

The Role of Adaptive Re-use of Built Heritage Monuments of Jammu and Bundelkhand: (A Systematic Assessment of Conservation and Restoration of Forts and Palaces)

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Abstract:

Adaptive Re-use is an essential conservation strategy that allows for the preservation of cultural heritage by repurposing heritage monuments for modern usage. This paper systematically assesses the role of Adaptive Re-use in India's built heritage, focusing on conservation and restoration efforts. By evaluating various case studies, including projects from Jammu and Bundelkhand region, this paper demonstrates the potential of Adaptive Re-use to balance the historical integrity of the heritage monuments with the contemporary needs, while also exploring the challenges and benefits associated with these projects. The integration of sustainable technologies, such as the Internet of Things (IoT), further enhances the conservation and restoration processes, ensuring that heritage sites remain relevant and functional in the modern era.

Keywords: Architectural built Heritage, Adaptive Re-use, Building Restoration, Heritage conservation, Cultural Heritage, Heritage adaptation, Sustainable Tourism.

Date of Submission: 20-09-2024

Date of acceptance: 05-10-2024

I. Introduction

India's built heritage includes ancient temples, forts, palaces, and colonial-era structures that embody its rich historical and cultural legacy. Many of these buildings are now at risk due to rapid urbanization, environmental challenges, and neglect. While some of these structures hold great historical and cultural significance, they are often underutilized, leading to decay and even destruction (CPWD, 2013).

Adaptive Re-use has emerged as a pivotal strategy to ensure the preservation of these structures while making them viable for contemporary uses (Clempol, 2019). This paper explores how Adaptive Reuse projects across India address these challenges by converting heritage buildings into functional spaces such as heritage hotels, museums, cultural centers, Interpretation centers, Handicraft and Handloom centers, traditional folk *haats*, Exhibition venues, Convention Centers, boutique cafes, Lifestyle galleries, workshop venues, etc. The study provides a comprehensive analysis of conservation principles, explores the significance of Adaptive Re-use in preserving cultural heritage, and discusses various case studies specifically from Jammu and Bundelkhand region where this conservation practice for the protection and preservation of built monuments has been successfully implemented. This paper concludes with the recommendations pertaining to the consolidation of more projects of Adaptive Re-use in the context of other historically, architecturally and culturally significant forts and palaces of the Jammu and Bundelkhand region.

II. Aims and Objectives

Aim

The primary aim of this research is to systematically assess the role of Adaptive Re-use in the conservation and restoration of built heritage monuments in India. The study focuses on its impact on preserving cultural heritage, promoting sustainable development, and ensuring the economic viability of heritage structures through the systematic implementation of Adaptive Re-use.

Objectives

The objectives of the study serve as a roadmap for the research, guiding the analysis and discussion throughout the paper. They ensure a structured approach to understanding the significance and challenges of Adaptive Re-

use in the context of India's built heritage conservation with special reference to Jammu and Bundelkhand region.

1. To examine the significance of Adaptive Re-use as a strategy for conserving historical and architectural integrity in Indian heritage monuments.
2. To identify and analyze key case studies of successful Adaptive Re-use projects in Jammu and Bundelkhand region.
3. To evaluate the challenges associated with Adaptive Re-use, including the balance between preservation and modern needs.
4. To assess legal and policy frameworks governing heritage conservation, such as the Ancient Monuments and Archaeological Sites and Remains Act 1958 and The Jammu and Kashmir Heritage Conservation and Preservation Act 2010.
5. To explore socio-economic benefits of Adaptive Re-use, particularly its contributions to local economies and community engagement.
6. To analyze the balance between modernization and heritage preservation in Adaptive Re-use projects
7. To Provide recommendations for improving Adaptive Re-use practices, focusing on legal, design, and community involvement aspects

Conservation: Overview

Conservation involves safeguarding cultural, historical, and architectural heritage by maintaining their physical integrity and preventing further deterioration. It encompasses various strategies, from preventive measures to extensive restoration efforts (Feilden, 2003).

1. **Preventive Conservation:** Focuses on proactive measures like monitoring environmental factors (e.g., humidity) to prevent deterioration, such as with the *Taj Mahal's* ongoing environmental monitoring.
2. **Restoration & Reconstruction:** Restoration repairs or replaces damaged features to return structures to their original state, as seen in the restoration of *Humayun's Tomb*. Reconstruction involves rebuilding lost structures.

Significance of Adaptive Re-use: Adaptive Re-use allows heritage buildings to retain their cultural and architectural essence while adapting to contemporary needs, promoting sustainability and minimizing environmental impacts.

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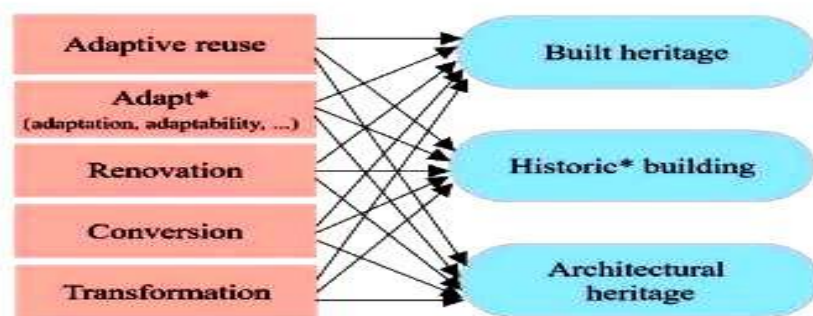


Fig. 1. Inclusion criteria, entered key words.

