه چادرها و سازه های دست کند اشاره کرد که به عنوان الگویی مؤثر برای اسکان موقت و ایجاد فضاهای امن برای پدافند غیرعامل عمل می کنند. این راه حل های مسکن سنتی، درک عمیقی از سازگاری محیطی و بهره وری منابع را نشان می دهند و درس های ارزشمندی را برای شیوه های معماری پایدار در زمینه های مشابه ارائه می دهند. این تحقیق بر اهمیت ادغام دانش بومی و میراث فرهنگی در چارچوب های معماری مدرن تأکید می نماید و در نتیجه، تعادلی هماهنگ میان سنت و نوآوری در محیط های شهری و روستایی ایجاد می کند.

کلیدواژه: زیست بوم فرهنگی، ناحیه سرحد، بلوچستان، مسکن سنگی، مسکن دست کند، سیاه چادر.

I. Introduction

One of the most significant social and cultural aspects of Sistan and Baluchestan Province is its rural and, particularly, nomadic lifestyle, which has persisted across many areas of this vast province since ancient times. Within this unique ecosystem, the local population, guided by their daily needs and cultural beliefs, has developed methods for securing necessities and constructing shelters that are deeply embedded in

the cultural context of the region. Among these areas, the Sarhad area—encompassing the cities of Zahedan, Mirjaveh, Taftan, and Khash—stands out for its distinctive climate, vegetation, and geological features, which have naturally influenced the creation of diverse architectural forms. These range from black tents (Siah Chador) used in pastoral nomadic life to hand-dug, adobe, and stone structures. The people of Sarhad have constructed dwellings that are not only climatically and

regionally compatible with their geographical environment but also culturally rooted in their daily lives. As Oliver (1997) notes in the "Encyclopedia of Vernacular Architecture of the World", vernacular architecture often reflects the symbiotic relationship between human needs and environmental conditions, a concept that is vividly illustrated in the housing practices of Sarhad. However, the contemporary shift toward urban living models, even in rural areas of Sarhad, has led to the adoption of urban housing programs, resulting in the gradual erosion and neglect of the region's cultural fabric and indigenous lifestyle practices. Therefore, it is imperative to document and analyze the indigenous architecture and housing of Sarhad, emphasizing the connection between traditional lifestyles and native housing. This includes exploring the cultural roots and their influence on the construction of indigenous dwellings in the daily lives of the local population.

The present research aims to examine the various types of housing and their cultural indicators in the Sarhad area, focusing on their ecological and cultural dimensions. By gaining a deeper understanding of the strengths of the region's cultural and architectural heritage, this study seeks to contribute to improving the living conditions of its inhabitants. The use of indigenous models, such as black tents, can be particularly effective in organizing temporary settlements during crises. Additionally, drawing inspiration from the region's hand-dug architecture, which is carved into secure, subterranean spaces, can provide valuable models for urban design, especially in times of crisis, such as war, to aid the local population.

Areas like Sarhad, due to their remoteness from central areas, remain largely unexplored and pristine. This underscores the need for further scientific investigation into various cultural aspects, including housing, clothing, dialects, beliefs, and other traditions. As Rapoport (1969) argues in "House Form and Culture", the study of vernacular architecture provides critical insights into the cultural and environmental adaptability of human societies. A significant challenge in this research, however, is the scarcity of academic resources. To address this gap, oral interviews with local stakeholders involved in indigenous housing construction, along with field documentation, are essential.

The primary objective of this study is to elucidate the cultural dimensions and their relationship with indigenous housing practices in the Sarhad area. By doing so, it aims to provide a comprehensive understanding of the cultural interactions in daily life, offering valuable insights for policymakers, planners, and designers in making informed decisions about housing in the area. This research not only highlights the importance of preserving indigenous architectural

practices but also advocates for their integration into modern housing solutions to ensure cultural continuity and sustainability, as emphasized by Asquith and Vellinga (2006) in their work on vernacular architecture in the 21st century.

II. Research Methodology

This study seeks to explore the cultural ecosystem of the Sarhad area in Baluchestan, with a particular focus on its indigenous housing practices. By combining cultural studies, field research, and oral history, the research aims to examine various types of traditional housing in the area, including adobe, stone, hand-dug, and black tent (Siah Chador) dwellings, and their functional roles as key elements of the cultural ecosystem. Cultural studies, as the name suggests, investigate the distribution and consumption of culture within a specific ecosystem, with the primary goal of analyzing the mechanisms through which beliefs, values, and traditions are applied in the practical and everyday lives of people (Storey, 2015). On the other hand, oral history involves the collection, documentation, and analysis of historical narratives, particularly those of individuals who have witnessed or participated in events. This approach yields rich, firsthand data that is often absent from written records (Thompson, 1997).

In this study, housing is examined as an operational category within the cultural context of the Sarhad area, focusing on the beliefs, customs, and values of the local population. The research is structured around three main types of indigenous housing: stone dwellings, hand-dug structures, and black tents. The methodology is grounded in the analysis of historical and cultural texts related to the region's vernacular architecture, complemented by interviews with local residents and field documentation of architectural sites. Oral interviews with knowledgeable individuals, particularly those involved in indigenous housing construction, have been conducted to gather valuable insights. These interviews are crucial in oral history, as they capture personal narratives and experiences that are often overlooked in written sources (Portelli, 1991).

