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A Critique of Issues Affecting Life in Cities

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INTRODUCTION

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Today, the societies, cultures, and the places in which we live and work are increasingly intricate phenomena. Globalization eradicates spatial boundaries to business. Gentrification involves social and political pressure. Pandemics are never site specific or confined to the past. Architecture and urban design are global endeavors. Sustainability requires material and political action. Patterns of criminality are not place bound. Similarly, the need for education and housing are universal and land rights are essential legal tools for First Nations and communities everywhere.

Within this mode of thinking, when we discuss sustainability we must consider local planning and global politics. When we speak about smart cities, we are obliged to consider cyber security and civil rights. When we discuss law and human rights, we cannot ignore economic or social policy. Equally, when we think about food production and consumption, we must consider transportation costs, public health, and more.

In reading livability as an aggregate of forces then, Volume Two of the Livable Cities – London proceedings, seeks to explore how the physical and designed nature of the city informs the livability of our cities, sitting alongside a plethora of other agendas, practices and disciplines. As an inherently interdisciplinary publication then, it explores cities first and foremost as a series of material questions of spatial design and planning but, importantly, accepts that such approaches sit alongside issues of politics, sociological trends, cultural tendencies, media representations, economic policy, planning, the provision of public services and more.

By juxtaposing, comparing and sharing work in various fields then, it is expected that a broader and richer picture will emerge in these pages with respect to what makes the places we inhabit more, or less, livable.

BUILDING ADAPTABILITY TO ADDRESS UNRECOGNIZED URBAN PRACTICES

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INTRODUCTION

Schmidt et al. defined 'adaptability' as a building's ability to change its built environment to respond ‘to’ and ‘fit’ with the growing demands of its users while maximising value throughout its lifetime.[1] In the principle of converting buildings, Douglas stated that adopted uses typically necessitate structural, functional, and spatial changes that differ from the original state in order to support the new function.[2] This conversion is often considered sustainable in order to maintain the existing building. In Dhaka, which is the capital city of Bangladesh, not all adaptations or conversions adhere to the established principles. With the scarcity of land, informal urban growth with boosting economies, and ineffective law and supervision of building codes, many of the urban built forms are being used with unrecognised functional adaptation, which directly influences the urban social aspects and built landscape at different scales in Dhaka. This building adaptation is a growing trend and a popular method among business entrepreneurs because it leads to an increase in land prices and encourages pressure on residential users to move out and make way for commercial buildings to be economically viable.[3]

The urban regeneration process is inevitable in a city due to the demand for revised density and function. A sustainable built environment should be able to adapt to unknown future requirements efficiently.[4] Research on the changing notion of urban adaptivity in the built form is gaining momentum due to the rapid user growth of megacities, the emerging real estate market, and the globalisation of trade and production. According to Habraken, the concept of adaptability originated from three spatial strategies: flexibility, convertibility, and expandability.[5] Flexibility, or enabling minor shifts in space planning; convertibility, or allowing for changes in use within the building; and expandability or facilitating additions to the quantity of space in a building, are being prioritised through alternative material, technology, and design approaches for sustainable functionality of resources. Stressing the point from the user’s perspective, Habraken mentioned that even if the flexibility is there, a building's longevity is not guaranteed in the absence of the affection and pride of its users.[6]

Following these theories, this paper examines several typical cases of adaptation in residential communities in Dhaka city, with a focus on analysing the spatial strategies involved. This also seeks to lay the possible foundation for future analysis of the adaptive built environment's effects on the nearby neighbourhood.

RATIONALE OF ADAPTATION

It's not always the case that built-form adaptation produces the desired results. The adaptation process and its outcome include benefits and drawbacks. According to Civan, it is cheaper to remodel than to demolish and reconstruct the entire building to remain functional.[7] Corporate offices frequently look for exclusive, independent premises. This typically rents out for less money invested. Therefore, it looks more practical to modify rather than purchase a tiny space in the high-rise office building. Because of the remodelling modifications made by the offices or a third party, landowners generally do not need to invest very much. The prospect that adaptation will lead to a greater narrowing of the gap between the client and designer groups and the building user group supports Zeisel's[8] theory. Therefore, increasing a building's economic life is considered to be sustainable.