Image Source: Google by Monika Choudhary

1.Economic Viability and Tourism: Repurposing heritage buildings boost tourism and local economies while preserving historical integrity and it has been analyzed from the case studies of Adaptive Reuse projects like *Amar Mahal Library and Museum*, *Hari Niwas Hotel*, Jammu, *Dogra Art Museum Jammu* and *Orchha Palace*, Bundelkhand. Apart from case studies in the present work, there are other sufficient examples of Adaptive Re-use throughout India in other regions like Rajasthan where a large number of historic forts and palaces are being re-used as museums, boutique hotels, conventional centers, boutique cafes and ultimately generating huge number of revenue and tourists footfall every year. For instance, *City Palace*, *Amer Fort*, *Hawa Mahal* of Jaipur, *Mehrangarh fort*, Jodhpur etc.

2.Cultural Continuity: Adaptive Re-use preserves cultural heritage by maintaining a community's connection to its past, as demonstrated by the reused historic buildings from Jammu like *Sri Pratap Singh Palace*, Srinagar that was converted into a Cultural and Art Museum and another example is of restoration of a one of the open courtyard of *Mubarak Mandi Palace*, Jammu that is restored for the purpose of reviving the space to continue its historic cultural continuity as a space for folk cultural events and festivals like *nukkad*, *lohri*, *Baisakhi* (Drew,

1875) and so on. In Bundelkhand a heritage motel was developed in the *Orchha* palace to accommodate heritage lovers and provide them an experience of the royal past of *Bundela* realm.

Challenges in Adaptive Re-use:

1. **Historical Integrity vs. Modern Needs:** Balancing preservation with modern infrastructure often compromises the building's historical integrity, as seen in the façade of Dogra Art Museum, Jammu and *Orchha's* visitor centers. Like the issue of proper management of infrastructure like parking issues, overhanging electric wires etc are compromising the historic integrity. So, while taking any kind of conservation plan into action, historic integrity of the monument should be considered.
2. **Legal Framework Gaps:** India lacks comprehensive legal frameworks supporting Adaptive reuse, complicating its implementation (Singh, 2018). Key issues are like absence of inclusive national legislation specifically addressing Adaptive Re-use, Inadequate collaboration between stakeholders and community, financial constraints, Lack of Public Private Partnership models, weak mechanism etc. By fostering adequate PPP models like 'Adopt a heritage' scheme, collaborative efforts, developing capacity building infrastructure, in-house technical heritage committees etc, So, to address these regulatory gaps regarding Adaptive Re-use in India, there is a need of multi-faceted holistic approach in the conservation practices.
3. **Community Resistance:** Changes to heritage buildings can evoke strong resistance due to cultural sensitivities, making modernization difficult, especially with historical landmarks of the region. So it is very important to engage the community in the decision making process of Conservation and Adaptive Reuse of heritage buildings (UNESCO, 1972). Because it is a social practice that reconnects people with its past legacy.

III. Methodology

This paper employs a qualitative approach, integrating both primary and secondary data to assess Adaptive Reuse in India. The methodology includes:

1. **Literature Review:** Analyzing existing research on heritage conservation, adaptive reuse, and sustainable architecture to identify relevant global practices and frameworks.
2. **Case Studies:** Examining selected heritage sites in regions like Jammu and Bundelkhand, to evaluate diverse potential for Adaptive Reuse efforts and their effectiveness.
3. **Policy and Legislative Analysis:** Reviewing India's heritage conservation laws, focusing on the Ancient Monuments and Archaeological Sites and Remains Act 1958, Jammu and Kashmir Heritage Conservation and Preservation Act, 2010 and assessing contemporary National Policy for Conservation, 2014, of the Ministry of Culture, Government of India, INTACH and current schemes and key initiatives of the government like 'Scheme for Revival, Restoration, Preservation and Maintenance of Architecture and Heritage in Jammu and Kashmir', 'Adopt a Heritage' by ASI, 'Swadesh Darshan', 'Dekho aapna Desh' of Ministry of Culture and in Bundelkhand region, 'UP nahi Dekha toh kya Dekha', Smart City Program by the Indian Government under Ministry of Urban Development etc.

Case Studies of Adaptive Re-use in Jammu and Bundelkhand Region

The present paper includes 3 cases studies as reference to further provide a comprehensive understanding of Adaptive Re-use in the context of Jammu and Bundelkhand regions. Two cases are taken from Jammu and one from Bundelkhand, as a reference to assess the significance and Challenges of Adaptive Re-use in built heritage monuments. The key findings from these cases are taken as references for the further recommendations of conservation and restoration of forts and palaces while following the same line of action for restoration and revitalization of these heritage monuments. It has been noted in these cases that the periodic maintenance and compatible reuses of the heritage buildings is far better than to just keep them as a standing structures. Because the application of authentic reuse can provide them a new lease of life and leverage their deserted look. The generated revenue helps in their maintenance and keeping them alive always. It has been addressed in most of cases of the protected monuments that lack of funds is a major challenge. So, It is crucial to draw the attention of stakeholders through these examples of Adaptive reuse across India's architectural heritage that how various challenges can be addressed while understanding the authenticity of the heritage structure and finally adapt them into compatible new uses .