The integration of cultural studies and oral history in this research enables a comprehensive understanding of housing practices in the Sarhad area. It provides access to reliable non-written narratives, facilitates a deeper analysis of the beliefs and values underlying daily life and housing construction, and ultimately allows for an examination of cultural changes and transformations in the area's indigenous housing practices. By focusing on the distribution, construction methods, and cultural significance of stone, hand-dug, and black tent dwellings, this study aims to shed light on the cultural dimensions of housing in Sarhad. The findings are expected to contribute to the primary research question:

How can indigenous housing practices and their cultural indicators be utilized to enhance the future utilization of housing in the Sarhad area? Through a nuanced understanding of the cultural ecosystem, this research proposes practical solutions for integrating traditional housing models into contemporary contexts, ensuring cultural continuity and sustainability.

III. Literature Review

A review of existing research on architecture, particularly indigenous housing in Sistan and Baluchestan, reveals that relatively few studies have been conducted in this area. However, some notable works have contributed significantly to the understanding of the area's architectural and housing traditions. For instance, Sarabandi (2010) in his work "Seventy Houses in Sistan" explored housing solutions tailored to the environmental and cultural conditions of Sistan, seeking to identify patterns for contemporary housing in the area. Similarly, Davtalab et al. (2022), in their article titled "Identification and Analysis of Architectural Spaces and Features of the Historic Seb Castle in Saravan County, Iran", emphasized the importance of studying Qajar-era castles. They analyzed the architectural characteristics and decorative elements of Qajar castles in Saravan, particularly the Seb Castle, providing valuable insights into the region's historical architecture.

Moradzadeh (2011), in his book "Culture and Civilization of Taftan", examined the cultural and civilizational aspects of the Taftan region, tracing the roots of local beliefs and behavioral patterns associated with the presence of the Taftan mountain. Malekzadeh and Koosheshgaran (2017a) contributed to the field through their typological study of "Typology of kapar architecture, in Southern Half of Baluchestan, Iran", which focused on the architectural styles of southern Baluchestan. In a related study, they (2017b) also investigated the decorative elements of rural houses in southern Baluchestan, shedding light on the intricate ornamentation of indigenous housing in the region.

Valibeig and Rastegar (2018) conducted a comparative study titled "A Comparative Study of Indigenous Rural Housing in Sistani and Baluchi Communities: A Cultural Anthropology Approach". Their research compared the architectural features of Sistani and Baluchi housing, examining aspects such as form, spatial organization, room dimensions, number of floors, and the size and number of openings in several villages across the two regions. Additionally, Torshabi (2022), in his article "Capabilities of native housing in Sistan and Baluchestan province (generalization of the capabilities of the adobe expression of native housing along the Sarbaz river in today's housing)", highlighted not only the technical aspects of indigenous housing but also the role of color and its impact on building facades

and the symbolic decorations of houses in the Sarbaz area of Baluchestan.

Despite these contributions, there remains a significant gap in research addressing the cultural ecosystem of the Sarhad area of Baluchestan, particularly in relation to its indigenous housing indicators, such as stone, hand-dug, and black tent (Siah Chador) dwellings. This study aims to address this gap by introducing and analyzing the architectural and housing indicators of the Sarhad area. By doing so, it seeks to identify the fundamental criteria and determinants shaping the indigenous architecture and housing of Sarhad, contributing to a deeper understanding of this culturally rich and geographically unique area.

IV. The Ecosystem of Baluchestan

Studies conducted in the Sistan and Baluchestan Province indicate that human settlement in the region dates back at least 100,000 years to the Paleolithic era. Numerous petroglyphs found across various locations in Baluchestan serve as evidence of this ancient habitation (Mahdavi Nejad, 2014: 18). The societal structure of Baluchestan is predominantly rural and nomadic. This characterization is not only supported by demographic data distinguishing rural and urban populations but also by the cultural, ethical, and social practices of the Baluch people (Ghorab, 1985: 20). The majority of villages in this region are nomadic settlements, and as a result, animal husbandry holds greater significance than agriculture in areas like Sarhad (Shahbakhsh, 1994: 14). From a cultural and climatic perspective, Baluchestan can be divided into three distinct areas:

1. The Sarhad area in the North: This area includes the cities of Zahedan, Mirjaveh, Taftan, and Khash (Fig. 1).
2. Northern Makran: Encompassing Saravan, Sib and Suran, Iranshahr, Delgan, Mehrestan, Sarbaz, and Nikshahr.
3. Southern Makran: Comprising Chabahar and Konarak (Ebrahimzadeh, 2009: 59).

IV.1. The Sarhad Area

Sarhad is a highland area in Iranian Baluchestan, encompassing the cities of Zahedan in the north, Khash in the south, Mirjaveh in the west, and Nukabad to the east of Mount Taftan. Taftan, a semi-active volcano, dominates the topography of the region. Its high elevation contributes to a relatively moderate climate, although summers are hot and dry, while winters are cold with limited rainfall (Figs. 2 & 3). The area is considered climatically favorable and distinguished, with significant potential for settlement and development. Its temperate climate is comparable to that of Kerman, and its mountainous terrain resembles

the highland retreats (*yaylaq*) found in other parts of Iran. The area is dotted with numerous farms and settlements (Sajjadi, 1995, as cited by Mirza Mehdi Khan Sartip Mohandes). Historically, the water supply for most settlements in this region was sourced from springs and *qanats* (underground channels). However,

in modern times, deep wells and water pumps have become the primary means of water provision. Traditionally, the primary livelihood of the Sarhad area has been animal husbandry. In areas where springs or seasonal rivers are present, agriculture and horticulture also thrive, supplementing the local economy.



Figure 1: Location of the Sarhad area in Sistan and Baluchestan province and Iran (Authors).



