

Alor Setu: Bridging Survival and Aspiration in Dhaka

A Research-Based Design Framework

Introduction

Urbanization has fundamentally reshaped how populations inhabit space, with cities now accommodating nearly half of the global population. Among these, Dhaka stands as one of the world's largest and fastest-growing urban centers, with a population approaching 37 million inhabitants (United Nations 2025). Rapid growth, driven by migration, economic pressures, and climate displacement, has produced a landscape where informal settlements are not peripheral but central to the city's spatial and social fabric.

Within this context, Duaripara emerges as a site shaped by instability and adaptation. Informal settlements here are often framed through deficit: lacking infrastructure, permanence, and formal planning. Yet such readings overlook the complex systems of knowledge embedded within them. This thesis reframes Duaripara not as a condition of absence, but as a network of architectural intelligence, where resilience is produced through continuous acts of reuse, maintenance, and ground-making.

Rather than positioning architecture as a stabilizing force imposed from above, this research investigates how design can operate within existing systems, supporting the labor, knowledge, and persistence through which residents sustain life in conditions of uncertainty.

Informality as Adaptive System

The formation and persistence of informal settlements in Dhaka cannot be understood outside of broader political and economic structures. As Nahiduzzaman demonstrates in his study of Duaripara, informal housing is shaped by land speculation, governance gaps, and limited access to formal planning systems (Nahiduzzaman 2006). Residents do not simply occupy space; they actively negotiate systems of constraint, building within conditions defined by insecurity and limited institutional support.

Within these constraints, informality becomes a process rather than a static condition. Housing is not completed but continually modified, extended, and adapted over time. Khan describes this process as a form of "living with transformation," in which self-built environments evolve in response to shifting needs, materials, and social structures (Khan 2014). This perspective challenges conventional western architectural assumptions of permanence and authorship, revealing instead a distributed and ongoing process of spatial production.

Such environments are not unstructured. As Mowla's analysis of the mahalla demonstrates, spatial organization in South Asian contexts has long been rooted in collective logics, where

circulation, proximity, and shared space generate social cohesion (Mowla 1997). Informal settlements extend these logics under new pressures, producing dense, adaptive networks that operate without reliance on formal planning frameworks.

To frame informality as failure is therefore to overlook its capacity for adaptation. Instead, it must be understood as a system that continuously recalibrates itself, responding to economic pressures, environmental instability, and material constraints.

Conditions in Duaripara

Duaripara exemplifies the spatial and environmental challenges associated with informal urbanization. As documented by Tariq et al., housing units are characterized by high density, limited ventilation, and inadequate access to sanitation infrastructure (Tariq et al. 2023). Overcrowding and insufficient daylight contribute to poor living conditions, while shared facilities (particularly toilets) are relied upon by large populations.

At the same time, residents actively modify their environments to improve habitability. Structures are extended, materials are reused, and ground levels are incrementally raised in response to flooding and waterlogging. These practices reflect a continuous negotiation between environmental forces and spatial needs.

Ahmed's framework of resilience further contextualizes these conditions, identifying hazards such as flooding, waterlogging, and weak infrastructure as central to the lived reality of Dhaka's informal settlements (Ahmed 2014). Rather than singular events, these hazards operate as recurring pressures that shape everyday life.

Within this environment, stability is not achieved through permanence, but through adaptability. The ability to modify, repair, and reconstruct becomes essential to survival. These practices are not supplementary to architecture, they constitute it.

Material Intelligence and Environmental Performance

Material use within informal settlements reflects both necessity and accumulated knowledge. Traditionally, vernacular architecture in Bangladesh has relied on locally available materials such as mud, bamboo, thatch, and wood, which require minimal processing and exhibit low embodied energy (Rahman et al. 2023). These materials are not only accessible but climatically responsive, providing thermal comfort in high-temperature, humid environments.

However, recent shifts toward industrial materials (brick, concrete, and metal sheeting) have altered this relationship; often perceived as more durable (Rahman et al. 2023). The transition

reflects broader socio-economic dynamics, where material choice is influenced by availability, status, and perceived permanence.

Understanding of these materials supports a different architectural logic. Their flexibility allows for incremental modification, while their accessibility enables residents to construct and maintain their own environments. This reinforces a system in which architecture is not fixed but continuously reworked.

Understanding material use in this context is therefore not only a question of sustainability, but of agency. Materials that can be sourced, assembled, and adapted locally enable ongoing participation in the construction process.

Positioning Intervention

While existing research highlights both the challenges and adaptive capacities of informal settlements, it often stops short of translating these insights into spatial strategies. Interventions are frequently framed either as large-scale redevelopment or as policy-driven improvements, both of which risk erasing the systems they seek to address.