a) Historical Background of Adaptive Re-use in the erstwhile state of Jammu and Kashmir-The genesis of Adaptive Re-use movement in the context of erstwhile state of Jammu and Kashmir goes back to the 19th c during the reign of *Dogra* ruler, *Maharaja Pratap Singh*. This historical event was marked by the conversion of summer palace of the *Maharaja Pratap Singh* to *Ajib Ghar* (Museum). *Maharaja Pratap Singh* on the advice of his younger brother *Raja Amar Singh* and a European scholar named Captain S.H. Godmerry, decided to open a museum to safeguard and showcase the exhibits and artifacts of royal *Toshakhana*, the antique collection from regions of Jammu, Kashmir, Balistan and Gilgit. So, for this thought in action, the historic mansion that was

constructed in 1872 as guest house in the valley of Kashmir, near *Lal Mandi*, Srinagar, was opened to public as ‘*Ajib Ghar*’ in 1868. Later on, it came to be known as ‘*Sri Pratap Singh Museum, Srinagar*’. This *Kashmiri* style architectural gem of the *Dogra Maharaja* now houses approximately 79, 595 artifacts and objects covering various subjects like Archaeology, Numismatics, Decorative Art, Arms and Armory, Paintings, Textiles etc (Muzaffer, 1898). It is one of largest state museum in the erstwhile state of Jammu and Kashmir under the Directorate of Archives, Archaeology and Museums. So, this event of 19thc, led to the foundation of Adaptive Re-use journey in the erstwhile state of Jammu and Kashmir. This undoubtedly has helped in the preservation and optimal utilization of heritage monuments all the way through the practice of Adaptive Re-use. Even though in the erstwhile state of Jammu and Kashmir the history of Adaptive Re-use is diminutive however efforts are being made by state government as well as central government to preserve and protect the cultural heritage of the region in phased manner. Efforts are also being made by the descendants of royal *Dogra* family to protect and preserve the cultural heritage of their *Dogra* legacy like the elegant example in this endeavor is of *Hari Niwas* Palace, Jammu and of *Karan Mahal*, Srinagar where one can experience the art of historic *Dogra* regime, vintage furnishing, hospitality, rich repository of the region and so on. These efforts are budding steps for safeguarding and preserving the rich repository of cultural and artistic artifacts of the erstwhile princely state of Jammu and Kashmir. From converting Royal residences to museums and libraries, heritage hotels, event venues, folk- cultural shows, food and lounge and forts to tourist attractions and heritage walks. In addition, some of the parts of the institutional buildings were also repurposed as museums like Geological museum in G.G.M.Science College, Jammu and there are some of the examples of transformation of residences of royal officials into educational institutions like *Poonch* House into Institute of Music and Fine Arts etc. The erstwhile state of Jammu and Kashmir now Union Territory is divided into two geographic regions: Jammu and Kashmir. The present paper focuses on the systematic assessment of role of Adaptive Re-use in the built heritage monuments in Jammu region along with Bundelkhand region of central and North India. So, for exploring the significance of Adaptive Re-use in both of the region, here we have taken case studies of Adaptive Re-use as reference for our future recommendation in the context of preservation and restoration of built heritage monuments in general.

If we talk about the history of Adaptive Re-use in Jammu region itself, the journey of repurposing a historic monument other than the purpose it was meant for, was begun with the conversion of Pink Hall of *Mubarak Mandi*, Jammu into *Dogra Art Museum* in 1991. *Mubarak Mandi* Palace Complex, one of the most important built heritage monument of the erstwhile state of the Jammu and Kashmir, played a significant role in the development of the township of Jammu. It is located at the highest contour of slope overlooking river *Tawi* at an altitude of approximately 1,120 feet above sea level in Jammu city (chaudhary, 2008). After the establishment of *Dogra* ruler over the erstwhile state in the second quarter of 19th i.e. in 1846 A.D. the palace complex became a centre of socio-political activities and cultural pluralism (chaudhary, 2008). It not only acted as a political headquarters of the *Dogra* rulers but also remained a hub of cultural activities. The rulers celebrated with great fervor festivals like *Holi*, *Diwali*, *Baisakhi* and *Shivratri*. At present, Army headquarters- one of the official buildings is being utilized for the ‘*Dogra Art Museum*’ due to renovation work in the earlier one. This museum preserves artifacts from the region's history, including manuscripts and royal memorabilia (chaudhary, 2008). But still there is lack of proper infrastructure and quick action plan is needed for the restoration of this historic seat of *Dogra* regime. To explore the need of Adaptive Reuse practice for preserving these rich built heritage monuments in structured way of conservation practices along with their sustainability, we have taken 2 case studies:-

1. CASE STUDY – <i>Hari Niwas</i> Palace Complex, Jammu (19 th C) A) <i>Amar Mahal</i> B) <i>Hari Niwas</i> Villa	2. CASE STUDY- <i>Bahu</i> Fort, Jammu (Ancient Fort)
Typology- Palace	Typology- Fortress
Original Function- Residential Palace	Original Function- Defensive Fortress
Adaptive Reuse- Museum And Heritage Hotel	Adaptive Reuse- Religious Site And Light And Sound Show
Custody- Hari Tara Charitable Trust And <i>Dogra</i> Royal Family Descendants	Custody- Department Of State Archives Archaeology And Museums

1.Hari Niwas Palace Complex, Jammu:- On the plateau of a hillock by the right bank of the river *Tawi*(*suryaputri*), there is a splendid castle of 19th c of the erstwhile *Dogra* Kingdom of Jammu and Kashmir which spells the visitors through its French architecture , serene beauty and through its preserved royal collections of Art and culture (Jearth, 2000). This palace was the last royal residence of the *Dogra* Royal family. In *Hari Niwas* Palace Complex , there are two regal palaces stand proudly within the complex signifies the role of Adaptive Re-use in preserving the cultural heritage of a region while restoring the built monuments on a sustainable paradigm model of Conservation practices. The two of the palaces are well preserved and

maintaining the historical integrity while balancing the cultural significance of the space and contemporary needs of the society.

a) Amar Mahal :- The 3 storied building popularly known as ‘Amar Mahal’ was commissioned in 1862 by the then prime minister of the erstwhile kingdom of Jammu and Kashmir, *Raja Amar Singh* who was the younger brother of then *Maharaja Pratap Singh* of the *Dogra* Empire. It was completed in 1890. (Nirmohi, 2016). In 1925, the son of *Raja Amar Singh*, *Maharaja Hari Singh* after his coronation as ruler of the state, shifted *Dogra* Royal residence from *Mubarak Mandi* to *Amar Mahal*. After the integration of erstwhile state of Jammu and Kashmir to Indian dominion on 26th October 1947, he was shifted to Mumbai and died there (Agnihotri, 2016). After his death, this palace became the residence of his wife, *Maharani Tara Devi* whose suite was on the 2nd floor of the *Amar Mahal* where she spent her rest of the life till her last breathe in 1968 and this suite is known as ‘*Rajmata Tara Devi’s Kaksh*’. Yuvraj Dr. *Karan Singh* and his wife had taken an initiative to convert the royal residence into a Museum and Library in 1975 (guide, 2019).