Figure 2: Left: Satellite image of the Sarhad area, from Zahedan in the north to Khash in the south.

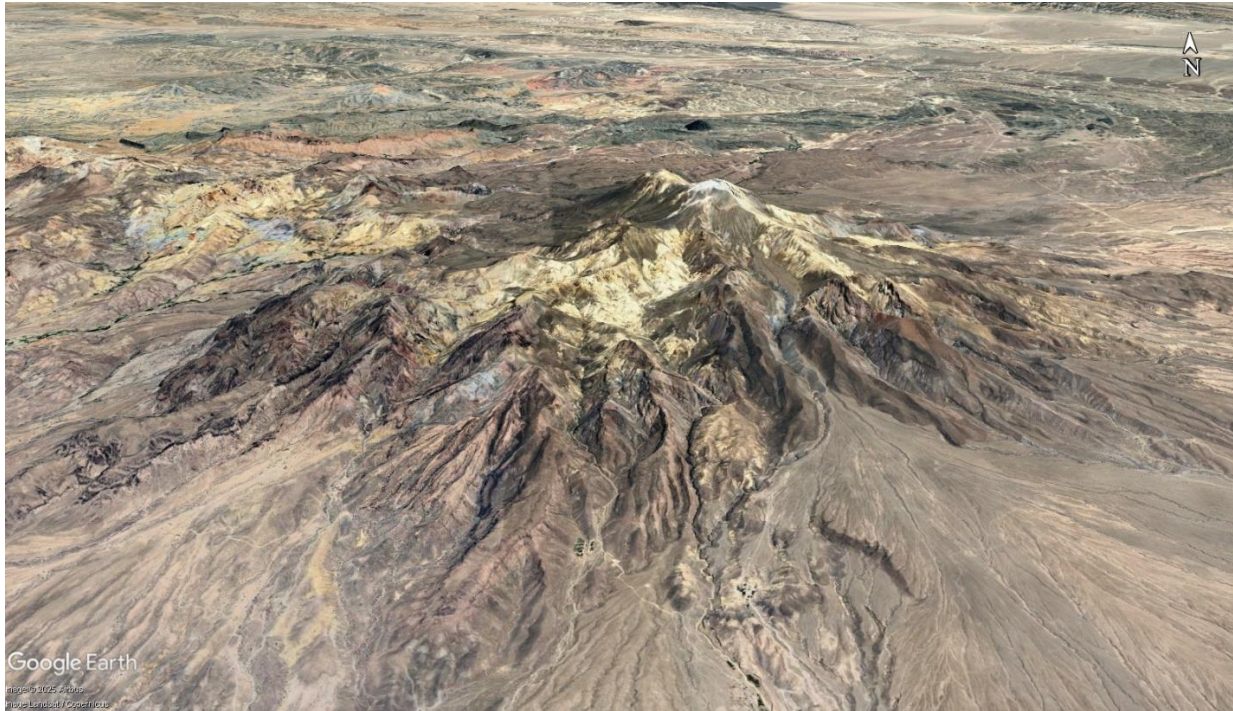


Figure 3: Right: Taftan volcano, the highest geological phenomenon in Sarhad (Image source: google earth).

IV2. The Role of Mount Taftan in Local Culture and Beliefs

Mount Taftan, the highest geological feature in Sistan and Baluchestan Province, has profoundly influenced the climate, livelihood, culture, and architecture of the Sarhad area (Fig. 4). In the Baluchi language, Taftan is referred to as “Deptan”, a name derived from “dep” (meaning “mouth” or “crater”) and “tan” (meaning “place of water collection”).¹ This nomenclature reflects the local belief that the mountain sits atop an ancient lake. Taftan, also known as “Chehel Tan” (Forty Bodies), holds a sacred place in the beliefs and traditions of the local population. Its Zoroastrian name, “Sachi Do” (Burner of the Deceitful), underscores its volcanic nature and its revered status among ancient Iranians and Zoroastrians. Historically, swearing oaths by “Chehel Tan” was a common practice, highlighting the mountain's mythical significance in local culture.

In the cultural context of the province, particularly among the people of Sarhad, Taftan is not merely a mountain but a living entity capable of providing aid or expressing wrath, especially during volcanic activity. It is both a sacred mountain and a symbol of power, courage, and resilience, often used as a metaphor for strong and patient individuals. Taftan also features

prominently in local myths and legends. One such tale recounts the story of two siblings, Zende and Taftan, who quarreled over their father's inheritance. During the conflict, Zende struck Taftan with a burning log, causing smoke to rise from the mountain's peak—a phenomenon still observed today. Another legend describes Taftan as a disobedient child transformed into a mountain by divine wrath, with smoke perpetually rising from its summit as a mark of this transformation.²

In the past, a heavy stone known as “Sang-e Morad” (Wish Stone) was located at the mountain's summit. Those seeking to fulfill a wish would attempt to lift the stone, and success was believed to guarantee the fulfillment of their desire. Although the stone no longer exists, its legacy persists in local folklore.³ Additionally, the western slopes of Taftan, known as “Ganj-e Amin” (Amin's Treasure), are believed to conceal a hidden treasure. Despite numerous attempts, no one has succeeded in locating it. According to accounts from climbers who have ventured into this rugged and inaccessible area, deep wells carved into the hard rock suggest that it may have been inhabited in ancient times. Local lore attributes these wells to the “Gabs”, a hardy people known for their ability to thrive in harsh conditions.⁴

¹ Private conversation with Abdolrahman Rakhshani, a resident of the Taftan area, fall 2024.

