

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), 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	Genora Jankee
Student number	6094627

Studio		
Name / Theme	Global Housing: Architecture of Transition in the Bangladesh Delta	
Main mentor	Rohan Varma	Department of Architecture
Second mentor	Rocio Conesa	Department of Architecture Engineering and Technology
Argumentation of choice of the studio	As an international student, after completing my bachelor's and the first half of my masters in the Netherlands, with studios mainly focusing on architecture in the Netherlands or in Europe, I thought it was important to have experience working with different landscapes and cultures. MSc3 Global Housing focuses on humanitarian architecture, specifically cheap low-tech building techniques which are also other interest of mine.	

Graduation project	
Title of the graduation project	Housing Solutions for Micro-Migratory Communities in Flood Prone areas of Bangladesh
Goal	
Location:	Shonatola, Sylhet, Bangladesh
The posed problem:	Sylhet is experiencing severe flooding due to climate change, causing the displacement of thousands of people annually. The reoccurring migration from residential plots to temporary squatting locations with poor living conditions causes social, economic and environmental challenges, including loss of economic activity and a source of income. Despite the frequency and intensity of floods, many people prefer to stay near their homestead this is because of familiarity and emotional connection to the

	<p>land. For example, 88 per cent of agricultural workers in Bangladesh were found to remain within two miles of their previous residence following a flood. This is because of cultural ties, economic dependence on agriculture, and a lack of viable alternatives (Martin, et al., 2013). This is also the case with Shonatola, a small village at the urban to rural transition of about 250 houses on the outskirts of Sylhet. Migration is often short-term and involves short distances. The constant micro-migration of Bangladeshis is seen as a form of resilience against natural disasters.</p> <p>Indigenous communities have dealt with environmental changes for years. Their living traditional ecological knowledge and practices have proven to be resilient towards different environmental challenges. Could the architectural techniques of indigenous people and migratory patterns of displaced people in Bangladesh be combined to help support this growing phenomenon of disaster-related migration in the flood prone areas of Bangladesh, specifically the village of Shonatola?</p>
Research questions:	<p>This thesis seeks to investigate how the strategies and living conditions and patterns of Indigenous communities can be useful in developing innovative, contextually and culturally sensitive housing solutions for the areas affected by flooding in the Sylhet.</p> <p>The research question reads: "How can indigenous and traditional knowledge systems inform resilient housing solutions that support micro-migration as a climate adaptation strategy in Bangladesh?"</p> <p>The decision was made to include indigenous people from regions outside of Sylhet because there may be examples more parallel to the situation in other parts of the world. However, the designs in other scenarios will most likely be very specific to that culture and context. Vernacular and indigenous architecture, historically have an inherently synergetic relationship with nature (Shahidul Islam, 2016). <u>How can other indigenous knowledge systems be translated seamlessly to the context of Sylhet?</u></p> <p>Approximately 75 per cent of Bangladeshis live in loam or bamboo houses, because these materials are highly</p>

	<p>accessible (Heringer, 2020). However, the people of Sylhet might be reluctant to indigenous adaptations as materials like bamboo and mud are seen as primitive and no longer desirable. The influence of European enlightenment structured a methodology of technology that deems indigenous materials, knowledges and techniques as primitive (Watson, 2023). More recently, the introduction of rapid industrialization and the increase in popularity of brick and concrete has aided in this perspective. A study done in India shows that it is neither the construction technique nor the performance that makes earth houses undesirable but rather their image (Kulshreshtha, Vardon, Mota, van Loosdrecht, & Jonkers, 2019). Thus, one sub question is: <u>How can the image of indigenous building materials and techniques be improved in Sylhet?</u></p> <p>A housing project is never only about houses. Housing is always supported with economic incentives, social spaces and civic spaces. Agriculture is a large industry in Bangladesh and Sylhet. However, the flooding is causing severe damage to agricultural lands, thus not only displacing people but leaving them jobless. Besides the environmental problems, approximately half a million people move to cities every year from coastal and rural areas (Martin, et al., 2013). One of the major drivers for this group of migrants is the search for jobs to increase their income. The question could be asked: <u>How can a housing design built in a flood prone area invite employment and economic prosperity?</u></p>
Design assignment:	<p>This thesis suggests that resilient housing solutions for flood-displaced communities in Sylhet can be developed by integrating the concept of resilient migration and traditional knowledge of Indigenous communities facing similar challenges.</p> <p>Context-specific housing to accommodate severe flooding and reduce the negative connotations associated with climate induced migration can be designed by studying the adaptive responses of indigenous communities, specifically their spatial organisation, sustainable practices, building techniques and traditional engineering for coping with extreme weather conditions.</p> <p>As previously mentioned, Bangladeshi people are using migration as a form of resilience against flooding and this quality is to be explored further in this thesis. Arifur</p>