Architecture and the Lay out Plan of the Amar Mahal:- *Amar Mahal* was constructed in the style of French chateau by a French architect named Mr. Frezer (Nirmohi, 2016). The *Shivaliks* range of outer *Himalayas* towering it from above, the *Tawi* River shimmering below and the red sand stone structure with its sloping roofs and tall towers is inspired by the lines of French style of architecture (Drew, 1875). It is a 3 storied building with splendid halls, corridors, lobbies and elegantly decorated living rooms (Jearth, 2000).

Adaptive Re-use of Amar Mahal – Since Independence there has been a fresh upsurge of cultural activity on a wide front. Dr. *Karan Singh*- son of *Maharaja Hari Singh* has been associated with number of cultural movements and educational institutions. It is in this context that he and his wife *Shrimati Yasho Rajya Lakshmi* created a ‘*Hari- Tara Charitable Trust*’ in 1970 named after Dr. *Karan Singh’s* Parents to cover the broad spectrum of cultural, educational and literary activities. This trust thus in 1975 created the *Amar Mahal* Museum and Library (AMML) which is housed in a 19th c building ‘*Amar Mahal*’. On the day of *Baisakhi*, 13th April 1975, Prime Minister *Indira Gandhi* inaugurated it. It is an internationally known institution and a major tourist attraction historical landmark in Jammu region.

1) **Museum and Library:** - The ground floor of the *Amar Mahal* houses a Museum with the collection of royal golden throne chair, the royal *Dogra Maharajas* portraits, a rare collection of narrative paintings in the *Kangra* miniature style of the late 18th c along with a substantial number of books and contemporary art collection. The Library and Archive houses a collection of 25000 rare books, photographs and painting collections.

2) **Maharajmata Tara Devi’s Suite:** - A fascinating dimension of *Amar Mahal* is the suite occupied by *Maharani Tara Devi*, wife of *Maharaja Hari Singh* which has been preserved exactly as it was when she resided there. Her *Dogri* Dresses, Victorian furniture, her portrait when she became *Rajmata*, everything is preserved exactly the way it was during her lifetime. One can easily depict the influence of French elements in her suite from bathroom tiles to furniture in the suite that represents a great historical significance (guide, 2019).

b) Hari niwas villa, Jammu: - In the early 20th c, *Maharaja Hari Singh* built a majestic palace just to the eastward extension of the *Amar Mahal*. In 1925, he moved *Dogra* royal residence from *Mubarak Mandi* Palace, Jammu that was earlier the ruling seat of the *Dogra Maharajas* from 18thc onwards till the integration of the erstwhile Jammu and Kashmir to Indian dominion in 1947. When he moved to *Amar Mahal*, he felt the need to have a separate apartment for entertaining his guests, so to fulfill that thought he laid the construction of a contemporary style building just to the eastward of *Amar Mahal* building that is known as ‘*Hari Niwas*’ villa. After the integration of the erstwhile state, he moved to Mumbai and died there in 1961 (Agnihotri, 2016).

Architecture and Layout Plan of the Hari niwas villa: - It was constructed on art-deco style. This architectural style in India became famous during the 1930s and 1940s era. It was a captivating fusion of Western Design elements with Indian influences. It is a 2 storied apartment with living rooms, lobbies and dining hall.

Adaptive Reuse of Hari Niwas villa: - In 1990, it was converted to a heritage hotel by the grandson of the *Maharaja Hari Singh* named *Kumar Ajatshatru Singh*.

Heritage Hotel: - The majestic *Hari niwas* villa offers its guests- Suites experience to deluxe rooms, restaurant survive and destination wedding venue. It also offers resort service and a venue for music concerts, event venue and meetings space.

In this context, the efforts have been put by the royal descendants of *Maharaja Hari Singh’s* family to systematically conserve the grandeur of the built monuments and efficiently preserve the identity of the *Dogra* Dynasty in a sustainable manner can be seen as a systematic assessment models of Adaptive Reuse to explore the potential of other heritage structures so that a strategic implementation can be proposed for future recommendations in other cases of built heritage monuments in Jammu region.