² Private conversation with Khaleqdad Kord, a resident of the Taftan area, fall 2024.

³ Private conversation with Abdolrahman Rakhshani, a resident of the Taftan area, fall 2024.

⁴ Private conversation with Mohammad Noor Torshabi, a resident of the Taftan area, fall 2024.



Figure 4: View of the nature around Taftan from the southern side of Torshab village (Image source: first author).

V. The Nomadic Ecosystem of Sarhad

In public perception, there is a common belief that nomads and pastoralists lead a difficult life, and in today's modern era, there is no need to continue such a lifestyle. However, a closer examination of the history of nomadic life and the profound impact of this group on historical events, the diversity of their way of life, and their productive role in society reveals a different reality. Nomads, while utilizing natural resources to meet their family needs, also fulfill a significant portion of societal demands. Among their products are milk, animal fat, meat, wool, and even medicinal plants, which not only meet local needs but also, in some cases, reach national and international markets.

Nature, with all its diversity and challenges, shapes nomads into strong, resilient, and robust individuals capable of enduring hardships and crises, enabling them to play impactful roles when necessary. One notable example of this is the use of nomads in safeguarding borders and defending the land. Their physical strength, resilience, and familiarity with the harsh geography of border regions make them unparalleled defenders. For instance, one of the historical honors of the nomads of Sarhad in Baluchestan is their resistance against British forces in the late 19th century. In this battle, a small group of Sarhad nomads, with courage and strategy, defeated the British forces led by General Dyer, killing over 300 British soldiers. This victory not only forced the British to retreat but also drove them out of Sarhad permanently (Mohammadi Afshar, 2013: 146).

In Persian historical and literary texts, the prominent characteristics of the Baluch people are also highlighted. For example, in Ferdowsi's *Shahnameh*, the readiness to defend Iran's geographical and cultural borders and resistance against the injustices of central powers are

described as defining traits of this ethnic group. However, when governments treated them fairly, the Baluch were known for their loyalty to the land and their unparalleled dedication to the homeland (Mohammadi Afshar, 2013: 146).

Ebrahimzand, citing Afshar Sistani, recounts a historical event of Baluch resistance against Alexander the Great's army. When the vanguard of Alexander's forces entered Baluchestan, the brave and skilled Baluch warriors prepared for battle and displayed such resilience that Alexander's commanders could not withstand their resistance, and his troops were utterly defeated (Ebrahimzadeh, 2009: 200, citing Afshar Sistani, 2014: 229).

These examples demonstrate that nomadic life is not merely an outdated or obsolete lifestyle but an integral part of Iran's cultural and historical identity. Over the centuries, nomads have played crucial roles in preserving territorial integrity, contributing to economic production, and resisting foreign invasions. Even today, despite technological advancements and social changes, the potential of nomads can be harnessed in areas such as environmental conservation, the development of handicrafts, and the strengthening of local economies.

VI. The Culture of Sarhad through the Lens of Indigenous Architecture

One of the prominent features of culture in the Sarhad area can be observed in the art of its people, which is manifested in music, handicrafts, and architecture. The art of Sarhad, with its use of unique geometric patterns and vibrant colors, distinguishes itself from other regions and highlights how cultural elements play a role in shaping the various forms of art and architecture in the area (Behnam, 2024: 354). These

patterns and colors are most commonly seen in the clothing, architecture, handicrafts, and pottery of the region, reflecting the unique spirit and culture of this area. Essentially, these motifs and designs are a manifestation of the aspirations of the Baluch artists of this land. However, one of the most significant cultural aspects of Sarhad can be found in its indigenous housing, which is observed in three main forms: stone architecture, hand-dug architecture, and black tents. Housing and architecture are phenomena that are deeply rooted in the soil of each region (Pahlavan and Memarian, 2023: 98).

VII. Indigenous Architecture and Housing Diversity in Sarhad

Indigenous architecture, as a sustainable form of architecture, has always maintained a harmonious interaction with nature, utilizing natural resources without disrupting the ecosystem (Falamaki, 2009: 82). Even in today's harsh climatic conditions, indigenous architecture has proven capable of meeting human needs (Steadman, 2008: 166). One of the most significant aspects of indigenous architecture is housing construction. In addition to adobe, stone, and hand-dug dwellings (which will be discussed in detail later), the pastoral nomadic lifestyle, particularly in the Sarhad area, has created a unique settlement system that aligns with the natural environment and the tribal social structure, nomadism, and livestock herding (Alalhesabi, M., & Korrani, 2013: 22).

In summary, the housing in this region is known by the following local names: Khāneh, Khoneh, Sarā, Gas, Godām, Plās, Koti, Hālk, and Rāj. These dwellings, as cultural phenomena, have evolved based on societal needs, shaped by history, geography, and collective experiences. Each community has its own housing, where daily life unfolds, and other cultural aspects are influenced by this structure.

VI2. Types of Housing in the Sarhad Area

As mentioned earlier, the Baluchestan region exhibits a wide variety of housing forms and materials. These include black tents, adobe houses, stone houses, hand-dug dwellings, brick houses, and other types. Due to the nomadic lifestyle, black tents are considered the most suitable form of housing. In rural areas where agriculture and horticulture are prevalent, stone architecture dominates, while in other areas, hand-dug (troglodytic) architecture is observed.

