Reflection

Global Housing Graduation Studio
Architecture in Transition in the
Bangladesh Delta

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Reflection

Problem

Currently, Bangladesh is facing challenges in the production of affordable housing because of the rapid urbanization which is a global phenomenon. The majority of this urbanization is occurring in the Global South, and it poses one of the most significant challenges of the 21st century (UNDESA, 2019). Rural residents migrate to urban areas in search for job opportunities and improved living standards, while the consequences of climate change also contribute to the influx of climate migrants relocating to cities (Correa, 1989) (Fig. 1). As housing policies in Bangladesh are not paying enough attention to social housing, developers prioritize middle and high-income housing to maximize profits. Local governments are lagging in their efforts to provide affordable housing initiatives, resulting in low-income communities being forced to reside in slums with inadequate facilities and no assurance of tenure security (Smets et al, 2014). Nevertheless, the government does focus on slum rehabilitation efforts. However, those are located far away from their workplaces in the city, and the living conditions remain poor, exemplified by overcrowded dwellings, inadequate ventilation and natural light, and a lack of sufficient public space (Farzana, 2020). The concept of housing affordability often revolves solely around economic feasibility, neglecting other crucial factors like sustainability and the quality.

In Bangladesh, housing is recognized as one of the constitutional rights, imposing a duty on the state to refrain from actions that harm the life, body, and property of any individual (Farzana, 2020). This conflicts with the state's past efforts to evict slums. The lack of attention to public space in Sylhet is a growing concern, which causes increased segregation (Cornea et al, 2016).

Furthermore, the escalating concern of climate change is evident as the world witnesses more frequent extreme climatic events, including storms, flooding, and extreme temperatures (Priovashini and Mallick, 2022). In Sylhet, the biggest concern is the extreme rainfall during the monsoon season, followed by the dry months. With its low-lying geography and close proximity of Cherrapunji (the wettest place on earth), Sylhet faces heightened vulnerability to climate change impacts. Hence, future housing initiatives must account for the substantial rainfall and its consequential impacts, as well as the dry spells, while also addressing social factors and enhancing the quality of the living environment.