1. Image from Left shows us the façade view of the Amar Mahal's-19th c; Red stone French style castle and 2. Image at right shows us the view of collection of Maharajmata's suite in Amar Mahal Museum and Library, Jammu. An example of preservation of Built Heritage Monument and its Adaptive Re-use, Image Source: Monika choudhary



3. Images collage from left to right show us the vintage furniture, golden throne of Dogra rulers, vintage bunk bed of Maharani Tara Devi, portrait of Maharaja Gulab Singh, courtyard's reuse into wedding venue and Side view of French style Amar mahal-19th c and Arch- Deco Style Hari Niwas Villa-20th c- Heritage Hotel. It is a case to understand the successful Adaptive Reuse and historic preservation, on the principle of maintaining balance between historic integrity and contemporary utilization. Image Source: Monika Choudhary

2. Bahu Fort, Jammu

Bahu Fort is one of the ancient forts in Jammu region, with its origins dating back over 3,000 years to the reign of Raja Bahulochan. The fort was later renovated by the Dogra rulers in the 19th century to enhance its strategic defenses. Historically, the fort played a crucial role in the defense of the Jammu since its beginning from ancient times. (Nirmohi, 2016). The fort houses the Bawey Wali Mata temple, dedicated to the goddess Kali, which is a significant pilgrimage site in Jammu. In 19th c, Maharaja Gulab Singh restored this ancient monument and an idol of Mata Kali was brought from Ajodhya and installed here in the temple inside the fort complex. Since then it became a revered site for the people of Jammu and now it is among one of the sacred religious site known to be Bawe Wali Mata among locals as well as a great number of tourist footfall can be seen there.

Architecture and Layout of Bahu Fort: - It features traditional medieval Indian military architecture with thick walls, strong ramparts, and watchtowers overlooking the Tawi River, which made it a key defense point for the Dogra dynasty (Jearth, 2000).

Restoration of Bahu Fort: - Department of Tourism and Culture in collaboration with state Archaeology Archives and Museum are putting efforts to develop the fort and its surrounding to revitalize the cultural and architectural identity of the region through the conservation approaches like restoration, preservation and revitalization so that sustained development of the place and people could be achieved.

Beautification of the landscape- To revive its aesthetic beauty, beautification of the landscape has been restored through the implementation of original character of the architectural features.

Adaptive Reuse of the Bahu Fort- To boost the tourism regime in the Jammu region and to preserve the historical significance of the *Bahu* fort that it had throughout the ages of the Jammu region, a light and sound show has been started by the state tourism department on the riverside wall of *Bahu* fort. Visitors can experience the history of the *Bahu* fort and Jammu town through the visual and audio techniques used there with the aid of Digital technology. Another step in this direction has been taken to start a cable car ride from *Bahu* fort to *Peer Kho* temple and to *Mahamaya* temple, Jammu. Moreover, every year in *navratri*, *Bahu Mela* is being organized there to engage local community in the cultural events. These efforts are demonstrating the potential of built heritage along with the implementation of Adaptive Reuse in preserving the cultural identity of the place while creating economic opportunities and maintaining historical integrity.

These two references from Jammu region in the context of restoration and Adaptive Re-use display the different approaches the structural fabric and cultural significance of integrating the heritage buildings in contemporary milieu. Both the projects demonstrate the innovative best practice in the built heritage of a place, to preserve the regional art, history, and culture and aligning the contemporary needs while balancing historic integrity and socio-cultural significance. In this case, it has been seen that an experience of luxury with sense of past can be revitalized with vintage architecture, royal furnishings and historical decor. Despite challenges such as regulatory constraints, balancing modern needs with historical integration ensure sustainable funding; targeted strategies and innovative solutions can enhance the effectiveness of Adaptive Re-use projects. By continuing to invest in Adaptive re-use and conservation efforts, the Jammu region can maintain its rich heritage while fostering cultural and economic development.



4. Images from left to right show us the aerial view of the ancient *Bahu* fort –Jammu, its restoration and Adaptive Reuse i.e. Beautification of Landscape, Illumination and Light and Sound Project, Jammu, Image Source: Monika Choudhary

B) Bundelkhand Region Context:-

In Pursuance of the movement of Adaptive Re-use in the region of *Bundelkhand* was started somewhere around 2000s when for the first time; government of Madhya Pradesh in collaboration with ASI had taken up the initiative to preserve the historic significance of the 17th c *Orchha* Palace by converting one of its palace complexes into a motel. They converted the Jahangir palace into ‘Heritage Hotel Based Motel’ in 2003. This collaborative initiative marked the wave of protecting the heritage monuments through Adaptive Reuse strategy. In the present paper, to understand the significant role of Adaptive Reuse in the field of built heritage, we have taken ‘Orchha Palace’ as a reference case study for our future recommendations in this region.

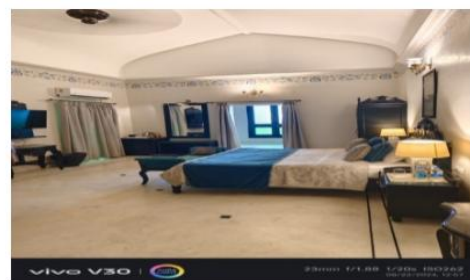
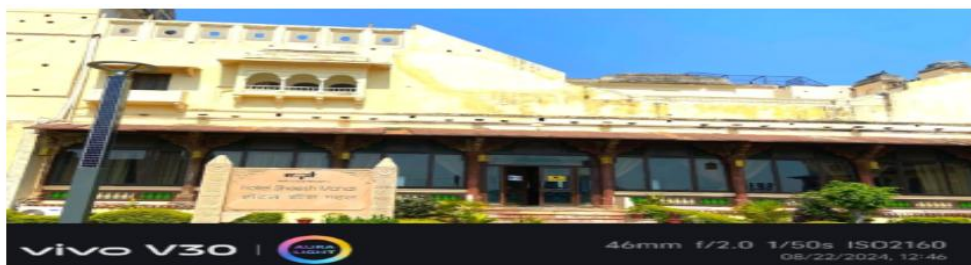
1) **Orchha Palace** :- ‘Orchha’ means ‘hidden gem’ in local dialect is located in the *Niwari* district of Madhya Pradesh region in *Bundelkhand*. It is renowned for its historical significance and architectural grandeur. The *Orchha* Palace complex, also known as *Jahangir Mahal*, was constructed by *Raja Bir Singh Deo* of the *Bundela* dynasty in the 17th century (Sharma, 2015). *Orchha* served as the capital of the *Bundela* rulers, and the palace is one of the most magnificent structures since their reign. The palace was built to honor the *Mughal* Emperor *Jahangir* during his visit to *Orchha*, symbolizing the political alliance between the *Mughals* and the

Bundela rulers. Its location on the banks of the *Betwa* River and the use of *Mughal* and *Rajput* architectural styles make it a unique and important site in Indian history.