VI2.1. Hand-Dug Architecture of Sarhad

Mount Taftan, as a volcanic mountain with unique characteristics, has provided distinct conditions for the architecture of the Sarhad area. The composition of the rocks and mountains in this area varies, with some being soft enough to carve. As a result, past inhabitants were able to create hand-dug spaces within the rocks, showcasing traces of cave-dwelling lifestyles. Hand-dug architecture is a type of architecture where space is created by removing rock masses from the mountain or ground, rather than using construction materials. This architecture has unique features due to climatic and environmental conditions (Sattarnezhad et al., 2020: 214). In villages around Mount Taftan, such as Tamin, Sangan, Temandan, and Torshab, examples of this hand-dug (troglodytic) architecture can be found. These caves, which were used as winter shelters in the not-so-distant past, are now utilized as storage spaces, haylofts, and stables. In the past, these caves were especially ideal for winter housing due to their natural insulation, retaining warmth in winter and staying cool in summer. (Figs. 5 to 8). Moreover, given the rocky nature of Taftan, people have utilized various types of stones with different qualities for constructing dwellings and tools. The composition of different rocks and stones has played a crucial role in creating various spaces and tools. Some of these will be discussed in the following sections.



Figure 5: A rock wall with many hand-dug houses in Torshab village (Image source: first author).



Figure 6: Hand-dug architecture in Tamin village (Image source: taftanema.ir).



Figure 7: Hand-dug architecture in Torshab village (Image source: first author).



Figure 8: Hand-dug architecture in Torshab village (Image source: first author).

VI2.2. Stone Housing and Architecture in Sarhad

The mountainous terrain of Sarhad has provided access to stones of varying quality in this region. Stone architecture is prevalent in villages located on mountain slopes and areas where suitable quality stones are found. In these areas, natural stones are collected, initially shaped with a pickaxe, and then used for constructing

building walls. These stones were bonded with clay mortar in the past, but today, sand and cement mortar are used for this purpose. The roofs are flat, covered with wooden beams and mud plaster. Additionally, reed mats are used as moisture insulation. The primary housing pattern in this region consists of a single-room structure with a flat roof and load-bearing stone walls (Fig. 9).



Figure 9: Stone architecture in rural houses in the foothills of Taftan (Image source: first author).

VI2.3. The Black Tent (Godam)

The black tent, locally known as “Godam”, is a dwelling that is perfectly adapted to the nomadic lifestyle and climatic conditions of the region. These tents serve as seasonal or permanent shelters for nomads, adjusting to various weather conditions while providing a comfortable living space. They also embody rich cultural heritage, local ingenuity, and valuable creativity (Ranjbar & Mahmoodi, 2020: 15). The selection of an appropriate site for setting up the black tent is of great importance. Factors such as safety, shelter, climatic conditions, access to sufficient light, and a clear view of pastures and the surrounding environment play a significant role in determining the location of nomadic settlements (Afshari Hematalikeikha & Alinaghizadeh, 2012: 376).

The Godam is a type of tent structure supported by a combination of compressive elements (such as wooden beams and columns) and tensile elements (such as ropes). The tent's covering is waterproof, and its dark color helps retain warmth inside. These tents are highly

portable and can be folded and packed for transportation (Filberg, 1993: 56). Goat hair is considered the best material for the tent's covering, especially for the roof (Filberg, 1993: 139). Each tent consists of 4 to 7 rectangular panels, each called a “Tak”, which are woven separately. Depending on their annual needs, nomads weave a new “Tak” every two years to replace worn-out panels. Each tent requires two to three relatively thick wooden poles, with a diameter of 10 to 20 cm and a length of 2.5 to 4 meters, known as “Tir”. To prevent the poles from damaging the tent or puncturing it, rectangular wooden pieces called “Koreh” are used. Each tent also requires 8 to 20 smaller wooden sticks, with a diameter of 5 to 7 cm and a length of 1.5 to 2.5 meters, known as “Dastek”. These sticks are installed around the tent to connect the walls to the roof and expand the interior space. The sticks are secured using goat-hair ropes and wooden or metal pegs driven into the ground. The walls are attached to the main body of the tent using metal pegs called “Godam Shek” (Fig. 10).



Figures 10: Nomadic women weaving a black tent from goat hair. While shearing the goat hair and setting up the black tent are tasks performed by men, other stages, such as spinning and weaving the tent, are carried out by women with the participation of neighboring and familiar women (Moradzadeh, 2011: 221).

The weaving of black tents is carried out by women (Fig. 11). To weave each “Tak” (panel) of the tent, typically 3 to 4 women sit together on the tent loom and weave simultaneously. The construction of each “Tak” takes between 4 to 10 days. The weaving process is collaborative, with local women and even neighboring women who are related participating in the work. During the weaving process, social visits and conversations also take place.⁵ In Baluchestan, black tents are seen in various sizes and dimensions. Young and newly married individuals use smaller tents with two “Taks”, while larger families, community elders, and trusted figures use much larger tents. The area of black tents varies from 20 to 120 square meters, depending on the owners' needs and capabilities. During winter, a portion of the tent is allocated for livestock, though separate enclosures are often built for animals. These enclosures are constructed under natural rock formations or within mountain cavities, or they are naturally occurring spaces that are enclosed with minimal stone walls for livestock use.

Components of the Black Tent

The structure of the black tent consists of several main parts: the roof covering, columns, and poles that support the tent's covering. Smaller tents for young and newly married individuals typically consist of two “Taks”, while larger tents are used by extended families and community leaders.⁶ The details of a black tent are as follows:

Taks (Panels): Each tent is made up of 4 to 7 rectangular panels, each called a “Tak”. Each Tak is

woven separately. Two to three healthier Taks are used for the roof, while four older Taks, called “Poshtak”, are used as walls on the four sides of the tent. Depending on their needs, nomads weave a new “Tak” annually or biennially to replace worn-out Taks.

