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Conservation Challenges of Assam-Type Colonial Architecture at MC College, Sylhet

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Abstract

MC College, Sylhet displaying the region's Assam-type colonial architecture, this building is symbolic of the area's thriving educational and cultural past. These buildings were erected in the first quarter of the 20th century and have characteristic corrugated-iron roofing, wooden and half-brick, half-concrete walls, reflecting both colonial influence and the need to adapt construction to local seismic and climatic conditions. But these monuments are now threatened by forces of destruction, neglect and dilapidation, as well as the realities of urbanization. Their non-maintenance, termites, and moisture on top of unavailability of old construction elements add other woes in their existence. Though they are of historical significance and their architecture is sturdy, immediate action is needed to avoid irreparable damage. This research attempts to investigate the present condition of the Assam-type buildings at MC College, the conservation barriers that should be addressed and suggestions have been made to promote sustainable preservation and policy supports along with community participations on adaptive re-uses in order to protect this unique architectural heritage for next generations.

Keywords: Assam-type architecture; Colonial heritage; MC College Sylhet; Conservation challenges; Adaptive reuse; Architectural preservation

1. Introduction

The Assam-type colonial architectural building on MC College, Sylhet, stands as an outstanding witness to the educational, cultural, and architectural heritage of the area. The images and plans explain a typical Assam-type building timber-framed, one-story, with a steep gable-built, corrugated-iron roof, with wide verandas and on stout plinths, all in a setting of green mist. These characteristics not only possess their own unique visual identity, but also are consideration of local climate, seismic condition, and material availability [1,2,3]. The design is characterized by a clear city plan that is organized around academic, administrative and cultural functions reflecting its use as an active educational facility.

History Established in 1892, MC College is one of the oldest institutions in the country and is housed in a campus with a number of Assam-type buildings built in the early 20th century [4,5,6,7]. These structures, with walls made of timber and bamboo, tall ceilings, and raised bases, were constructed to withstand the heavy monsoon rains of the region and frequent earthquakes, which had destroyed the town after the 1897 Assam earthquake [1,4,2,8]. The architectural form, uniting colonial construction with indigenous practices became very popular in Sylhet and Assam for its durability and sustainability [9,10,11,12,13,14].

conservation challenges of Assam type institutional buildings of MC College. Urbanization, abandonment, deterioration of construction materials and scarcity of original materials, endanger their existence [1,15,16,10,14]. The removal of these heritage buildings in favor of contemporary hollow concrete structures is a continuing threat to this singular heritage [16,14]. With the deficient policy, public cognizance and sustainable conservational approach that conserve

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and honor the balance of the immune monument and of the present needs of current civilization justifications for conservations intensify [9,15,10,11,12,14].

Based on site plans, historical records and ongoing research, this study intends to document the architectural elements of MC College's Assam-type buildings, analyze the conservation issues involved in their preservation, and suggest ways to sustain their preservation. The research is based on the synthesis of an extensive array of documents viz., academic writings, books, newspaper reports, and internet materials, which helped to gather comprehensive insight on the meaning and threat of the Assam-type colonial architecture in Sylhet.

2. Aims and Objectives

The primary objective of this research is to critically evaluate the preservation issues related to Assam-type colonial architecture in MC College, Sylhet, and identify the sustainable techniques for the preservation of them. 3 Research Objectives To fulfil the aim, the study delineates several objectives. The first purpose is to record and document the existing physical condition, architectural forms, and historical values of the Assam-type colonial buildings of the college campus. This requires a close examination of the construction methods, materials and level of deterioration. Secondly, the study seeks to ascertain and analyses the key conservation issues that range from neglect, decay, termites, moisture, lack of original construction materials and abuses of modern development. Third, it assesses the efficiency of maintenance processes, conservation regulations, and institutional settings, which influence the condition of these buildings. The study suggests pragmatic and sustainable conservation methods on the basis of these findings; calling for policy backing, community involvement, and adaptive re-use. Moreover, the research seeks to create awareness among the various stakeholders of the importance of Assam-type colonial architecture in terms of its cultural and historical significance and the necessity for its protection; stakeholders, which consist of decision makers, local communities and educational institutions. Finally, the study aims to share findings and present its contribution to the general discourse of heritage conservation in south Asia and lessons for similar architectural situations.