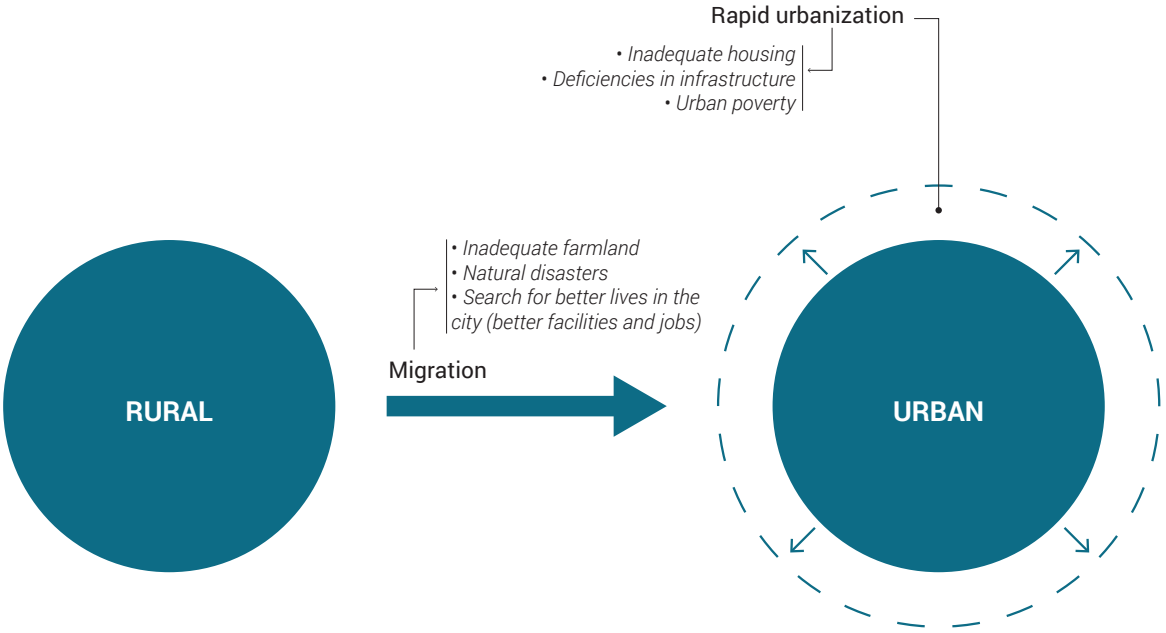

Fig. 1: Rural to urban migration
Source: Own infographic

Significance of site

The design location, Laladighir, is located at an urban pond in the urban area of Sylhet. Those waterbodies play a diverse and critical role in the urban areas of Bangladesh, since they are not just sources of water. They also provide urban land and communal spaces and serve as cultural and small-scale aquaculture sites for the middle class and are essential for daily tasks for the less privileges (Cornea et al, 2016). However, due to the rapid urbanization, urban ponds are at risk of being filled up to make way for new housing developments.

Given that urban ponds offer public spaces and contribute positively to water management, it is imperative to appreciate and prioritize these urban waterbodies in the design process.

Besides, the design location is situated in a diverse environment, encompassing various cultural and income groups. The area is inhabited by both Muslim and Manipuri communities, with one Muslim group residing in an informal settlement located on the designated plot for the design. Therefore, it is a compelling location to promote inclusivity. By looking at the different design concerns of each target group, it becomes feasible to design a cohesive and vibrant housing project, where diverse social groups coexist harmoniously.

Goal

The goal of the Master studio Global Housing is to address the current challenges in the production of affordable housing in Bangladesh, and to come up with a housing design project which tackles this challenges.

Addressing the challenge of increased segregation requires designing solutions that respond to the complexities mentioned earlier, aiming to create sustainable communities where people are eager to reside and work, both now and in the future. Such efforts align with the Sustainable Development Goal to "make cities and human settlements inclusive, safe, resilient and sustainable" for the year 2031 (Farzana, 2020).

In my design, the aim is to create an inclusive living environment within a densely populated urban area, seeking to address the prevalent issue of marginalization faced by the poorest urban dwellers in the current context. I focused on the different concerns of the social groups inhabiting the area, considering both cultural and social aspects, to come up with a design concept where all these groups can coexist. It also investigates how the urban pond's location can be utilized as a focal point to foster inclusivity. At the same time, the design should take into account the excessive rainfall during the monsoon season and the consequences of this for the future.

Fig. 2 :Woman doing dishes at the Laladighir Pond, Sylhet
Source: Own photograph

The relation between your graduation project topic, your master track (A, U, BT, LA, MBE), and your master programme (MSc AUBS)

In my MSc AUBS program, which focuses on sustainable development through innovative architecture, the concept of sustainable architecture involves intelligent design principles that minimize harmful effects on ecosystems and communities, contributing to the durability of structures. The Architecture master track within this program emphasizes this sustainable approach, encouraging students to tackle technical, social, and spatial challenges in the built environment through creative and innovative building projects.

The studio topic closely aligns with both the master track and program objectives, as it delves into ways architecture can contribute to a society transitioning to a new ecological paradigm. The emphasis on designing meaningful spaces for populations in transition, considering typology, materials, and technology, mirrors the principles embedded in the master track program.

My graduation topic seamlessly integrates with these aspects by investigating the technical, social, and spatial challenges specific to the assigned location in Bangladesh. Through in-depth research into different demographic groups and their lifestyles, I aim to incorporate contemporary social challenges into my design concept. Furthermore, understanding the climate characteristics and the consequences of climate change in Bangladesh allows me to explore innovative design concepts with a technological focus, such as water treatment systems. By leveraging this knowledge gained through research, my goal is to propose a new approach that fosters an inclusive environment, where diverse groups coexist within a well-developed spatial design and the design decisions on the urban and building scale responds to the extreme climatic events.