Tirs (poles): Each tent requires two to three relatively thick wooden beams, with a diameter of 10 to 20 cm and a length of 2.5 to 4 meters, known as “Tirs”. These beams provide structural strength to the tent.

Korehs (Spacers): To prevent the beams from damaging the tent and puncturing it, rectangular wooden pieces called “Korehs” are used. When the beams are installed vertically beneath the tent, these “Korehs” are placed between the tent and the vertical beams to prevent tearing.

Dasteks (sticks): Each tent requires 8 to 20 wooden sticks, with a diameter of 5 to 7 cm and a length of 1.5 to 2.5 meters, known as “Dasteks”. These wooden sticks are installed around the tent to connect the walls to the roof and expand the interior space.

Ropes and Pegs: Goat-hair ropes and wooden or metal pegs driven into the ground are used to secure the “Dasteks”.

Godam Shek (Tent Pegs): The walls are attached to the main body of the tent using metal pegs called Godam Shek”.

⁵ Private conversation with Hanifa Torshabi, a resident of the Taftan area, fall 2024.

⁶ Private conversation with Mohammad Torshabi, a resident of the Taftan area, fall 2024.

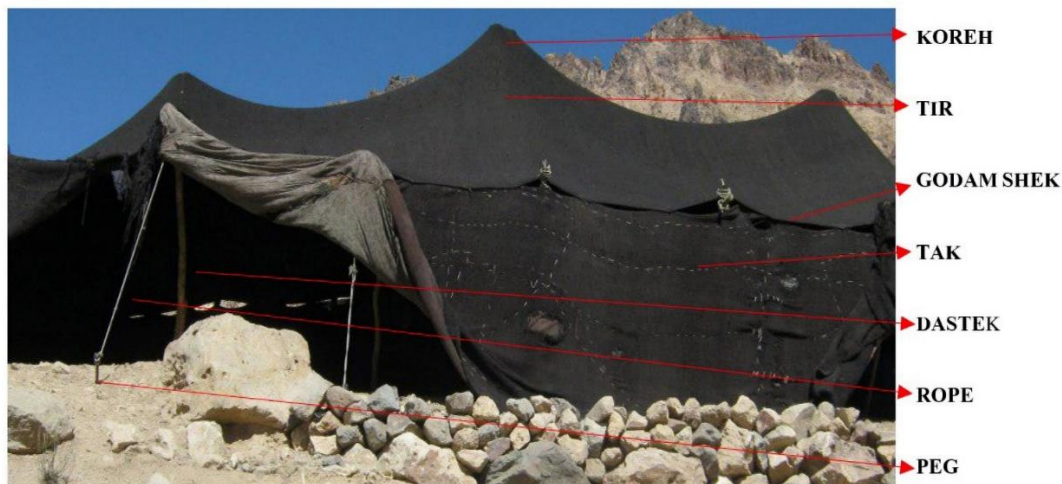


Figure 11: View of an erected black tent and its components (Image source: betoote.com).

The Domain of the Black Tent

The domain of the black tent refers to the surrounding area where activities related to the inhabitants take place. Although this domain lacks a clearly defined physical boundary, it is symbolically established and meaningful. Activities such as milking, boiling milk, preparing dairy products, tending to livestock (including kids and male goats), and providing fodder for the animals are conducted within this space. Additionally, the care and feeding of poultry also occur within this domain. Livestock pens and camel shelters are also considered part of this area.

The Black Tent in Modern Life

Sitting in a black tent evokes a sense of freedom and liberation from mechanized life, offering an unobstructed view of nature in its fullest form. The black tent undergoes structural adaptations in both cold and warm seasons, adjusting to environmental conditions to protect its inhabitants from extreme temperatures. Life in the black tent is remarkably simple, rooted in minimalism, and focused on fulfilling essential needs. In nomadic life, the inhabitants of a settlement share close familial bonds and partake in each other's joys, sorrows, and hardships. Today, living in black tents and practicing transhumance in border regions has significantly declined compared to the past. However, the people of these regions maintain a deep affection and attachment to the black tent. In spring, when the weather is favorable, those who are able set out with their black tents into the embrace of nature, utilizing pastures for livestock rearing and producing dairy products such as milk and yogurt. During this season, urban dwellers also visit nomadic areas for recreation and to enjoy the pristine natural environment, sometimes spending nights there. The black tent symbolizes an indigenous design for the lives

of the people in this region, making optimal use of local resources for nomadic living.

VII. Cultural Function and Components of Housing in the Sarhad Area

The Sarhad area's housing foundation begins with a basic unit called a room, which reflects the continuation of a nomadic lifestyle. Rural homes in this region are formed by combining several rooms. Alongside these rooms, a black tent may be set up in the courtyard, where certain activities take place. This tent is sometimes used as a storage space or a shelter for livestock and poultry. Each of these components has distinct ecological and functional characteristics.

Room or Koti: The most important living space in any home is the room, or "Koti", which may constitute the entire covered area of the house. Depending on the owner's financial capacity and the type of dwelling (rural or urban), houses in the Sarhad area consist of one to several rooms, referred to as Koti. In this region, a single room serves multiple functions. It is used for sleeping and resting, hosting guests, worship, studying, sewing, watching television, family gatherings, and even laying out meals. During winter, most rooms are primarily used as sleeping spaces. In many urban homes in the region, a room near the entrance serves as the living room. The size of the room varies from 12 to 36 square meters, depending on the owner's financial means and the intended functions. For flooring, mats called "Tegard" (woven from wild palm fibers) or locally handwoven rugs are used. Today, machine-made mats and carpets in sizes of 6, 9, or 12 meters are also common. As a result, room dimensions are often determined by the size of the flooring, with rooms of 12, 18, or 24 square meters being more frequently constructed to accommodate standard carpet sizes.

