

# Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



## Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners ([Examencommissie-BK@tudelft.nl](mailto:Examencommissie-BK@tudelft.nl)), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Yang Zhang
Student number	

Studio		
Name / Theme	AR3AD105 Dwelling Graduation Studio: Global Housing	
Main mentor	N.J. Amorim Mota	Architecture and the Built Environment
Second mentor	M.J. Smit	Architectural Engineering and Technology
Argumentation of choice of the studio	This studio brings a broader perspective that is not limited to a single region, but considers a universal strategy that can address similar housing issues faced by different regions. Through the fieldwork, I was able to get a closer look at the current state of housing in Bangladesh and learn about the cultural and social status of this region.	

Graduation project	
Title of the graduation project	Work-Life Nexus: Exploring a new housing system that combines local housing and industries based on haor condition in Tahirpur, Sylhet.
Goal	
Location:	Sylhet, Bangladesh
The posed problem,	<p>Within Bangladesh, a developing country grappling with the obstacles of its socio-economic condition, internal migration is largely viewed as a calculated reaction to concerns about one's means of subsistence. Chowdhury et al. (2012) state that the desire for more job possibilities and a reduction in the weight of poverty is one of the primary reasons why individuals migrate from rural areas to city centers. This implies that workers from outlying regions are coming to cities in pursuit of employment. Within this intricate dynamic, the allure of urban area is the chance of gainful employment and higher earnings—a self-generated coping mechanism given the scarcity of job opportunities in peripheral areas.</p> <p>Housing, in the words of Bhan (2020), is a collection of places, services, and employment opportunities that must</p>

	<p>meet the criteria of being adequate, affordable and viable. Also, in many Asian countries, including Bangladesh, housing is not only used for residential purposes, but also as a workplace where important economic activities take place (Chen and Sinha, 2016). In other words, housing must consider the needs of its occupants in both their working and living conditions. This involves the distance between housing and work and the convenience of nearby transportation, as well as the material adequacy of being a suitable size, reasonable cost, and secure ownership. This idea helps to explain, at least in part, Bangladesh's internal migration patterns, where people from rural areas go to the metropolis in pursuit of jobs that will improve their income at the expense of their standard of living. During this process, housing becomes more accessible to work while losing some of its material adequacy.</p> <p>Based on information from the Labour Force Survey (LFS), BBS (2010) and ADB (2012) report that 75.9% of all jobs in cities are informally held by people. This makes up the majority of the employment sector. Street vending, rickshaw pulling, and domestic work are examples of informal jobs in urban Bangladesh. Some informal workers may also reside in urban slums where they must deal with subpar housing, poor sanitary conditions, and cramped living arrangements. According to Urbz (2017), private mass housing, which is close to work centers, small and medium-sized businesses, and affluent residential areas but has little space and subpar living conditions, is common in Bangladeshi cities. This suggests that rather than prioritizing accommodation quality, people from peripheral areas move to urban centers primarily in order to increase their income and find job opportunities. In other words, people have to choose between having more comfortable living spaces and being close to possible places of employment (Correa, 1989). This phenomenon draws attention to the difficulties and economic realities that peripheral area residents usually face. People living in rural areas of Bangladesh are often forced to migrate to cities in search of work. This results in them having to choose between overcrowded dwellings and higher incomes.</p>
<p>research questions and</p>	<p>How can industrial upgrading be promoted in the rural area of Sylhet and adaptable housing be constructed to improve the working and living conditions of the people and to alleviate the problem of over-migration to urban centers?</p>