Architecture and Layout Plan of the Orchha Palace complex comprises:

The *Orchha* Palace is also well known as '*Jahangir Mahal*', Citadel of *Jahangir*. '*Mahal-e-Jahangir Orchha*' stands out due to its blend of *Rajput* and *Mughal* architectural elements, which can be seen in its intricately designed *chhatris*, hanging balconies, and geometric layouts. Its high domes, large gateways, and well-maintained courtyards reflect the grandeur of *Bundela* rule. The palace's design is notable for its symmetry and strategic location, allowing it to serve both as a royal residence and a fortress for defense. The exquisite artwork inside the *Raja Mahal*, including murals and frescoes, adds cultural value, portraying mythological scenes, royal life, and religious motifs. The *Orchha* Palace complex also includes temples such as *Ram Raja* temple and *Chaturbhuj* temple, making it a place of both historical and religious significance.

1. **Jahangir Mahal:** The main palace built by *Raja Bir Singh Deo*, characterized by its impressive gateways, ornate balconies, and *jharokhas*. The palace reflects a fusion of *Mughal* and *Rajput* architectural styles, showcasing elaborate *chhatris* (domed pavilions), intricate stone carvings, and symmetrical layouts.
2. **Raja Mahal:** The older section of the palace complex, used by the *Bundela* kings and their families. It features stunning murals and frescoes depicting religious and secular themes, as well as traditional *Bundeli* architecture.
3. **Sheesh Mahal:** A part of the palace complex once used as a royal residence, now transformed into a heritage hotel, giving visitors a glimpse into the regal lifestyle of the *Bundela* rulers. Adaptive Reuse of Orchha Palace (*Jahangir Mahal*). The Adaptive Reuse of *Orchha* Palace had begun with the transformation of *Sheesh Mahal* complex into a motel model- heritage hotel. This initiative was taken into action by the efforts of Madhya Pradesh Government in the early 2000s. With the collaborative juncture of Local government, ASI and other stakeholders, *Jahangir Mahal's* (*Orchha* Palace Complex) one of apartment-*Sheesh Mahal* was converted to a hotel and convention centre (<http://orchhapalace.com>). The motive behind this action was the maintenance of grand built jewel through the generation of income from tourists. It had greatly affected the tourism in Bundelkhand region. It can be seen as a great project in the context of heritage preservation through sustainable conservation practices. The Adaptive Re-use of the *Orchha* Palace (*Jahangir Mahal*) offers significant potential for conservation, tourism and local development. Further work can also be extended in the palace to utilize the spacious courtyards where they can host cultural festivals to showcase *Bundeli* culture and attract tourists. Parts of the palace can be converted into museums focusing on *Bundela* history and architecture, providing educational experiences. The natural beauty around *Orchha* also offers opportunities for eco-tourism and adventure activities, such as river rafting and trekking. In addition, the grandeur of the palace makes it an ideal location for film shoots and private events, generating revenue for maintenance and conservation.



4. Images from left to right, show us the view of the façade of the SheeshMahal ,Orchha fort Complex in Bundelkhand Region and its Adaptive Re-use into heritage motel and convention centre, Image source: Ashish Verma

Legal Policy Framework in Jammu and BundelKhand Region for the Preservation and Heritage Conservation of Architectural Heritage:-

1. Archeological Survey of India (ASI):- The Ancient Monuments and Archeological Sites and Remains Act, 1958 governs the regulatory periphery of the protection and preservation of the Central Protected Monuments in India. ASI under the regulatory guidelines of AMASR-1958 provides for the protection and maintenance of the protected monuments in India (<https://www.indiacode.nic.in>). It also provides collaboration to state archeology department for the restoration of state protected monuments. ASI works as a nodal body of ministry of culture to look after the structural conservation of built monuments, ensuring that modifications respect the historical integrity of the sites. It is supporting also Adaptive Reuse while collaborating with private firms under the scheme of government of India 'Adopt a Heritage' (<https://tourism.gov.in>). So this can also be supported in the context of Jammu and Bundelkhand region as well.

2. Jammu and Kashmir: The Jammu and Kashmir Heritage Conservation Act 2010 (<https://www.indiacode.nic.in>) and local regulations guide the protection and Adaptive Re-use of heritage sites, supported by the Directorate of Archives, Archaeology, and Museums (<http://jkarchives.nic.in>) in collaboration with ASI, INTACH. The state Department of culture has recently constituted society for the implementation of scheme "Revival, Restoration, Preservation and Maintenance of Architecture and Heritage in Jammu and Kashmir" (<http://jkarchives.nic.in>). It works in a phased manner.

Integration and Support

Collaboration: Collaboration between government, ASI, and local bodies is crucial for aligning policies and facilitating Adaptive Reuse. 'Adopt a Heritage' is one of the key initiatives of the ministry of culture under ASI to handover a heritage building on lease as PPP- Public-Private Partnership Model' to restore and utilize the historic monuments within the 'minimal intervention' principle of conservation.

Funding and incentives: Such as grants, public-private partnerships, and tax benefits can support these projects, while public education and awareness ensure compliance with preservation standards. In Rajasathan, various heritage properties are being offered in lease through middle agents like private heritage advisor who through social media are inviting applications from interested businessman or private firms to invest in heritage property. These kinds of initiatives can also be taken by the Directorate of State Archives, Archaeology and Museums, Jammu, ASI and by Bundelkhand region to collaborate with expert freelancer in heritage fields like research scholars, historians, museologists, architects, to encourage private firms to invest in heritage properties.