3. Methodology

This study adopts a qualitative case study method to investigate the conservation issues of Assam-type colonial architecture of the MC College, Sylhet. It consists in the fulfillment of archive searches for (a) accumulating historical documentation and building details (construction history), and on-site surveys (b) to record the present state of the structure and of the architectural elements of the building. Semi-structured interviews are used to interview relevant stakeholders such as college management and staff, heritage expertise, and members of the local community to gain information on modes of usage, the perceived values of the site, and conservation issues. The data is thematically analyzed to find patterns of deterioration, underlying causes, and gaps that may be present in conservation behaviors. The approach is intended to yield a holistic understanding of the interplay between tangible and intangible influences on the maintenance of these monuments and shape up the practical and context-determined conservation responses.

4. Historical Background of Assam-Type Colonial Architecture

4.1. Origins and Early Development

Assam-type colonial architecture was built in the Assam region (including Sylhet which later became a part of the Bengal Presidency) in the 19th and early 20th centuries in response to problems with termites and problems with the region's own version of an earthquake-prone climate. Assamese house-forms, before British colonial rule, were simple mudand-thatch kachcha huts. After the catastrophic 1887 Assam earthquake led the colonial authorities to consider methods of construction used by indigenous peoples (and to modify them to be more quake-resistant) [2].

British engineers and Japanese seismologist Fusakichi Omori created a hybrid architectural style that used local material with modern, western engineering such as bamboo, timber and reed. This gave them a robust, lightweight form, flexible uses and steeply pitched roofs of corrugated iron, raised plinths and wide verandas, to survive both earthquakes and drenching monsoon rains [2, 25].

4.2. Colonial Influence and Spread

The Assam-type house became the standard design for the British Public Works Department (PWD) in 1897 when it was bureaucratically accepted as the best practice. These types of houses mapped this typology as being appropriate for government and private houses, educational and administrative buildings of the province of Assam and Sylhet in the early decades of the 20th century [2, 26]. The architecture is different from the stiff "Chang ghar" buildings of the

Mishing tribe, which are built on stilts. Assam-type houses, on the other hand, are usually built on short, high plinths [2].

4.3. Architectural Features

Key features of Assam-type colonial architecture include:

Frameworks made of bamboo and wood for strength and flexibility, elevated plinths to prevent floods, corrugated iron or galvanized sheet roofs with high slopes for rainfall flow, large verandas for ventilation and shade, the use of regional resources such sal wood and ikra reed, and the reduction of the need for metal or cement [2, 25, 27].

4.4. Evolution and Legacy

Due to its affordability and environmental compatibility, Assamese-style homes were still being constructed after India gained its independence in 1947, particularly in rural and semi-urban areas. These buildings were common by the middle of the 20th century, and some modifications included concrete or brick foundations for increased longevity [2, 25].

The Assamese-style home is a representation of the area's colonial past and cultural adaptation in addition to being an architectural solution to environmental threats. Its heritage endures in Assam and Sylhet's built environment, although many of these buildings are currently in danger due to urbanization, neglect, and evolving building techniques [2, 25].

5. Architectural Features of MC College Buildings:

The Assam-type colonial building of the MC College, Sylhet is a fine example of institutional building of the early twentieth century in the region. They were engineered according to the local climate, seismology and material resources, a mix of colonial engineering and native building techniques.

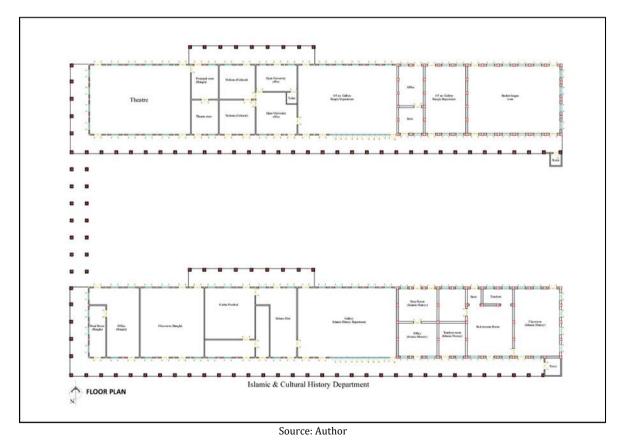
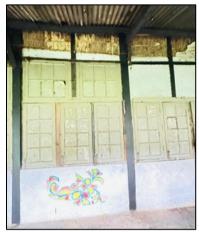


Figure 1 Floor plan of the specific building

5.1. Key Architectural Features

• **Timber-Framed Structure:** The buildings are made with a visible timber frame, which offers strength and flexibility. Because earthquakes are a common hazard in the area, this design helps the structures withstand them.



Source: Author

Figure 2 Timber-Framed Structure

• **Corrugated Iron Roofs:** The distinctive feature of Assamese architecture is its steeply pitched corrugated iron roofs. During intense monsoons, the steep slope guarantees quick rainwater flow, avoiding water buildup and roof damage.