Adaptive buildings are being used more efficiently for a longer period of time at a lower cost and with improved environmental performance.[9] Consequently, the duration of a residence is indicative of the evolving requirements of its occupants, who consistently update and modify the space they live. The process of adaptive reuse is beneficial from an economic standpoint, as it allows for the utilisation of the inert value of an asset to prolong the lifespan of a building. Therefore, it is advisable to contemplate the development of properties and structures in accordance with a reuse outcome approach to guarantee extended functionality and expedite the revitalisation process.

Zaman[10] indicated the economic benefits of adaptive reuse of different buildings in the context of Dhaka to save on development costs. He added that the adaptive reuse strategy eliminates the expense of building destruction and site clearing, allowing more effective resource utilization. He proposes that we can save on services, materials, and civil engineering expenses by reusing the superstructure. It reduces waste and saves money. Adaptive reuse schemes also reduce redevelopment costs and construction worker demand due to reduced building durations. Owners can generate income faster due to the shorter building procedure. Thus, adaptive reuse projects with lower costs and a faster return on investment can cut loan or capital investment interest rates. In the building and development business, adaptive reuse offers significant economic, environmental, and social benefits.

APARTMENT BUILDING ADAPTATION AT UTTARA, DHAKA

Newly constructed apartment and residential buildings in Dhaka frequently serve a variety of commercial, institutional, and non-residential functional purposes. Despite lacking a suitable and rational function, most of the edifices have maintained their original physical state by serving various purposes. To figure out how residential buildings in cities like Dhaka adapt in real-life situations, this study examined a few instances in a planned residential area called 'Uttara Residential Model Town' in Dhaka. Uttara has been developing in phases 1, 2, and 3 (Figure 1)[11] since the early 1970s. Phases 01 and 02 have reached a significant level of development, while phase 03 continues to progress. Over time, both phases 01 and 02 have experienced diverse interpretations of functional adaptation within the planned structure, resulting in a complex and unplanned process. This is primarily due to the changed demands of the community for the growing populations, the lack of required functional facilities on a neighbourhood scale, and the rigid spatial configurations of the buildings to align with the changed functions.

Figure 1. (left) Dhaka Metropolitan area (source: adapted from Commons, Wikimedia 2014), (middle) Uttara Model Town (source: adopted from Vectorstocks, 2024, (right) Uttara Development Phases (source: Kabir, Saimum, and Mohammad Ibrahim, 2018)

The research pertains to the suitability of the new roles assigned to the original structures. Three distinct adaptations have been analysed, which identify that various functional adaptations have taken place in the pre-existing apartment buildings. Table 1 outlines the classification of the original uses of the primary buildings into three distinct categories: educational, commercial (shops, banks, and offices), and health.

Type of the project	Original use	Adaptive use
Apartment	Residential	School/Institution
		Commercial (Shops, Banks, Offices)
		Hospital/Clinic

Table 1. Case categories

Case 01: Apartment building adapted into academic institution

Figure 2 depicts the apartment building's design, which spans approximately 1600 square feet per floor and consists of six stories to accommodate two flats per floor. The original owner was not available for contact, making it impossible to ascertain the exact rationale for the modification of usage. The discourse with the present proprietor has elucidated that the proprietor's nonattendance could be the principal factor behind the alteration. The absence of a property management entity was a significant factor contributing to the challenges and inconveniences encountered in the monthly collection of rent from tenants, ultimately prompting the decision to alter the operational function. The school's financial proposal received generally positive feedback, which was essential in enabling the implementation of the building's operational changes. The absence of spacious classrooms, conventional hallways, fire exits, and recreational areas was noted. A north-facing building with adjacent six-story building blocks on each side causes inadequate cross-ventilation. Converted from bedrooms in the southern region, the classrooms lacked proper ventilation and were predominantly dimly lit. The initial observed plan of the apartment building allocated the ground level for the accommodation of approximately 6 to 7 automobiles. The ground floor was adapted to function as a communal area for children, featuring a play zone and space for physical or cultural activities. Additionally, it occasionally serves as a waiting area for parents. The information office room is located in the southern corner of the ground floor. The ground floor's inability to accommodate cars in their designated area led to vehicles parking on the adjacent road during school hours, causing traffic congestion in the surrounding area.