So, if the Conservation of heritage buildings in Jammu and Bundelkhand region will be being done systematically with the integration of Adaptive Reuse within the framework of legal bodies and collaboration of stakeholders, it can offer a sustainable way to preserve Jammu and Bundelkhand's built structures and Cultural heritage while promoting economic growth and cultural continuity.

SYSTEMATIC APPROACHES FOR ADAPTIVE REUSE:

Adaptive reuse in India reflects the need to balance heritage preservation with modern development. It provides sustainable solutions for conserving the country's architectural legacy while addressing economic, tourism, and environmental needs. Various systematic approaches highlight the significance of retaining cultural heritage while ensuring functionality for modern uses:

- 1. Preservation with Modern Functionality:** 'Minimal intervention' (<https://www.icomos.org>) is a conservation principle that is used to retain the original structure while making it functional for contemporary use. Example: *Taj Mahal Palace Hotel, Mumbai* (Singh, 2018), *Hari Niwas Palace, Jammu* and *Orchha Palace, Bundelkhand* etc.
- 2. Urban Integration and Mixed-Use Development:** Heritage buildings are integrated into urban redevelopment projects, combining preservation with residential or commercial use. Example: Connaught Place Redevelopment, *New Delhi* (Bullen & Love, 2011). Heritage buildings and their landscape can be a viable green solution to urban development on a sustainable notion with the integration of Adaptive Reuse in this sphere. The Smart City Mission would get a sustainable outcome with these kinds of integrated ventures (<http://smartcities.gov.in>, 2015).
- 3. Sustainable and Green Reuse:** Incorporates eco-friendly materials and technologies to make heritage buildings sustainable. Example: *Humayun's Tomb, Delhi* (Menon, 2019).
- 4. Experimental and Creative Reuse:** Innovative designs repurpose heritage structures for art galleries, restaurants, or cultural events. Example: *Mehrangarh Fort, Jodhpur* (Sahni, 2018).
- 5. Tourism-Centered Adaptive Reuse:** Heritage buildings are converted into tourist attractions, boosting the economy while preserving historical value. Example: *Orchha* fort complex, Madhya Pradesh (Srivastava, 2018), *Sri Pratap Singh Museum, Srinagar*, *Amar Mahal Museum and Library* and *Bahu fort Jammu* (<http://tourism.jk.gov.in>).

Sustainability in Adaptive Reuse:

Adaptive reuse aligns with sustainable architecture by conserving energy, reducing construction waste, and using sustainable materials. For instance, the restoration of *Gwalior Fort* reused traditional materials, conserving embodied energy (Menon, 2019). There are plenty of examples to demonstrate the restoration of traditional fabric while sustaining the green energy of the historic monuments like in Jaipur- Amer Fort where traditional fabric is retained within the successful marriage of traditional integrity and modern infrastructure (Author, 2019). Additionally, the adaptive reuse of *Haveli Dharampura, Delhi* minimized construction waste (Mehta, 2017). The integration of smart technologies like IoT helps optimize energy usage and monitor environmental conditions, as seen in the adaptive reuse of *Golconda Fort, Hyderabad* (Patel & Singh, 2019). By preserving cultural heritage and promoting sustainable practices, adaptive reuse contributes to the long-term sustainability of India's historical structures while meeting modern needs

General Considerations for Adaptive Re-use of Heritage Buildings

By exploring these adaptive reuse possibilities, the forts and palaces of Jammu and Bundelkhand can be revitalized, contributing to cultural preservation, tourism, and local economic development.

1. **Preservation of Historical Integrity:** Ensure that any adaptations respect and preserve the historical and architectural integrity of the structures. This includes careful planning to avoid compromising the original features.
2. **Community Involvement:** Engage local communities in the adaptive reuse process to ensure that the projects meet their needs and foster a sense of ownership and pride.
3. **Sustainability:** Incorporate sustainable practices in the adaptive reuse projects, such as using eco-friendly materials, energy-efficient technologies, and waste reduction strategies.

IV. Key Findings of the Study

This collaborative study's findings underscore the transformative potential of Adaptive Re-use for preserving the architecturally, historically and culturally significant built heritage monuments of both of the regions on the action plan of 'Conservation and Adaptive Reuse' in phased manner. Dotted the cultural landscape of the Jammu region, we have found a large number of built heritage monuments ranging from temples to forts and palaces of 18th and 19th c. From crumbling debris to robust protected monuments, they marked an architectural achievement of the region. The reference case studies in the context of Jammu and Bundelkhand reveal the strategic and innovative role of Adaptive Reuse in the revitalization of the historic integrity of the built edifices along with the sustainable development of the community as well of the region. Adaptive Reuse plays a crucial role in preserving India's built heritage while addressing contemporary needs. The revitalization of historical structures in regions like Jammu and Bundelkhand given in the reference has unveiled the vision that it not only preserves the cultural and architectural significance of the forts and palaces but also fosters economic development and community well-being. However, to fully realize its potential, there must be a need to focus on improving policies, securing funding, involving local communities, and enhancing professional expertise. A well addressed Adaptive Reuse plan is helpful to preserve the architectural heritage of the Jammu and Bundelkhand region through Adaptive Reuse and a resilience model of sustainability. It will boost the local economy and will be developed as channel source to boom the sustainable tourism in both of the regions. We have experienced that adaptation of the built heritage is a best innovative approach for hosting events such as cultural festivals, concerts, and traditional ceremonies, leveraging its historical ambiance to create unique experiences.