This thesis takes a different position. Intervention is understood not as replacement, but as extension. The goal is not to resolve informality, but to support its ongoing processes: reinforcing the intelligence already embedded within the community.

Design, in this context, becomes a mediating practice. It operates between stability and flexibility, permanence and reconstruction, formal intention and informal adaptation.

Design Strategy: Alor Setu

The project, titled Alor Setu, is structured around four interconnected programs: kitchen, bathroom, vocational, and marketplace spaces. Together, these elements function as a collective infrastructure, supporting both daily life and economic activity within the settlement.

Rather than isolating functions, the design emphasizes interdependence. Kitchens and gathering spaces foster social exchange, while vocational and marketplace areas provide opportunities for economic engagement. These programs are not conceived as fixed entities, but as adaptable frameworks capable of evolving alongside the community.

A key spatial strategy lies in the differentiation between permanence and flexibility. In response to recurring flooding, the bathroom and vocational spaces are elevated, establishing areas of priority that remain functional during periods of environmental instability. These elevated

elements act as anchors within the settlement, providing continuity when other spaces may be compromised.

In contrast, the kitchen and marketplace spaces are intentionally designed to be more flexible and reconstructable. Their configurations allow for repair, modification, and rebuilding over time, aligning with existing practices of adaptation. This dual approach (combining stability with change) reflects the realities of life within Duaripara.

Materially, the project draws from locally available resources, including bamboo, thatch, jute, and brick. These materials are selected not merely for aesthetic reasons, but for their alignment with existing construction knowledge and practices. Their use enables residents to participate in the building process, ensuring that the architecture remains accessible and maintainable over time.

Crucially, the project does not impose a singular, external solution. Instead, it proposes a framework that can be interpreted, modified, and extended by its users. In doing so, it acknowledges that architecture within informal settlements is never complete.

Social Agency and Spatial Equity

Central to the project is the recognition that space is not neutral. Within informal settlements, access to space is shaped by social dynamics, including gender. Afrin and Khan's research highlights how women play a critical role in shaping domestic environments through everyday practices of care and labor (Afrin and Khan 2015). These practices often produce multifunctional spaces that support both household and economic activities.

However, opportunities for economic independence and public participation remain limited. The integration of vocational and marketplace spaces within the project responds to this condition, creating environments where economic activity can occur alongside social interaction.

These spaces are not explicitly prescriptive; rather, they provide the spatial conditions necessary for new forms of engagement to emerge. In this way, the project seeks to support greater visibility and agency, particularly for women, without imposing rigid programmatic definitions.

Conclusion

Duaripara reveals a mode of architecture that operates outside conventional definitions. Here, space is not static, and buildings are not complete. Instead, architecture is produced through continuous acts of adaptation: through reuse, maintenance, and collective effort.

This thesis argues that conventional architecture must shift in response. Rather than prioritizing permanence, authorship, and control, it must engage with temporality, flexibility, and shared knowledge. Intervention, when necessary, should not replace existing systems, but support and extend them.

Alor Setu proposes one such approach. By working within the logics of informality, rather than against them, it positions design as a form of stewardship. Not a finished object, but an ongoing process.

Bibliography

Afrin, Sadia, and Tareef Hayat Khan. "Women's Perception on Space Layouts in Affordable Housing in the Context of Dhaka City." *British Journal of Humanities and Social Sciences* 14, no. 1 (2015): 1–8.

Ahmed, Iftekhar. "Factors in Building Resilience in Urban Slums of Dhaka, Bangladesh." *Procedia Economics and Finance* 18 (2014): 745–753.

Khan, Tareef Hayat. *Living with Transformation: Self-Built Housing in the City of Dhaka*. Cham: Springer, 2014.

Mowla, Qazi Azizul. "Settlement Texture: Study of a Mahalla in Dhaka." *Journal of Urban Design* 2, no. 3 (1997): 259–275.

Nahiduzzaman, Kh. Md. *Housing the Urban Poor: Planning, Business and Politics — A Case Study of Duaripara Slum, Dhaka City, Bangladesh*. Master's thesis, Norwegian University of Science and Technology, 2006.

Rahman, Shafique, et al. "A Study of Vernacular Building Materials in Bangladesh Based on Embodied Energy and Environmental Performance." *IOP Conference Series: Earth and Environmental Science* 1274 (2023).

Tariq, Saiful Hasan, et al. "Transforming Slum Dwellings into Better Livable Units: An Approach through Minimum Intervention." *AIUB Journal of Science and Engineering* 22, no. 1 (2023): 24–34.

United Nations. *World Urbanization Prospects 2025: Summary of Results*. New York: United Nations, 2025.