

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	Lida Chrysi Ganotaki	
Student number	6056679	

Studio		
Name / Theme	AR3AD105 Dwelling Graduation Studio: Global Housing /Architecture of Transition in the Bangladesh Delta	
Main mentor	Rohan Varma	Architecture
Second mentor	Rocio Conesa	Building Technology
Argumentation of choice of the studio	I chose the Global Housing Graduation Studio because it aligns with my interest in addressing the intersection of climate resilience, gender equity, and sustainable architecture. The studio's focus on the Architecture of Transition in the Bangladesh Delta offers a unique opportunity to explore housing solutions in one of the most climate-vulnerable regions of the world. By engaging with local communities, incorporating participatory design principles, and responding to pressing social and environmental challenges, the studio provides a meaningful framework to develop impactful, context-sensitive architectural solutions. This approach resonates with my aspiration to design equitable and resilient spaces that empower marginalized groups, particularly women, while fostering broader community well-being.	

Graduation project	
Title of the graduation project	Housing for the women of Shonatola village

Goal	
Location:	Shonatola Village in Sylhet, Bangladesh
The posed problem,	Climate change is a pressing reality in Bangladesh, where rising floods and erratic rainfall disproportionately impact rural communities. Women in these areas face heightened vulnerabilities due to entrenched gender inequalities that limit their mobility, decision-making power, and access to resources. Despite

increasing attention to the intersection of gender and climate change, a significant gap remains in understanding how gender-responsive housing can empower women in climate-vulnerable regions. While research highlights women's vulnerabilities and adaptation strategies, such as community savings groups and diversified agricultural practices (Huq et al., 2023; Akhter et al., 2010), few studies explore how housing infrastructure can integrate and enhance these efforts.

Shonatola, a village near Sylhet City, exemplifies these challenges. Frequent flooding displaces families, damages homes, and destroys crops and livestock, often their primary sources of income. Housing in the village is typically self-built with inadequate materials, making homes highly vulnerable to damage and collapse. Women, who spend most of their time within these spaces, face additional challenges due to poor ventilation, lighting, and a lack of communal areas, exacerbating isolation and limiting opportunities for income generation and social interaction.

Water management and sanitation issues further burden women, who bear primary responsibility for these tasks. During floods, contaminated water sources force them to travel longer distances for clean water, often under unsafe conditions. Most homes also lack proper sanitation, compromising hygiene and privacy. While women demonstrate resilience through various adaptation strategies, the absence of housing infrastructure designed to support these efforts hampers their effectiveness. This project aims to explore how housing design, incorporating water management systems, can create supportive environments that empower women, enhance livelihoods, and build community resilience. By integrating

	architecture, gender, and ecofeminist perspectives, it seeks to develop inclusive, sustainable solutions for climate-vulnerable areas like Shonatola.
research questions and	Research Question: How can housing design, with the integration of water management systems, create safe and supportive environments that facilitate women's income generation and enhance their livelihoods in the face of climate change?' Sub - questions: 1. <u>Holistic Understanding of Women's Embodiment and Environment</u> What are Bangladeshi women's specific embodied needs and how can they be addressed through housing design? 2. <u>Incorporating Women's Knowledge</u> How can women's extensive knowledge of local resources, water management and agricultural practices be included in the design process? 3. <u>Encouraging Women's Involvement in the Design Process</u> How can the concepts of participation, flexibility, enablement, indeterminacy and contextuality be incorporated into the design process? 4. <u>Facilitating Women's Income Generation</u> How can housing design create opportunities for women to generate income, while supporting and enhancing the initiatives that already exist?
design assignment in which these result.	The design assignment is to create housing for the community of Shonatola Village that specifically aims to empower women by integrating water management systems, facilitating their income generation, and enhancing their safety and well-being. The housing prioritizes adaptability, cultural relevance, and participatory approaches to empower the entire community while addressing gender-specific challenges.

Process

Method description

Key methods of the project include site visits, literature reviews, interviews, and the analysis of successful housing and resource management initiatives. The process is guided by design principles such as participation, flexibility, contextuality, incremental development, and self-building, aiming to achieve solutions that are inclusive, adaptable, and locally relevant.

Site visits to Sylhet, particularly Shonatola village, were a core part of the research. These visits provided direct insights into the daily lives of women, their challenges, and their resource management practices. Discussions with local women during the visits highlighted their expertise in water management, resource use, and agriculture, revealing their critical role in sustaining local ecosystems and livelihoods. These visits were documented through photographs, audio, and video recordings, creating a detailed dataset to guide design decisions.

During the Sylhet trip, additional interviews were conducted to complement community perspectives. A meeting with the Sylhet Women's Chamber of Commerce involved discussions with female entrepreneurs to explore ways of integrating income-generating activities into housing design. Moreover, an interview with Mr. Dipak Dev, director at the Bangladesh Water Development Board provided technical insights into sustainable water management, while discussions with experts at Sylhet Agricultural University offered perspectives on resource-efficient agricultural practices.