V. Conclusion:

In conclusion we recommend the policy makers to adopt key initiatives of strategic conservation practices and Adaptive Re-use to restore the architectural wealth of Jammu and Bundelkhand region like forts and palaces along with the revitalization of their cultural and historical significance. In case of Jammu region, issues and challenges in restoration, revival and revitalization of architectural monuments can be addressed through the structured 'Heritage Conservation and Management Plan'. The phased manner conservation of forts and monuments like *Bhimgarh- Reasi, Ladden fort-Udhampur, Mubarak Mandi Palace- Jammu and Akhnoor fort- Akhnoor, Ramnagar fort-Udhampur* etc is need of the hour in case of Jammu region. It has been found during the site study of the monuments that before commencing the proposed new uses for these spaces, a structured conservation plan is required there to consolidate the restoration of the crumbling structural fabric there in some cases like *Mubarak Mandi Palace* and *Ladden fort*. In case of *Bhimgarh fort* and *Akhnoor fort*, there is a need of 'Heritage Management Plan' by developing infrastructure and integrating IoT things and compatible new uses to the structure. During the site visit it has been found that site has great potential to address all the issues through their collaborative Adaptive Reuse practices. In case of Bundelkhand region, we

recommend that key sites like *Jhansi* fort, *Baruasagar* fort, *Samathar* fort, *Rampura* fort and *Jagammanpur* fort, *Talbehat* fort, *Tahrauli*, fort hold tremendous potential for revitalization through 'Heritage Conservation Plan'. By leveraging government's initiative like 'Adopt a heritage' scheme in the context of Jammu and Bundelkhand, the Archaeological Survey of India can mitigate the financial issues that comes in the way of developing the basic amenities to advanced, of the visitors like Interpretation signage, Direction boards, Digital mapping, immersive spaces, rest rooms, souvenirs, food and café, guided tours etc. The Adaptive Reuse of these forts and palaces into Interpretation Centre, Cultural Centre, Conventional Centre, Museums, Folk *haats*, boutique cafes. Heritage motels, folk venues, Exhibition centers, Workshop centers, lifestyle galleries of royal artifacts, Light and sound shows is possible through structured and collaborative approach of heritage preservation. The immersive spaces will be interactive visitor friendly for showcasing history of '*Duggar Desh*' Jammu region regime throughout ages and *Bundela's* of Bundelkhand region.

It will be a catalyst venture to provide a central platform to community to engage preservation process through folk *haats* and sale their regional products like traditional *thali*, handicraft, handloom etc. In case of Jammu region *Pakhhis* and *binnas* will be promoted in the category of traditional handicrafts and *nukkad nataks* and *geetru* under folk culture. The economic drive of '*Niti Ayog*' that is 'vocal for local' (<https://www.niti.gov.in>) and United Nations sustainable development goals, SDG11- Sustainable cities and Sustainable communities (<https://sdgs.un.org>) can be met with the sale of local products and providing guided tours after the Adaptive Reuse. It will be an innovative best practice where a heritage tourist can experience the cultural heritage of historic Jammu region where legacy will meet hospitality through sustainable tourism. Restoration and Adaptive Reuse of historic forts and palaces of Jaipur and Udaipur are practical examples where history meets hospitality. The key initiative of government of India '*Swadesh Darshan*' a flagship scheme launched by ministry of tourism in 2014-15, can be promoted through the restoration and Adaptive Reuse of the heritage buildings (<http://sd2.tourism.gov.in>). Both will be if aligned together on same track, they both can work together and can give output in the form of Sustainable Tourism Development and Heritage Preservation. In the context of Jammu region, the Adaptive Reuse of these forts and palaces will become a channel stream to preserve not only the historic seat of the *Dogra* regime but a platform to develop architectural route circuit for other forts and palaces of the Jammu region through '*Swadesh Darshan Architectural Circuit*'. It will be our endeavor to develop the site as a space for training the community, young minds and volunteers in traditional handicrafts, handloom, preventive conservation practices and documentation of the tangible artifacts and intangible attributes of cultural heritage of the region. Develop the site as a space for training the community, young minds and volunteers in Handicrafts, Handloom, preventive conservation practices and documentation of the tangible and intangible culture of the region. It will create an opportunity for local artists to get economic stability and appreciation for future. It can have a sustainable outcome in the context of preserving the past, building the future (<https://www.icrom.org>). Through the systematic conservation of the built spaces and courtyards, Adaptive Reuse can be possible by addressing the issues and challenges of the site into recommended opportunities. A management plan and technical team of the stakeholders with the alignment of legal framework for the heritage conservation and smart city plan, these monuments can be developed as a centre of cultural excellence for revitalizing the local identity of the region at international level. If these types of ventures will become part of built heritage monuments, it would be a budding opportunity to revive the regional identity of Jammu and Bundelkhand's cultural sites to get entry in '*Dekho Aupna Desh*' a digital platform of ministry of culture. The revitalization of historical structures in regions like Jammu and Bundelkhand on the basis of other examples given in the case studies and their explored potential will not only protects the cultural and architectural values of the recommended forts and palaces but also would foster economic development and community well-being. However, to fully realize its potential, there must be a focus on improving policies, securing funding, involving local communities, and enhancing professional expertise. Future efforts should emphasize supportive regulations, interdisciplinary collaboration, and documenting successful projects across diverse regions to ensure its continued impact on India's cultural and socio-economic landscape.

A well addressed Adaptive Re-use plan will be helpful to preserve the architectural heritage of the Jammu and Bundelkhand region through Adaptive Re-use and a resilience model of sustainability. It will boost the local economy and will be developed as channel source to boom the sustainable tourism in both of the regions.

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