Kitchen: In most rural areas, cooking takes place within a room that often also serves as a gathering space for family members. However, in urban areas, the kitchen is defined as a separate space. The kitchen is not solely used for cooking and washing; many kitchens are carpeted and serve as sitting areas for various occasions (Sarābandi, 2010: 62).

Hall: In traditional rural and even older urban buildings, a dedicated hall space does not exist. Instead, a room that serves as both a sitting area for family members and a cooking space fulfills the function of a hall. In more recent constructions, the hall is used as a space for sitting, children's play, watching television, and hosting close guests. In this space, meals are often laid out, and food prepared in the adjacent kitchen is served here.

Courtyard: In some rural and nomadic areas, a courtyard as an enclosed space does not exist. Activities are customarily carried out in the open area surrounding the building, providing space for various functions, including livestock and poultry keeping, cooking, sitting, and even sleeping. Neighboring units respect each other's boundaries and privacy. In villages with a longer history of settlement or those composed of diverse groups, courtyards are designed as enclosed spaces, free from neighborly disturbances. Each house has its own independent courtyard, where various activities such as sitting, sleeping, and washing take place. Elements such as water taps, toilets, bathrooms, and the entrance to the reception area are located in the courtyard, separate from the private spaces of the house. Trees such as pomegranate, grape, fig, and mulberry are planted in the courtyard to create scenery and provide shade. The courtyard allows the residential unit to absorb more of the cool outdoor air (Monika, S., & Sundaram, 2023: 7). In summer, when the garden beds and courtyard floor are watered, the courtyard becomes the most suitable sitting area. Typically, the toilet and bathroom are located in a corner of the courtyard, away from other living spaces. The courtyard provides light, scenery, and ventilation for the other spaces of the house and is considered the focal point of the home.

Guest Reception: From both Islamic and human perspectives, hospitality and serving guests hold significant importance. Islam criticizes homes where guests are not welcomed or where hospitality is neglected (Firouzi & Alipour, 2019: 101). Therefore, the guest reception space is highly valued in housing and is considered one of the most important areas of the

home. Even if the house consists of only a black tent or a single room, the reception area is decorated and furnished more elaborately than other spaces. In homes with two rooms, the larger and more prominent room is prepared as the reception area and is used when guests are present. Depending on the host's financial capacity, social status, and dignity, the reception space can vary from 20 to 200 square meters. In the regional culture, hosting large groups of guests is common. Thus, the reception space serves multiple roles during guest visits: it is a sitting area, a place where long dining spreads are laid out for guests, and at night, it becomes a resting area for them (Sarābandi, 2010: 64).

Storage: Every household, especially in rural areas, requires storage spaces for agricultural and livestock products. These include hay storage, livestock and agricultural product storage, and even food and flour storage. Typically, older and more worn-out living spaces are repurposed as storage areas.

Toilet and Bathroom: The toilet and bathroom are usually located at the farthest point from the living spaces. A septic tank is commonly used to dispose of wastewater from these facilities.

Koleh: One of the auxiliary structures in rural housing in the Sarhad area is the Koleh. This space is entirely constructed from wood, with its walls and roof covered by thorns or mats. In the past, it was used for temporary shelter and rest during hot summer days. Today, the Koleh is primarily used for housing livestock and poultry during the summer.

Livestock and Poultry Spaces: Livestock and poultry are integral to the nomadic lifestyle. Even if nomads have only a single black tent and face threats such as floods, cold spells, or storms, they divide the tent space between themselves and their livestock, which represent their entire wealth. In most rural areas, livestock and poultry have dedicated spaces separate from human living areas. In winter, fully enclosed spaces called "Kod" are used to keep livestock warm. In summer and during hot weather, open spaces called "Gowash" or shaded structures known as "Koleh" are used for livestock.⁷

VIII. Cultural-Ecological Aspects of Vernacular Architecture in Sarhad

The vernacular architecture of the Sarhad area possesses unique characteristics that reflect cooperation, adaptability, and respect for the environment. These features include:

⁷ Private conversation with Mohammad Torshabi, a resident of the Taftan area, fall 2024.

Collaboration and Mutual Aid in Construction:

The process of housing construction is carried out collectively with the participation of community members. This approach not only reduces costs but also strengthens a sense of belonging and cooperation.

Use of Local Resources: Utilizing locally available materials helps reduce costs and dependence on external resources.

Flexibility and Responsiveness to Needs:

Housing spaces are designed to be adaptable to various needs and climatic conditions of the region.

Multifunctional Spaces: The use of Internal and external spaces is maximized in such a way that each component of the housing can serve multiple purposes.

Minimalism and Contentment: Spaces are designed to meet only essential needs, avoiding the addition of unnecessary elements that increase costs and resource consumption.

Culture of Proper Consumption: Vernacular architecture and housing emphasize respect for nature and optimal use of resources, promoting a culture of proper consumption and contentment.

Respect for Nature and the Environment: The design and construction of housing are compatible with the natural environment, causing minimal harm. Additionally, the recyclability of materials back into nature is a significant consideration in the construction of residential structures in the region. Housing in this area has always utilized materials that can return to nature after their useful life.