Method and approach

The graduation process started with an in-studio literature review delving into the broader context of urbanization in the Global South and its effects, as well as the impacts of climate change to migration and climate adaptation. It also focused on the more localized perspective of vernacular housing and indigenous housing and settlement patterns, aiming to gain insights into the daily lives of the people residing there. As a group, we continued doing research on aspects such as geography, topography, climate, history, politics, economy, design, and technology. Collectively, we collected all the findings in an extensive research booklet, which we carried along during our field trip to Bangladesh.

The second phase after the collective research period was the field trip to Dhaka and Sylhet. This gave us the opportunity to observe the actual way of life in both the rural and urban areas. With the studio group, we explored various design sites, ranging from wetlands to peri-urban and urban areas. Our visits to multiple informal settlements have provided me with insight into the inadequate living conditions experienced by their residents. I consider the field trip as one of the most important research tools, as witnessing the living conditions, especially for the urban poorest dwellers, significantly influenced my design concepts.

Additionally, interviews conducted at the designated design site, Laladighir pond, with both the local councilor and neighborhood residents, provided invaluable insights into community aspirations for the future. These interactions highlighted the importance of urban ponds in facilitating social activities, which is a crucial element for fostering an inclusive and healthy environment. These interviews serve as valuable sources of qualitative data and provide a genuine representation of the aspirations of the local community.

After choosing a specific design location, physical exploration has been done by on-site investigations, which includes walking, documenting, and making visual records such as photographs, videos and sketches. This method offered a tangible understanding of the immediate environment of the chosen site. Furthermore, ethnographical observations are conducted to

understand the social and cultural practices of residents within the site.

Following the field trip, I refined my research question and focused on further literature reviews to enhance my understanding of the diverse social and cultural groups within Sylhet. Additionally, I explored the significance of urban ponds in the region, particularly in light of worsening climate change impacts. During this phase, I encountered case studies like the City of 1,000 Tanks water balance project led by Ooze Architects, which offered insights into innovative urban solutions for cities like Chennai.

Relationship between research and design

During the period from P2 until P5, there was a cyclical process of alternating between research and design. First, I had to come up with a masterplan and floorplan design for a housing unit in a hot and humid climate, in the global south. To inform my design approach and understand cultural values, I extensively studied the works of Indian architects such as Charles Correa, Balkrishna Doshi and Sameep Padora. I was fascinated by Charles Correa's visionary approach and his emphasis on designing architecture deeply rooted in local cultures. His focus was on reintroducing outdoor spaces and terraces as integral elements of his style. Statements such