Source: Author

Figure 3 Iron Roofs

- Raised Plinths: Since the buildings are raised on plinths, they are shielded from moisture and flooding. Additionally, this function facilitates insect management and ventilation.
- **Large Windows and Doors:** Ample natural light and air circulation are made possible by the many large, shuttered windows and doors, which are necessary for comfort in the humid climate.
- **Use of Local Materials:** Usually made of a mix of bamboo, ikra reed, and wood, the walls are occasionally coated with lime plaster. Cost-effectiveness and thermal comfort are guaranteed by the use of regional materials.
- **Functional Layout:** In keeping with the building's function as a center for education, the design incorporates spaces set out for offices, galleries, cultural rooms, classrooms, and storage.
- **Wide Verandahs:** The buildings are surrounded by broad verandas that provide for cross-ventilation and shade. These areas facilitate social and educational activity by acting as transitional areas between the inside and exterior.



Source: Author

Figure 4 Veranda

6. Significance of Assam-Type Structures in Sylhet

Assam-type structures are of profound importance in Sylhet for several reasons:

- **Historical Value:** These structures indicate the transition from traditional mud-bamboo homes to more robust, contemporary designs, and they are the oldest examples of urban house architecture in Sylhet. Colonial adaptation of indigenous practices, particularly during the Assam earthquake of 1897, had an impact on their growth.
- **Architectural Resilience:** Assam-style structures are known for their elevated plinths, steeply pitched roofs, and earthquake-resistant bamboo and wood frameworks. These characteristics provide longevity and comfort in the face of Sylhet's intense monsoon rains and seismic activity.
- **Cultural and Urban Identity:** Often referred to as "Bangla Baton" structures, these buildings are recognizable features of the old city of Sylhet. also still function as social and communal areas that represent the customs and way of life of the local populace, and also represent the city's colonial past.
- **Sustainability:** Assam-style structures, which are a paradigm for climate-adaptive architecture in the area, are economical and environmentally friendly due to their passive design techniques and use of local materials.
- Heritage Value: As living heritage, many of Sylhet's Assamese-style buildings are more than a century old and still in use. Their conservation is essential to preserving Sylhet's distinctive character and architectural heritage.

7. Current Condition and Threats

Table 1 Current Conditions and Threats to Heritage Structures

Aspect	Current Condition/Threats
Structural Integrity	Aging, weathered, termite and water damage, some still in use
Maintenance	Inconsistent; many buildings neglected or poorly repaired
Urbanization	Pressure to demolish/replace with concrete structures
Material Availability	Scarcity of traditional materials, use of incompatible modern substitutes
Environmental Risks	Monsoon, flooding, earthquakes accelerate deterioration
Policy/Regulation	Lack of heritage protection, no effective conservation management
Public Awareness	Low; limited appreciation of heritage value

8. Conservation Challenges

Table 2 Key Challenges in the Conservation of Built Heritage

Challenge	Description
Material Degradation	Decay of timber/bamboo, scarcity of traditional materials
Environmental Hazards	Monsoon, flooding, earthquakes, fire, pests
Urbanization	Demolition for new construction, incompatible renovations
Policy and Awareness	Lack of legal protection, insufficient public and institutional awareness
Financial/Technical Limits	High restoration costs, lack of skilled labor and technical expertise
Community/Institutional Gaps	Low engagement, institutional negligence

9. Policy and Community Involvement

9.1. Policy Framework for Conservation

- Lack of Comprehensive Policy: Sylhet lacks a strong, specialized policy framework for the preservation of colonial buildings in the Assamese style. These historic buildings are susceptible to neglect, careless restorations, and demolition due to a lack of explicit government regulations and legal protection [28, 29]
- **Antiquities Act-1968:** The Antiquities Act of 1968 allows for the protection of buildings that are more than a century old as "antiquities." However, many Assam-style structures have not been officially recognized or protected under this rule, and enforcement is uneven [28].
- Role of the Department of Archaeology: The Department of Archaeology has the power to examine important structures and suggest that they be designated as heritage. Plans to examine and possibly designate MC College's Assam-style buildings as protected antiquities are among the recent endeavors, but progress is still sluggish and reliant on bureaucratic procedures [28].
- **Local and National Initiatives:** The Jalalabad Association and the "Save the Heritage and Environment" group are two local groups that have taken action to promote cultural preservation and increase public awareness. Although these initiatives involve establishing committees, disseminating studies, and working with governmental organizations, they lack the power and funding necessary for extensive conservation [29].
- **Need for Integrated Planning:** Expert's stress how urgent it is to create integrated conservation management plans that incorporate community involvement, local government action, and policy. Clear rules for upkeep, restoration, and adaptive reuse should be part of these plans, along with incentives for private owners to save historic structures [30, 31, 29].