Finally, case study analysis played a key role in evaluating existing housing projects and community-driven initiatives that successfully incorporated participatory design and resource management, providing practical insights into effective strategies.

Literature and general practical references

Literature:

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3. Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., & Angel, S. (1977). *A pattern language: Towns, buildings, construction*. Oxford University Press.
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7. Chowdhury, T. (1991). *Segregation of women in Islamic cultures and its reflection in housing: A study of spaces for women in a Bangladesh village*. In E. Kalabamu, T. Afshar, & R. M. Chavis (Eds.), *Shelter, women, and development* (pp. 338-350). Sage Publications.
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9. Fathy, H. (1973). *Architecture for the poor: An experiment in rural Egypt*. University of Chicago Press.
10. Hamdi, N. (1995). *Housing without houses: Participation, flexibility, enablement*. Intermediate Technology Publications. <https://doi.org/10.3362/9781780442341>
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13. Kuroishi, I. (2016). *Urban survey and planning in twentieth-century Japan: Wajiro Kon's "Modernology" and its descendants*. *Journal of Urban History*, 42(3), 557-581. <https://doi.org/10.1177/0096144216635151>
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15. Neimanis, A. (2017). *Bodies of water: Posthuman feminist phenomenology*. Bloomsbury Academic. <https://doi.org/10.5040/9781474275408>
16. Rapoport, A. (1969). *House form and culture*. Prentice Hall.

17. UN Women & International Union for Conservation of Nature. (2022). *State of gender equality and climate change in Bangladesh*. UN Women. Retrieved from UN Women.
18. UNICEF. (2023, October 18). *Women and girls bear brunt of water and sanitation crisis – new UNICEF-WHO report*. UNICEF Bangladesh.
<https://www.unicef.org/bangladesh/en/press-releases/women-and-girls-bear-brunt-water-and-sanitation-crisis-new-unicef-who-report>
19. Warren, K. J. (Ed.). (1997). *Ecofeminism: Women, culture, nature*. Indiana University Press

Precedents:

1. Yasmeen Lari, Anguri Bagh Social Housing
2. B.V.Doshi, Aranya Housing
3. Kisho Kurokawa, Agricultural City
4. Kenzo Tange, Tokyo Bay
5. James Wines, Highrise of homes

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 graduation project, "Housing for the Women of Shonatola Village," aligns with the themes of my MSc program (MSc Architecture, Urbanism, and Building Sciences), the Global Housing Graduation Studio's focus, and the Architecture of Transition in the Bangladesh Delta studio topic. Each level of this connection informs the research and design process, aiming to achieve relevance and coherence across academic and professional contexts.

The MSc program emphasizes interdisciplinary approaches to addressing pressing societal challenges, which my project aims to reflect by integrating architecture, gender equity, and climate resilience. The focus on Sylhet, a region grappling with extreme climate vulnerabilities and rapid urbanization, underscores the urgency of such an approach. By proposing gender-sensitive housing solutions that incorporate water management systems and income-generating opportunities, the project directly contributes to the program's broader aim of fostering innovative, sustainable, and equitable urban solutions.

The studio topic, "Architecture of Transition in the Bangladesh Delta," explores adaptive responses to environmental, social, and urban challenges in rapidly transitioning contexts. My research responds to this theme by investigating how participatory design principles, flexibility, and contextuality can shape housing solutions that empower women and enhance community resilience. The Sylhet region, characterized by its rural-urban transitions and frequent climate-induced displacements, serves as an ideal case study to explore these dynamics in depth. Finally, the Global Housing Graduation Studio's emphasis on contextual analysis and innovative housing design is mirrored in my methodology, which includes site visits, stakeholder interviews, and case study analysis. The project's grounding in ecofeminist theory, participatory design principles (Hamdi, Fathy, Alexander), and

vernacular architecture aligns with the studio's focus on housing solutions tailored to local material cultures and socio-economic conditions.

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

The integration of water management systems into housing design is particularly relevant in rural Bangladesh, where access to clean and reliable water is a constant challenge. Women's roles in managing household water resources make them important stakeholders in any intervention aiming to improve water security. Therefore, through the incorporation of water management systems into housing designs, such as rainwater harvesting, these interventions can significantly reduce women's time and effort spent on water collection, freeing up time for other productive or income-generating activities.

Additionally, the emphasis placed by the research on ecofeminist principles highlights the need for a transformative approach to housing design, which transcends technical solutions and addresses underlying gender inequalities. By creating spaces that are safe, supportive, and conducive to women's participation in the workforce, housing design can become a tool for social change, challenging traditional norms and empowering women to take on more active roles in their communities.

This project aims to bridge the gap between gender, climate change, and housing by proposing an integrated approach that uses water management systems to create environments that support women's livelihoods and enhance their resilience to climate impacts. The findings will have significant implications for policy and practice, providing a framework for developing suitable and gender-inclusive housing solutions in Bangladesh and beyond.