Self-Sufficiency and Repairability: Housing is designed so that its various components can be easily repaired or replaced if necessary. The ability of residents to build and maintain housing without the need for expensive external expertise is another characteristic of housing construction in this region.

Preservation of Privacy and Intimacy: Traditional Iranian housing, guided by Islamic and human principles, provides a structure that strengthens social relationships and ensures the comfort of both residents and guests (Akhavan, 2013: 111). Thus, the design of spaces in the vernacular architecture of Sarhad ensures the privacy of family members while also facilitating hospitality. Additionally, various activities are carried out in different parts of the housing in a way that does not disturb other family members.

Meaningful and Cultural Architecture: Respect for nature and efforts to preserve it in housing design promote a culture of proper consumption and contentment. As a result, there is a close and direct connection between the internal and external spaces of the housing and the surrounding natural environment.

These cultural and architectural aspects demonstrate a sustainable and environmentally harmonious approach observed in the vernacular housing of the Sarhad area, which can serve as a model for housing design in other regions as well.

IX. Data Analysis: Sarhad Housing as a Manifestation of Cultural Function

If we consider the primary source of architecture and its prominent manifestation, housing, as a social phenomenon and a cultural foundation, we can view it as a comprehensive mirror of human thought regarding space and living environments (Mohtadi & Fouladi, 2021: 21). Therefore, vernacular housing in the Sarhad area reflects a wide range of local and cultural interactions. From a simple black tent to various rural houses, this housing showcases diverse aspects of life. In the black tents of Baluchestan nomads, similar to other parts of Iran, the boundaries of life within and around the tent are shaped according to the inhabitants' capabilities and livelihoods to ensure the comfort and security of family members. For those unfamiliar with rural and nomadic life, it is difficult to imagine how all functions are carried out in such a small space. However, the reality is that in the small and simple space of a black tent, all aspects of life for the household, which are often large, take place. In this space, activities such as hosting guests, family gatherings, eating, cooking, and tending to livestock and poultry are carried out. Each activity in this housing has a defined place. In this type of housing, the interior and exterior are closely connected, and a significant portion of activities occur outside. Throughout the day, multiple activities may take place in a single part of the house. According to Afshari and Pourdeihimi (2015: 6), there is a sequence of activities in this housing. In this housing, functions are carried out in a way that minimizes auditory, visual, olfactory, and psychological disturbances for the inhabitants. What is observed in this type of housing is its deep connection with nature. A significant portion of activities occurs in the area surrounding the black tent, which is considered part of its domain, without the need for physical elements like walls to define boundaries. In this type of housing, there is no physical enclosure, and the housing lacks clear, objective boundaries.

Another manifestation of cultural mechanisms in housing construction in the Sarhad area is single-unit permanent housing, built with local materials. Due to the inherent sense of security in the region, these houses

lack specific boundaries or enclosures. Like black tents, these houses have minimal physical space, consisting of only one room where family activities take place, both inside and in the surrounding environment. Given the absence of security concerns in the region, most residential units lack peripheral walls or surrounding fences, and the boundaries of each residential unit are invisible or subjective. The external boundary or domain of this type of housing is defined by elements such as water taps, bread ovens, spaces like toilets, livestock pens, poultry shelters, and activities such as family gatherings outside the house, washing clothes and dishes, cleaning, and other functions. Over time, due to security concerns, the protection of people's assets, and the presence of strangers in the village, these invisible boundaries became visible, and limits were established—first as hedges and low walls, then as adobe, stone, or block walls to a height that prevents visibility from the outside.

X. Conclusion

Ignoring the valuable experiences of indigenous people in adapting to their environment and the unique characteristics of vernacular architecture in each region, along with neglecting the lived and cultural experiences of its inhabitants, has not only diminished the sense of belonging to housing but has also led to the erosion of architectural diversity and "accents" on a national level. Paying attention to vernacular architectural experiences in contemporary housing design is of great importance, as housing, within a cultural ecosystem, is one of the primary factors in the production and reproduction of behaviors, customs, attitudes, and local and cultural beliefs in each region. Although it is neither feasible nor advisable to expect all features of vernacular architecture to be implemented in modern housing, incorporating cultural, climatic, and geographical

characteristics of the region, along with leveraging the unique qualities of vernacular housing and the accepted experiences of local people, can give contemporary housing a distinct and appealing identity and revive a sense of belonging among its inhabitants. Studying and understanding the cultural features of vernacular housing and utilizing its capabilities and potentials in the design of present and future housing not only enhances the sense of belonging but also contributes to improving the quality of life in housing.

In this study, using cultural ecosystem studies of the Sarhad area of Baluchestan, oral history, and interviews with locals involved in housing construction in the area, we concluded that some of the most important features of vernacular housing in Sarhad include its diverse functionality in relation to nature, the presence of boundaries in both internal and external spaces for family members and guests, adherence to internal geometry and proportions for proper activity performance, spatial flexibility, simplicity, hospitality, and respect for guests. In addressing the main research question of how to apply studies of vernacular housing in Sarhad to optimize contemporary housing construction in the region, it can be concluded that the black tent, as the housing of the region's nomads, and the hand-dug structures on the slopes of Taftan can serve as suitable models for temporary housing and the creation of secure spaces for passive defense. During crises such as floods, earthquakes, and wars, the use of the black tent model for temporary shelter can be highly beneficial and effective. Additionally, hand-dug architecture, excavated in secure locations within the ground, can serve as a model for cities to save lives during crises, especially wars, and even store food and ammunition. Examples of such architecture can be found in some regions of Iran, such as the underground city of Kashan..

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