9.2. Community Involvement

- **Grassroots Advocacy:** Involving the community is essential to the long-term preservation of Assamese-style buildings. In order to document buildings, increase public awareness, and advocate for protection measures, local citizens, heritage activists, and university researchers have been instrumental [30, 31].
- Awareness Campaigns: To inform the public about the historical and cultural significance of Assam-style homes, local groups and non-governmental organizations have planned publications, workshops, and campaigns. These programs seek to instill in locals and property owners a sense of pride and accountability [29].
- **Community-Based Tourism:** Homestays and historical walks are two examples of community-driven tourist projects that have been suggested as means of creating financial incentives for conservation. These initiatives can assist in financing upkeep and generating wider support for preservation by including locals in tourism and heritage management [30].
- Challenges to Engagement: Notwithstanding these initiatives, community involvement still encounters challenges such a lack of funding, a lack of technical know-how, and conflicting urban development interests. Due of growing land values and maintenance expenses, many property owners are under pressure to replace Assam-style homes with contemporary concrete structures [28,29].

10. Sustainable Preservation Strategies

Table 3 Sustainable Strategies for Heritage Preservation

Strategy	Key Actions
Local Materials	Use bamboo, timber, thatch; adopt sustainable modern alternatives
Adaptive Reuse	Repurpose for new uses; integrate modern amenities sensitively
Community Engagement	Involve locals; run awareness campaigns
Policy & Incentives	Legal protection; financial support for restoration
Nature-Based Solutions	Green infrastructure; climate-adaptive features
Documentation & Research	Detailed records; digital archiving
Maintenance & Monitoring	Regular inspections; preventive care

11. Recommendations

A multidimensional strategy is necessary for sustainable preservation of Assam-type colonial architectural designs at MC College, Sylhet. One, these structures must be formally acknowledged and protected through heritage legislation based on the Antiquities Act-1968 to be rescued from the wrecker's ball and damage by insensitive additions. Restoration work should involve the use of traditional local materials; such as bamboo, timber and ikra reed; reclaimed from demolished structures, as well as skilled local labor and craftspeople to ensure that authenticity is maintained. Compatible Troubadours should be used in place of traditional ones where traditional products are not available without detracting from the architectural aesthetics. Preventive The regular preventive maintenance such as routine maintenance, timber treatment and the repairing of roofs is essential to address the small discrepancies before they aggravate and the structural consolidation should be carried out in a reversible and non-intrusive way in the sense to reinforce the resilience against environmental hazards.

Smart recycling underutilized Assam-type buildings for new purposes like cultural centers or community spaces, they won't become redundant, and stay fresh to attract continued attention. Modern comforts must be handled in a sensitive way, with due regard to its original features. Community involvement is key; promotional activities, awareness drives, school programs and heritage walks will help create a sense of pride and ownership, as well as encourage the local community to participate in documentation and monitoring. Money, through grants or tax breaks, should be given to help restore and maintain it, and training programs for architects and artisans to learn traditional methods of construction must be formed. Documentation of architectural construction and details will be archived digitally for future research and restoration purposes. Lastly, landscape operation should secure green buffer zones and climate-resilient specifics for the protection of the buildings from environmental hazards. If these suggestions are followed, MC College will be able to preserve its distinct architectural and cultural heritage for the future.

12. Conclusion

Assam-type colonial architecture at MC College, Sylhet is endangered by deterioration of materials, lack of traditional materials, and environmental threats, including severe monsoons and earthquakes. The historical buildings are dismantled or updated destructively due to urbanization and increasing land value, a factor compounded by the absence of system policy and public awareness. The rarity of good-quality wood, lack of skilled restoration personnel, and fiscal limitations of institutions and private owners prevent the real restoration. The community is not as involved as desired, and urgent problems including legal protection, regular repair or maintenance, and effective ways of adaptive reuse, which respect the monuments' architectural character, are tapping on our shoulder.

Finally, the preservation of the Assam-type buildings at MC College must use a cocktail approach which encompasses legal recognition, traditional materials, preventive maintenance, community involvement and financial incentives. Through such measures, the unique architectural, cultural and historical heritage of Assam-type colonial buildings can be carried forward for the generations to come.

Compliance with ethical standards

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Disclosure of conflict of interest

Authors declare no conflicts of interests.

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