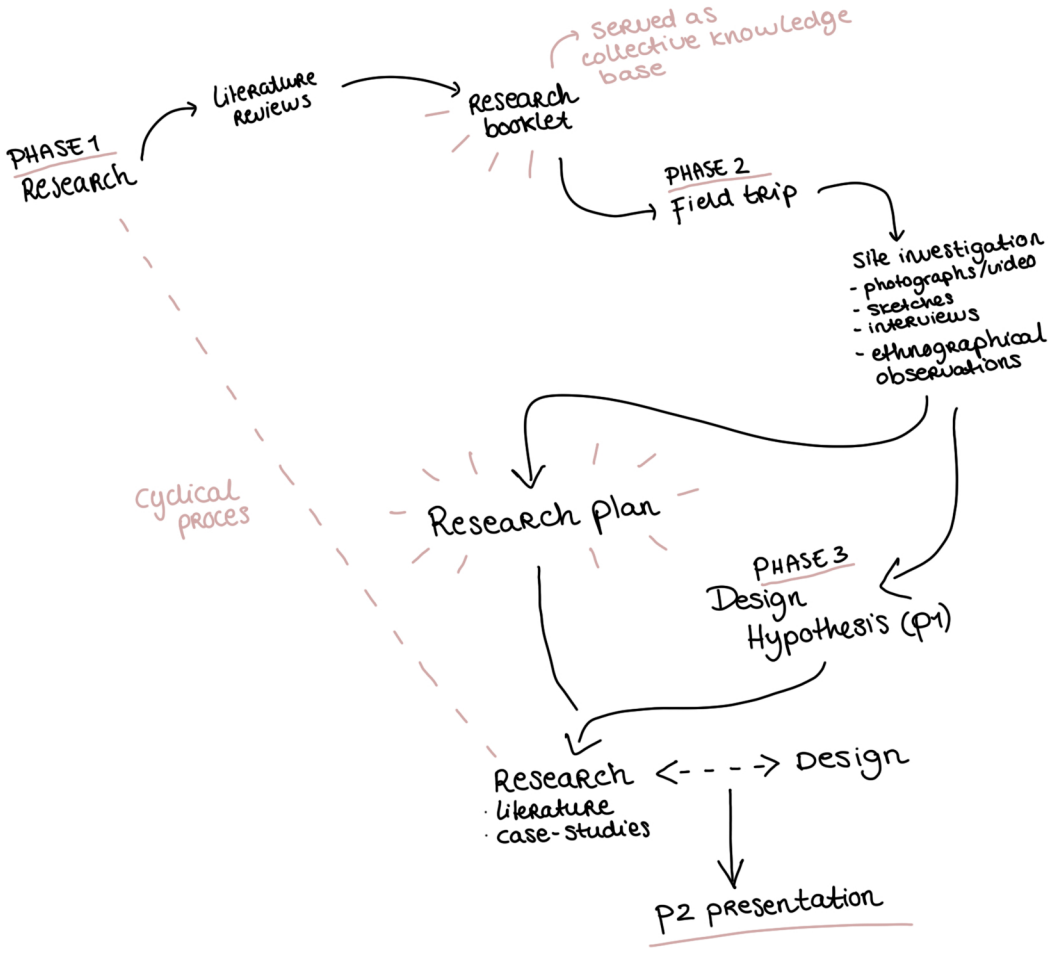

Fig. 3 :Workflow towards the P2

as: "People starve not because they don't know how to cook - but because they are denied the necessary ingredients." (Correa, 1999) inspired me to come up with a design which is more than just a shelter space, but actually a place where people want to live, do their social activities and meet each other in an inclusive and healthy environment. Studying the work of Charles Correa and other Indian architects equipped me with a valuable toolkit of knowledge to create enriching living environments, both for the lower income groups and the higher income groups. A key take-away is that "the room (the box) is only one element in a whole system of spaces which a family needs in order to live in a city" (Correa, 1983).

Additionally, literature review was conducted to comprehend the design considerations of various cultural groups. It was notable that both the Manipuri and Muslim communities have distinct concerns. Privacy between men and women is highly valued by the Muslim community, whereas the Manipuri community places great importance on communal cohesion, expressing a desire for a dedicated community temple area to celebrate festivals.

As I designed the masterplan following architectural research, my focus turned to utilizing the design plot to link the cricket field and the urban pond, which are two prominent public spaces in the area. Initially, I envisioned connecting them by introducing a smaller pond at the center of the urban plan. However, during feedback sessions with my building technology tutor, I recognized the potential for more extensive water management integration, given Bangladesh's susceptibility to heavy rainfall during the monsoon season. This prompted me to conduct a literature review on water treatment and water reuse systems, aiming to develop a project that addresses water overflow on both architectural and urban scales. By doing so, I have developed a new urban design concept, with water management as a central theme of my graduation project.

Since Bangladesh is experiencing rapid urban growth, the production of housing lags behind the demand, especially for the lower income groups (Smets et al, 2014). There is inadequate political attention to the financing of social housing by governments, which asks for special attention to the managerial strategy of this project since an informal settlement is part of it. I studied multiple managerial strategies on slum development, such as slum clearance, slum upgrading and slum redevelopment. By doing so, I gained insight into the different managerial strategies and their consequences. An important finding is that the enabling paradigm prompted the state government to decentralize and privatize slum redevelopment, which enabled slum dwellers, NGOs, and the for-profit private sector to engage in the management and implementation of these projects (Mukhija, 2003). This makes it financially viable for to cross-subsidize housing for slum dwellers, which makes it attractive for project developer as they might get greater profits out of the projects. It could be argued that applying the slum redevelopment strategy to the designated design plot would be advantageous, given its location near an urban pond which is a significant public space. This slum is adjacent to areas with high property values, creating a substantial financial incentive for redevelopment due to the considerable increase in land value that would result after.