	<p>Rahman (Rahman, 2017) describes a future Bangladesh where people living near or in wetland ecosystems look forward to the flood seasons.</p> <p>Rather than consolidated urban areas and peri-urban areas this thesis will focus on villages located at the rural-urban transition. The future design could have qualities like dynamic architecture capable of adapting with flood patterns, qualities that allow easy migration between site locations or floatable modular systems. Regulatory frameworks that allow this to happen will be studied. This approach will explore flexible housing materials, and modular layouts that allow residents to respond to fluctuating environmental conditions, thus increasing long-term resilience for displaced populations.</p>
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Process

Method description

Case Studies both in Bangladesh and around the world will be chosen to analyse the techniques and knowledge used by indigenous people in similar circumstances. The environmental conditions and terrains in the lowlands of Sylhet differ to that of the indigenous people in the country. For this reason, case studies can be taken from other regions with similar geographical conditions and with similar challenges. Across the globe in Peru, the Uros people of Lake Titicaca have dealt with environmental issues in their floating community. Other case studies in wetlands and near water ways will be used as an example on how to successfully live near water systems. The case study can produce a detailed report comparing housing projects and indigenous practices, that can highlight successful strategies and design principles. It will help to inform the question on the translation of outside indigenous knowledge systems to Bangladesh and the possibility of a flexible land tenure system

Before the site visit to Bangladesh, questions and gaps in the prior research will be identified in order to find key areas or questions to be answered during the trip. In Bangladesh semi-structured interviews will be conducted. This can produce a design brief that explains the preferences, aspirations and concerns expressed by the interviewees. The questions on the image of traditional materials and ways to increase economic prosperity can be informed here.

Ethnographic fieldwork creating observational sketches, photographs capturing daily life and building techniques of the target group will be documented to help answer the research questions. Together these methods should create a design framework consisting of guidelines to help inform the final design.

Literature and general practical references

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- Nishimura, L. (2022). Adaptation obligations and adaptive mobility. *Forced Migration Review: Climate crisis and displacement: from commitment to action*(69).
- Rahman, A. (2017). *Flood Resilient Settlement by Modular Prototype for Char Areas of North-West Bangladesh*. Shahjalal University of Science and Technology, Department of Architecture, School of Applied Sciences and Technology, Sylhet, Bangladesh.
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- Shahidul Islam, M. R. (2016). A Study on the Settlement Morphology of Indigenous Khasi Community in Sylhet, Bangladesh. *Pratnatattva*, 22.
- Watson, J. (2023). *Lo-TEK Design by Radical Indigenism*. Cologne: Taschen.

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)?

-Architecture

After ethnographic explorations into the living spaces of the people of Shonatola and the indigenous building practices of indigenous people an architectural product will be the output. A housing design that produces innovative responses to a socio-environmental challenge. It will demonstrate how design can respond to cultural and environmental factors.

-MSc AUBS

The project addresses a community problem and has to be designed on a neighbourhood scale; thus, it combines architectural design with urban planning by creating a master plan that supports micro-migration as a form of resilience. The housing itself will also be worked out resulting in details and technical drawings referencing building sciences.

-Global Housing

Addressing the issue of poor living conditions in an environmentally vulnerable neighbourhood embodies the program's mission to address a global housing crisis. By focusing on micro-migration, the strategy and design could easily be translated to similar flood-prone areas globally.

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

The people who are usually displaced as a result of flooding are usually poorer and have no other alternative than to resettle in similar or worse conditions. These people usually work in the agriculture industry and play a major role in the economic stability of Bangladesh. However, because of reoccurring destruction to their homes and agricultural lands the economy also falls subsequently (Rahman, 2017). This is then not a problem only related to the flood prone areas in the country but to the financial stability and development of Bangladesh on a whole. Bangladesh signed to the Ramsar Convention on Wetlands in 1992. The convention is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. Goal three of the four goals of Ramsar's 4th Strategic Plan (2016-2024) is the wise use of all wetlands, beyond Ramsar Sites. Under the wetlands decree "respecting and using traditional knowledge and practices" is listed as a way to achieve this. This further emphasises the need to look towards indigenous techniques to help develop culturally appropriate and flexible housing designs addressing this major problem in Bangladesh.