

Designing Resilience:

Gender-Responsive Housing for Flood Resilience in the Shonatola village

AR3AD105
MSc3 MSc4
Global Housing Graduation Studio
Architecture of Transition in the Bangladesh Delta

Tutors:

Rohan Varma, Rocío Conesa Sánchez, Frederique van Andel

REFLECTION

Connecting the Project, the Architecture Track, and the MSc Programme

This project is rooted in the realities of Shonatola village in Sylhet, a community where women face the intersecting pressures of climate vulnerability, economic marginalization, and spatial inequality. Positioned within the Architecture track of the MSc Architecture, Urbanism and Building Sciences (AUBS), it explores how architecture can go beyond physical shelter to become a social, economic, and ecological enabler.

By framing housing as a platform for women's economic empowerment, the project directly contributes to the ambitions of the Global Housing Studio, which challenges students to address global transitions through inclusive spatial strategies. It responds to this challenge by proposing flood-resilient housing, designed with locally available materials (brick, bamboo, concrete), and supported by a cross-subsidization model that brings together low-income households and lower-to-middle-income urban professionals.

The project does not stop at technical adaptation but rethinks housing as a flexible, expandable infrastructure that supports women's livelihoods, resource management, and community leadership. It positions architecture as a mediator of social and economic resilience, making it relevant to the broader goals of the MSc AUBS.

Research and Design: A Two-Way Exchange

Research provided the foundation for the project's spatial, social, and material strategies. Grounded in ecofeminist theory and vernacular architectural practices, the research highlighted how women's embodied relationships with water, land, and home could inform a new kind of climate-resilient community.

This theoretical lens translated into a platform-based housing model, elevating homes above flood levels while retaining productive ground-level spaces for homegardens, informal markets, and small-scale enterprises. The material strategy—combining brick for durability, bamboo for flexibility, and concrete for structural safety—responds to local construction knowledge and climate performance.

Designing the platform and community layout revealed the need for economic mechanisms that could sustain infrastructure investment over time. This led to the development of a cross-subsidization model, inviting urban newcomers to invest in shared infrastructure, creating a socially mixed, economically resilient neighborhood.

At the same time, the design process challenged and refined the research. Questions about long-term governance, social cohesion, and incremental growth emerged, leading to further exploration of flexibility, and community agency as critical project components.

Value of the Working Process

This project was shaped by a research-by-design methodology, characterized by a continuous and iterative dialogue between research, spatial exploration, and real-world context. The process unfolded in cycles of testing, feedback, and reflection, allowing the design to evolve in response to both conceptual frameworks and site-specific realities.

Key methods included:

- Site analysis and local context investigation, which informed the spatial logic of the raised platform, the relationship between homes and productive spaces, and the integration of water management strategies.
- Material research and detailing, focusing on balancing durability, affordability, and local construction knowledge using brick, bamboo, and concrete.
- Case study analysis of local projects in Bangladesh and similar regions, which helped me understand the spatial organization, building techniques, material systems, and social practices relevant to climate-vulnerable and low-income communities.
- Mentor feedback and critical reviews, which pushed me to continuously refine my approach and ensure that the project remained grounded, inclusive, and spatially coherent.

By moving between theory, context, and design, I was able to develop a proposal that aims to be spatially adaptive, technically feasible, and socially meaningful, offering a framework for incremental, resilient, and women-centered community development

Academic and Societal Value, Scope, and Ethical Positioning

Academically, this project contributes to the fields of climate-adaptive architecture in flood-prone regions, gender-responsive spatial design, and community-based governance and economic resilience.

Societally, the project aims to:

- Protect women's livelihoods through flood-resilient housing.
- Enable incremental development, allowing families to adapt and expand their homes as their needs and capacities grow.
- Support income generation by integrating spaces for agriculture, small enterprises, and community markets.
- Create socially mixed communities through cross-subsidization, fostering shared responsibility for infrastructure and maintenance.

Ethically, the project acknowledges that empowerment cannot be designed in isolation. While the proposal offers spatial and economic frameworks, it recognizes that true transformation depends on long-term engagement, participatory governance, and policy support. Rather than presenting a final solution, the project positions itself as a catalyst for future co-creation, inviting women, communities, and institutional partners to shape, test, and own the outcomes.

Transferability

Though rooted in the context of Shonatola, Sylhet, the project's principles and methods are broadly transferable. Its combination of platform-based flood protection, material adaptability, incremental development, and socially mixed community design offers a scalable model for other rural-urban transition zones, particularly in flood-prone or climate-affected regions.

It is the aim of this project for this proposed model to potentially be adapted to

various cultural, environmental, and economic contexts, making it a versatile reference for future resilient housing policies and practices.

Addressing Limitations as Opportunities for Future Impact

While the project offers a proposal, it does so with clear eyes on the challenges ahead. Key limitations include:

- The lack of direct community co-design during the academic process.
- The need for real-world testing of the cross-subsidization model.
- The uncertainty of long-term governance structures.
- The technical challenges of maintaining elevated platforms over time.

However, these limitations should not be seen as weaknesses, but as strategic openings for future action, as, in a real-world context, they could define the next steps, inviting local partnerships, pilot projects, and ongoing research to test, refine, and implement the proposal.

The project aims to balance vision with realism, providing a clear, actionable framework that is ready to evolve through community-led development, multi-stakeholder collaboration, and policy integration. It positions itself as a starting point, not an endpoint—a living strategy that can adapt and grow alongside the communities it seeks to serve.

Reflections of my Learning Process

This project has been an important part of my learning experience as a student, helping me understand what it means to design for people and places very different from my own background and experiences. Working in the context of rural Bangladesh pushed me to rethink my role as a designer and to listen more carefully to the everyday realities of the people I was designing for—especially women whose lives are shaped by climate risks, social inequalities, and economic limitations.

One of the most valuable parts of the process was the study trip to Bangladesh. Seeing the place, meeting people, and experiencing the environment firsthand gave me insights that would have been impossible to get from drawings, maps, or reports alone. However, I also became aware of the limitations of short-term visits.

Nevertheless, the trip was eye-opening and helped me develop a stronger connection to the site, making the design process feel much more real and personal. Throughout the project, I learned how to connect research with design in ways that felt both relevant to the context and realistic to implement. I became more aware of how housing is connected to livelihoods, to social structures, and to local materials and building practices.

Looking at case studies of local projects in Bangladesh and similar contexts, and receiving regular feedback from my mentors, helped me challenge my own ideas, improve my design decisions, and stay grounded in the realities of the site. I also learned how to work with uncertainty—not having all the answers, but still being able to move forward by testing ideas, reflecting on them, and adapting when needed.

Most of all, this project helped me recognize that good design is not something that can be delivered from a distance, but something that must grow from understanding people's lived experiences, their needs, and their aspirations—while also accepting that our knowledge will always be partial, and that there is always more to learn.