Throughout the graduation process, there were moments when I felt uncertain about the strength of my design concepts and worried that I was lagging behind. However, my mentor and other tutors consistently supported me, encouraging me to persist and reminding me that design is an iterative journey. They emphasized that with a solid foundation of knowledge gained from literature research and case studies, a cohesive design would eventually emerge.

In the weeks leading up to the P5 presentation, my focus will be on addressing the human aspects of the project (Fig. 4). One of the challenges I face is effectively communicating the narrative of my graduation journey along with the technical details to an who have not seen my work before. It is crucial to craft a compelling narrative and embrace the role of a storyteller to humanize my project. To provide insight into the atmosphere of Bangladesh for those who have not experienced it firsthand, I plan to use tools such as models and drawings. Furthermore, given the complexity of my design concept, I recognize the importance of stepping back to create clear and informative diagrams that will guide my story through the presentation.

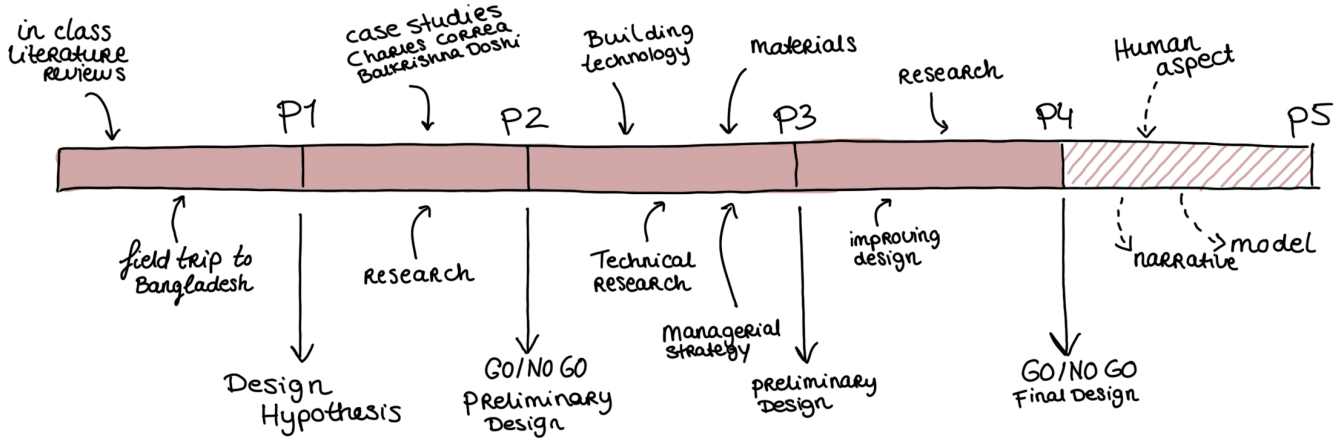

Fig. 4:Timeline of graduation process

Relationship to wider context

This project is not a one-time initiative. Several other locations in Sylhet share similar characteristics, such as proximity to urban ponds and informal settlements. To prevent the displacement of slum dwellers, my design project aims for inclusivity. This approach demonstrates the potential to integrate various typologies into a single housing project, using public space as a unifying element. By implementing cross-subsidization, the government can gain insights into the economic sustainability of the project and recognize the financial incentives for redevelopment due to the resulting increase in land value. Moreover, integrating a water treatment system by using constructed wetlands and the presence of an urban waterbody, will highlight the significance of urban ponds for water management and addressing future climate hazards due to climate change. In this way, this project could act as a pilot initiative for other areas situated near urban ponds, working to safeguard these vital water bodies from the threats posed by rapid urbanization.

Beyond its local importance, the research carries global relevance in the face of widespread urbanization and climate change challenges. The issues faced by Sylhet are emblematic of the struggles many urban areas encounter worldwide. Rapid urbanization and climate change are universal phenomena that demand innovative and sustainable solutions. The neglect of adequate public space, a common consequence of rapid urban expansion, is a shared concern among cities globally.