<p>design assignment in which these result.</p>	<p>Sylhet has many seasonal wetlands in rural area that are affected by the dry and monsoon seasons, and the degree of inundation of the land in these areas varies with the seasons. Changes in land availability mean that people need to do different jobs depending on the season, including crop cultivation, fisheries and animal husbandry. This project aims to explore a new system that can combine local housing and industry to provide jobs for rural residents and improve people's living standards. At the same time, seasonal changes in industry and climate require local housing to be flexible, diverse and adaptable.</p> <p>The specific design assignments are as follows:</p> <p>The new system needs to integrate the existing industries and introduce new industries to the rural area to help upgrade local industries and improve economic efficiency.</p> <p>Based on the living patterns of the inhabitants of the rural area, the housing needs to be designed to fulfil both living and livelihood needs.</p> <p>Designing flexible and adaptable housing to cope with the seasonal industrial changes in the Sylhet rural area to provide comfortable living conditions.</p>
<p><b>Process</b></p>	
<p><b>Method description</b></p>	
<p>Literature Review</p> <p>The literature review was primarily used to establish a contextual basis for the overall study, providing basic information about local housing and industry in Sylhet and helping to understand the current state of local housing and the main industries. At this initial stage of the research, a review of the existing literature on the topic was required to understand the historical and theoretical framework of the integration of housing and local industries in Sylhet. The literature review helped to understand the existing knowledge, theories and findings related to the housing and industry in the wetland areas of Sylhet and helped to conduct the subsequent study.</p> <p>Case Studies</p> <p>On the one hand, the study will focus on case studies of similar regions that have successfully integrated housing with local industry, which are essential for analysing the feasibility of such a strategy of integrating housing and industry. At the same time, the research will pay attention to global cases of adaptable and adjustable housing, such as demountable and prefabricated building structures. By analysing these cases in detail, the aim is to summarise feasible approaches that are</p>	

appropriate to the realities of the Tahirpur region. Case studies will allow us to draw valuable lessons from experiences in other regions and adapt them to the specific needs of Tahirpur.

According to Saha, Sobhan and Alam (2013), the architecture in Sylhet has been developed using different building forms and techniques to fulfil the requirements of sustainability. A series of cases can be used to understand the historical forms of local buildings and provide historical information on sustainability for subsequent designs.

### Mapping

This research focuses on the land use of the haor area in Sylhet, the jobs performed by the local people and the changes in local industries. These aspects of data need to be visualised relying on mapping to help us better organise the information that collected. Due to the changing natural conditions, the local people work differently during the dry and monsoon seasons. By creating maps of the different seasons, we can understand the different conditions of local natural resources, housing and industries.

### Fieldwork and Ethnography

Fieldwork and ethnography can help us to get first-hand information, gain a close-up experience of the daily lives of the people living in the haor areas of Sylhet, and interact face-to-face with the locals. There are many haors in the Tahirpur area and we will choose several of them that are more distinctive to visit. This will be a great opportunity and we will be able to get a lot of detailed information about the haor from our interaction with the locals. In addition, after leaving Sylhet, we will still be able to keep reviewing the local area through videos, photos and sketches.

In conclusion, this study will use a variety of methods, from online data collection to offline site visits to information processing, to analyse the form of housing, people's living patterns and local industries in the haor area of Sylhet.

## Literature and general practical references

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## Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

My project is to build a new housing system in the rural area of Sylhet, Bangladesh to improve the living conditions of the local residents and to increase job opportunities. The housing system has been designed in terms of spatial planning, such as separating the service space from the living space. At the same time, the project

provides a new possibility for the development of rural area, and eases migration from rural area to city centers, which is closely linked to urbanization. In addition, the project explores aspects such as building materials and construction techniques to help adapt this new housing system to the natural conditions of seasonal wetlands and to meet the needs of sustainability. The project is therefore relevant to architecture, urbanism and building sciences.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

My research and project provide a new solution for combining housing and industry in wetland areas affected by seasonal flooding, turning the disadvantage of a rural area being far from urban centers into an advantage of having abundant land, natural and industrial resources. Seasonal industries are integrated, new industries are added to re-build the local industrial structure, and the arrival of tourists activates local business development. Along with the improvement of the industrial structure, people's income and economic conditions have improved, as well as the living environment and the quality of housing, and the space for public activities and infrastructure have been gradually increased and improved. People in rural areas are no longer displaced by floods and have access to jobs very close to their homes and no longer need to migrate from the countryside to the cities to endure cramped housing and poor sanitation. This proposal has had a positive impact on both urban and rural dwellers by reducing the high population density in urban centers, while at the same time rationalizing the use of natural resources in rural areas and developing them into better quality living and working areas.