Figure 2. (left) Original (adopted by observation) two unit apartment plan: Approx. 1600sft total, (middle) Adapted layout for a primary school, (right) the exterior view of the typical apartment building front (Source: Author)

Case 02: Apartment building adopted as hospital

One of the main reasons for the initial conversion of the six-story apartment building into a local hospital was its proximity to the main neighbourhood road, which has attracted a significant patient population by providing access to highly skilled medical professionals. The study finds that it was recommended that the hospital acquire the neighbouring apartment complexes and repurpose them as an extension of the hospital and a centre for physiotherapy. Because the ground-floor parking area has been converted into hospital facilities, a significant number of vehicles park on the hospital's front and back side roads. Figure 3 suggests that the main roadside parking is the primary cause of traffic congestion in the local area. The lack of certain physical amenities, such as vertical transportation mechanisms for the relocation of hospital beds, was not sufficient. As a result, patients' mobility became significantly more difficult. In order to accommodate a greater number of individual or shared cabins, the apartment layout was predominantly partitioned into smaller rooms, which unfortunately resulted in inadequate ventilation. This resulted in significant circulation conflicts among the patient, hospital staff, and other services. The modified hospital design lacked a designated area for segregating patients with specific medical conditions. The waiting area's capacity was insufficient to accommodate the number of patients and accompanying individuals. The presence of hospital waste in the immediate vicinity behind the apartment building poses a significant biohazard to the health of neighbouring residents, as shown in Figure 4.

Figure 3. top left) the exterior view of the typical building front,(bottom left) Original (adopted by observation)two unit apartment plan ~1800sft, (bottom right) Adapted plan for a hospital, (Source: Author)

Figure 4. Medical rubbish dumped into the immediate and adjacent to the residential building (Source: Author)

Case 03: Apartment building converts to mixed use building

The six-story apartment building was initially designed entirely for domestic use. However, a pre-existing community market was located on the opposite side of the structure. The commercial influence of the market zone had a direct impact on the apartment building's user pattern, which was the initial cause for the residential building's adaptation to a mixed-use pattern. The study revealed that this

possible future impact was not considered during the design phase of the building. Initially, the building's ground floor was modified to accommodate five small grocery stores. This modification immediately gave the building a mixed-use character, allowing the upper floors to be converted to similar uses. Typical grocery stores on the first or upper floors would not function for walk-in consumers in the same manner as they do on the ground floor. An empirical study says ground-floor facades provide links between these scales and between buildings and people. The proprietor of the building then decided to rent it out for use as an office, bank, or saloon. The remaining upper floors are reserved for residential use. This conversion enabled the proprietor to profit from the lower floors without sacrificing rental income from the upper floors. This type of development frequently engages in pedestrian surface encroachment without permission from the city corporation. Therefore, the municipality needs to demolish an unauthorised extension of the development. Unfortunately, they grow again.

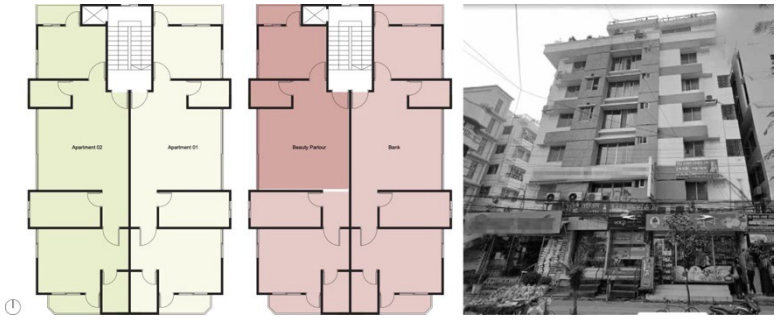

Figure 5. (left) Original (adopted by observation) two unit apartment plan ~1600sft, (middle) Adapted plan for a Beauty Parlour ~450sft and Bank ~1200sft, (right) the exterior view of the typical east view (Source: Author)