Rapid urbanization is a global phenomenon, and it poses one of the most significant challenges of the 21st century. According to the United Nations estimates, the proportion of the world's population residing in urban areas increased from about 20% in 1910 to 51.7 % in 2010,

with a projected further increase to 68.4% by 2050 (UNDESA, 2019). The majority of this urbanization is occurring in the Global South. Looking ahead, the global urban population is anticipated to grow by approximately 793 million people from 2015 to 2025, with an overwhelming 93.9% of this increase concentrated in the Global South (UNDESA, 2019). This rapid urbanization underscores the urgent need for comprehensive strategies to address the associated challenges and foster sustainable development (Smit, 2021). As urban areas grow and populations increase, the pressure on urban resources, public spaces, and community well-being intensifies.

Furthermore, the escalating concern of climate change is evident as the world witnesses more frequent extreme climatic events, including storms, flooding, and extreme temperatures. The global South, with its low-lying geography, high population density, limited resource access, lack of preparedness, and insufficient infrastructure for coping strategies, faces heightened vulnerability to climate change impacts (Roy, 2018).

Additionally, with the rising threat of floods attributed to climate change, the conservation of urban water bodies becomes imperative to withstand such floods. Therefore, the neglect of urban ponds due to rapid urbanization is a growing concern not only in Sylhet, but in many urban areas across the globe, such as Chennai in India. As urbanization intensifies, cities worldwide are confronted with the complexities of safeguarding vital public spaces, fostering community well-being, and fortifying resilience to climate impacts.

The challenges faced by Sylhet are not isolated; they mirror the difficulties cities worldwide encounter. Therefore, the findings and solutions derived from this research can serve as a blueprint for other urban areas confronting similar issues, fostering a global dialogue on sustainable urban development, climate resilience, and the importance of preserving communal spaces within cities.

Fig. 5: Global Trends of Urbanization
Source: Morphocode, n.d.

Ethical issues and potential application of the results

As a response to the increased segregation in a second-tier city like Sylhet, due to the rapid urbanization in Bangladesh, my graduation projects introduces an inclusive environment where different cultural and social groups should co-exist harmoniously. Every family should be provided with adequate housing, including the accessibility to public space where they can experience social activities. Since rapid urbanization is a global phenomenon and possible architectural and urban solutions are being discussed in academic debates nowadays, my graduation project is considered relevant.

However, some ethical concerns must be addressed in my design project. First is ensuring informed consent from the informal settlement residents, as they are being moved from their current inadequate houses, to a new inclusive neighborhood with adequate dwellings. It should be ensured that they fully understand the project's implications and freely consent their participation. Secondly, equity and fairness are paramount, necessitating fair access to housing and resources for all residents, irrespective of socio-economic status. Moreover, cultural sensitivity is crucial to respect the traditions and values of the diverse communities, ensuring the housing designs are inclusive and culturally appropriate. Finally, the adoption of the sustainable building material CSEB (Compressed Stabilized Earth Block) instead of clay-fired bricks can impact the working conditions during CSEB production, given its labor-intensive nature. It is imperative to ensure that these workers are not subjected to health risks, particularly since one of the reasons for opting for CSEB, besides the lower carbon footprint, was to alleviate the poor working conditions and health hazards associated with clay-fired brick production.

By navigating these ethical considerations, the project can strive to create a sustainable, inclusive, and socially responsible housing solution for both Sylhet's informal settlement residents and middle to higher income families.

Period between P4 and P5

Due to the need to reevaluate and revise the facade design, I spent a significant amount of time making new design decisions. In the first two weeks, I had several meetings with my mentor and the building technology tutor to develop a more cohesive facade design concept. However, since I was still in the design phase during the first half of this period, I found it challenging to allocate sufficient time for creating the final drawings and model.

One area where I have traditionally struggled is in creating atmospheric impressions. Despite the tight schedule, I managed to produce some work in this aspect. I am proud of the progress I made and grateful for the opportunity to explore and enhance this skill.

I thoroughly enjoyed the entire process of this studio. I particularly appreciated the fieldwork and literature research, which helped me build a comprehensive knowledge base about the lifestyle in a country like Bangladesh. I am delighted to have had the opportunity to graduate with a focus on this topic.