Adaptation Analysis

Each of the cases, as illustrated in Figure 6 and Table 2, included ground floor parking as a new building function. In all cases, this practice created neighbourhood traffic congestion. Both school and hospital conversions compromised the standard required space design for the changed use, which created issues like ventilation, circulation, and user satisfaction. The study revealed that, due to the substantial demand for new facilities in the neighbourhood, adapting existing buildings proved to be more feasible, faster, and profitable compared to demolition or new construction. The high financial cost associated with demolition faced significant opposition from most stakeholders, who preferred the financial savings achieved by avoiding it. However, the adaptive reuse of existing structures presented notable challenges, particularly related to space and infrastructure limitations. Building owners and managers highlighted the benefits of remaining at their current sites if they were in excellent condition, such as avoiding relocation disruptions and saving on maintenance and operational expenses. However, this approach often undermines dedication to a sustainable built environment and frequently overlooks user satisfaction. The vertical functional adaptation in individual plots often took place on the owner's personal initiative, without much analysis of the future urban impacts and instead focussing on immediate profit generation.

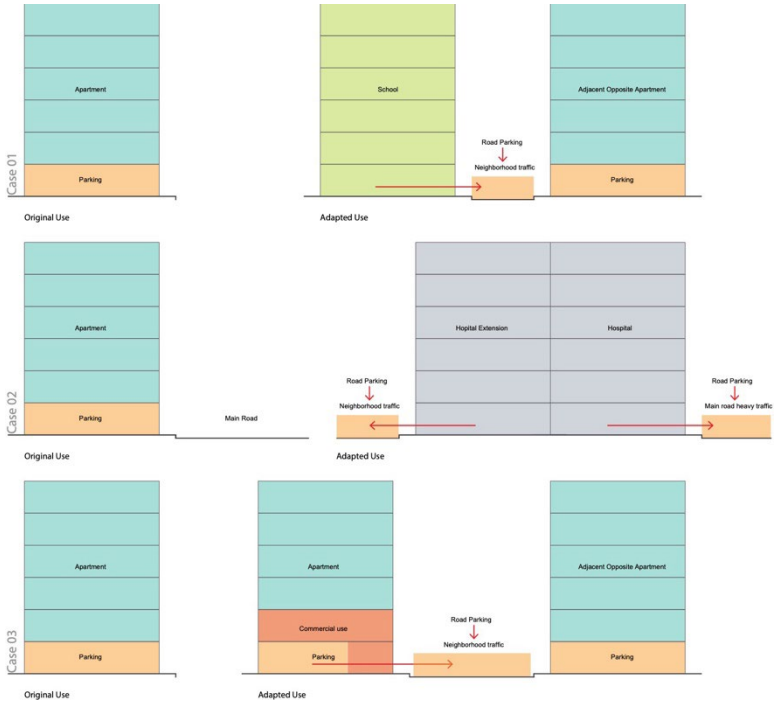

Figure 6. Vertical Functional adaptation analysis between cases

Cases	Before	After	Functional Analysis	Climatic Analysis	Neighborhood Analysis
Case 01	Six storied apartment building	School	Compromised functional space for academic institution	● Only front side of the building has access to daylight and cross ventilation ● Both passive and active ventilation	Created traffic congestion on immediate surrounding
Case 02		Hospital	Medical facility provided without any appropriate regulations and laws	● Co mpletely active ventilation	
Case 03		Mixed-use space with commercial shops on the ground floor	Improved functionality by accommodating businesses	Both active and passive ventilated spaces	Revitalized neighborhood with increased foot traffic, vibrant commercial activities, and improved property values

Table 2. Adaptation analysis

CONTEXTUAL STIMULUS

This study deliberately looks at residential structures to identify existing, unrecognised, and unplanned practices. After examining the local practices in Dhaka, the study observed a multi-faceted functional transformation. This approach involves the participation of users, owners, architects, and local artisans. In this process, retrofitting and refurbishing are becoming popular options, as they often take place without much technical expertise. This way, it increases the life span of an existing building and reuses the structure's embodied energy at lower development costs.

The various stakeholders identified economic justification as the most viable rationale for the initial adaptation decision. Another reason stated and observed by the owners was the need for altered functions. This study identified several common contextual rationales for adaptation, as demonstrated in the case of Dhaka.

- Locational advantage/disadvantages
- Landowners often migrate to overseas countries, leaving no one to manage their properties, leading to resistance towards forming partnerships with developers.
- Corporate offices provide landowners with high-end rent and deposits.
- Corporate offices or banks carry out the majority of the redevelopment, resulting in high income on limited investment.
- Landowners can retain their land for a longer period of time, allowing them to explore more options, such as a high return on investment through development.

DISCUSSION

In general, it was considered that because of the significant demand for the new facility in the neighbourhood, it would be simpler to adapt to it than to demolish specific buildings within its existing structure. The demolition would have required a huge amount of financial involvement, which was not an acceptable idea for the stakeholders. Without demolition, there were considerable financial savings, but the adaptive use was often very difficult to fit because of the space and infrastructure constraints. According to many building owners and managers, there are advantages to staying at one's current site if it is in good shape, such as avoiding the disruption of relocating and saving money on maintenance and operating expenses. However, in most cases, the responsibility for a sustainable built environment was significantly compromised. Additionally, users' satisfaction received minimal consideration.

Buildings constructed between 1960 and 2000 were regarded as the most likely candidates for demolition, while relatively modern structures were thought to be in high demand for adaptation. Once the new apartment buildings had been in operation for five to ten years, the quick implemented technique used to convert them to a completely different functional use, such as a school, hospital, or commercial space. The study found a wide range of potential risks that could arise before, during, and after an adaptive reuse project. The analysis revealed that, even though they were going through adaptation phases, there was always a chance that the structure wouldn't satisfy the needs of the end users. The truth, however, indicated that the crowd would probably be content with the bare minimum of amenities.

Through adaptive reuse, a structure can change to suit new needs. Any constructed form, both physically and from the user's attachment point of view, sustainably improves upon the quality of its initial state. To improve efforts towards sustainability, decision-makers, developers, and owners should address many adaptive reuse challenges during the early stages of the design process. The research suggests that early-stage decisions should not only be addressed but also implemented in future adaptation policies.

CONCLUSION

This study explored the adaptation of residential buildings in Dhaka, particularly in the Uttara Model Town, highlighting the complexities and challenges associated with such practices. The research tried to establish the fact that while building adaptation offers a cost-effective alternative to demolition, it is not uncommon that the quality and sustainability of the built environment are often compromised. However, the findings also reveal this adaptation is quite a common practice among stakeholders, even though the adaptations, driven primarily by economic incentives, frequently lead to functional inadequacies. These adaptations, which occur with minimal technical expertise and without comprehensive planning, contribute to broader urban issues, including traffic congestion and compromised neighbourhood environments; hence, we need more in-depth research on hem. The research highlights a critical need for more rigorous planning and regulatory oversight in the adaptive reuse of buildings to ensure that these practices contribute positively to the urban fabric.

In conclusion, while adaptive reuse can extend the life and functionality of buildings, it requires careful consideration of both spatial and infrastructural limitations. Decision-makers, developers, and building owners should engage in more comprehensive planning during the early stages of adaptation to address these challenges and enhance the sustainability of the built environment. Future policies should incorporate these considerations to ensure that adaptations not only meet immediate economic goals but also support long-term urban resilience and user satisfaction. The paper acknowledges that this research is at an early stage; it invites broader discussion on the topic, including approaches and methods for the ongoing research.

NOTES

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